The magazine for AUSTRALIAN Amateurs

February 2003
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Amateur Radio

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A traveller's antenna for VHF and UHF

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Six Metre Half Wave Vertical Using a CB Whip

An Experimental *Patch Antenna* for 70 cm

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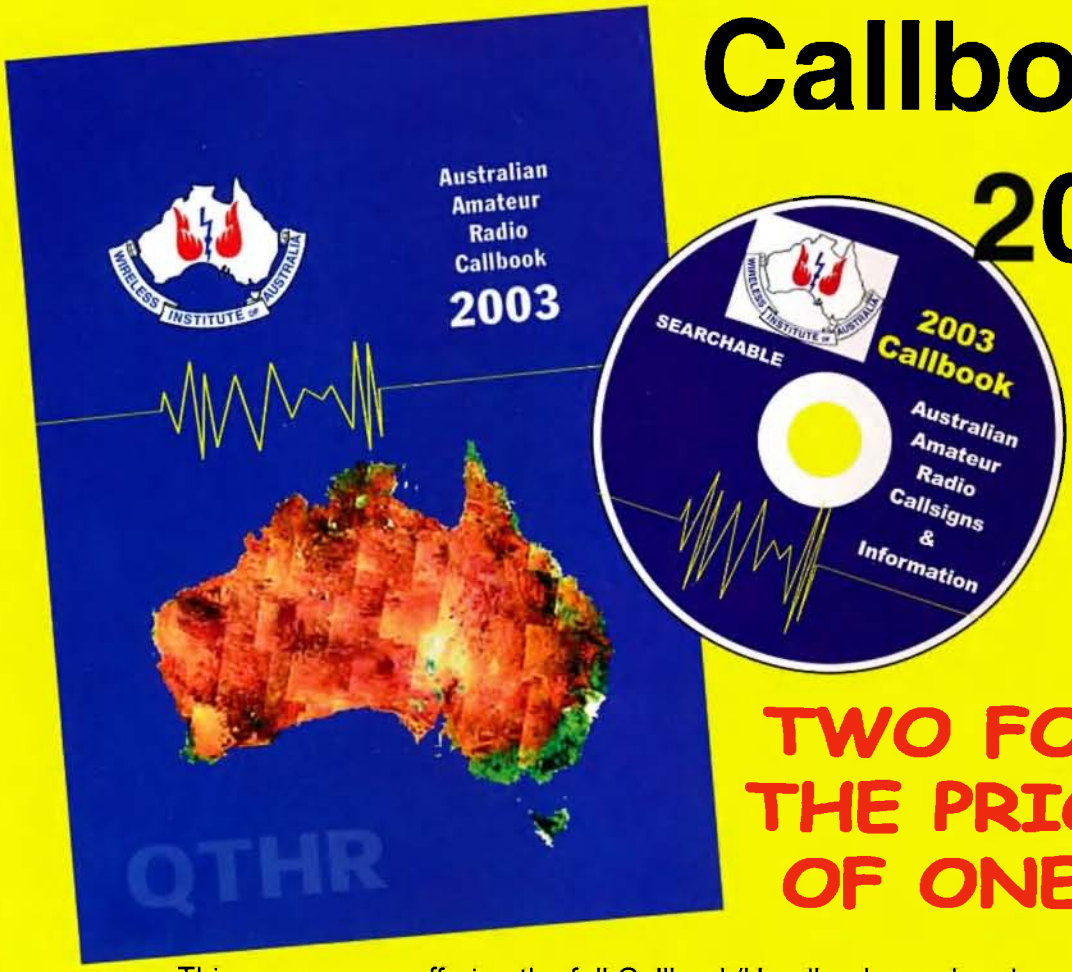
Callbook 2003



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Amateur Radio

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Our Cover this month

This month we are featuring antennae. The montage shows some of the antennae described in the articles

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Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

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Photostat copies

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Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editorial Comment

Colwyn Low VK5UE

2003's smoky beginning

New Years greeting to all members and readers

2003 has started with considerable hurt and anguish. WICEN will have had a part to play in supporting emergency services in some states. I have found my self thinking about how prepared I really am to support a WICEN call out in VK5. It is the back up things that at times get forgotten like the second and third battery needed to keep your station on the air for 3 or 4 or 5 hours without the chance to recharge them. My solar cell panel is great in the sun but will it do anything under a thick smoke cloud? I also have a feeling I do not want to be too close to a runaway wind generator in a gale.

I did a little practice for this in the Summer VHF/UHF Field Day and made some 20 contacts in three hours. The site was near one of the electricity grid switching stations and at times the noise levels on 146, 436 and 1298 MHz overrode all signals. However I persevered, maybe I should have moved, but I am a bit stubborn at times.

The WIA Federal Convention and WIA AGM are being held in Adelaide the first weekend in April this year. Among the topics for discussion is the possibility of a new Australian Licence similar to the UK Foundation Licence. There are many views on this and several views are published in this issue. So I feel it is necessary to point out how the WIA deals with its business. (1) Each member of the WIA is first a member of a state division. The state division is the first place a member should go with ideas, views, opinions etc on how the WIA operates or should change. (2) The state divisions are the members of the Federal WIA and they each appoint Federal Councilors and assistant or proxy councilors that attend to the WIA Federal business and take the state divisional views and instructions to the Federal meetings.

It is therefore necessary to collect members views before the convention / AGM so that each Federal Councilor has knowledge of the views of those they represent. This is why I feel it is necessary to publish different views and opinions in AR on topics, which concern members. AR is a WIA member's journal for sharing views and opinions, for keeping in touch and for providing some technical education and advice. The Editor is the person who selects the material for publication (So now you know a little of what guides my decisions). This is one of the reasons for airing views on the UK Foundation Licence.

There are no President's notes this month as the President has been caught up in the aftermath of the Canberra bush fires.

This month we include the annual index. I hope the topics choosen for each section are sufficient for readers needs.

Finally I realise I have featured VHF and UHF aerials and when I got to the Grid Square league I had a thought that there were few if any VK5s. Sure enough I did not find any. I then wondered if this was a geographical thing but then realised that Adelaide is not all of South Australia. maybe we in VK5 have just not got round to making application.

I had a letter today from an amateur with young children who are taught by the School of the Air. He informed me that School of the Air will in future be School of the Internet. This is another case of moving with the most appropriate technology available. Once every isolated family has a satellite phone and a computer it is really quite easy. In the nearer country schools in SA "Distance education" has been used for over a decade now.

73 Colwyn VK5UE

Revised regulations for the Amateur Service

By Jim Linton VK3PC

The Australian Communications Authority (ACA) has revised and updated the Licence Condition Determinations (LCDs), or regulations, for amateur stations.

In a welcome move, the restrictions on the six metre band for those in Tasmania have been eased. In fact, two areas - Tasmania and the Commonwealth Territory at Jervis Bay - are removed from the TV Channel 0 restriction zone.

This means that radio amateurs in those areas now have 400 W, all mode 50-54 MHz privileges as exist in VK5/6/8/9/0. The rest of Australia (VK1/2/3/4) may have to wait until after the closure of analogue television in 2008, before it has access to the full six metre band.

The ACA has included a new clause 39A in the LCDs, which basically means that the interference class licensed Low Interference Potential Devices, or LIPDs, cause to amateur repeaters is deemed to be non-existent.

This is a way of exempting 434 MHz LIPDs from the "no interference" condition of the LIPD class licence. Since this clause will be part of the licence conditions of amateur repeaters, it amounts to a legal waiver, which requires repeater licensees to accept LIPD interference and absolves ACA of any obligation to act on interference complaints.

It is important to note that clause 39A only applies to LIPDs on 434 MHz. The Amateur Service still has full interference protection from LIPDs operating in any other bands.

In a fully expected change, no operation below 430MHz is permitted within a 250 km radius of Perth. In anticipation of that change, the WIA amateur band plan was amended for all of Western Australia some months ago.

Similar arrangements for below 430MHz will apply ultimately throughout VK2 and VK3. The scope of these arrangements will not be known until emergency services in VK2 brief the WIA on their intentions for use of the band or parts of the band.

In another clause of the LCDs, the so-called "Novice filter" restriction appears that prohibits crossband or linked repeaters from retransmitting signals from their users on a frequency that the user is not permitted to use - for example a Novice using a 2-metre repeater that has a link to 6-metres.

This basically makes repeater licensees legally responsible for the actions of the people who use their repeaters. Hence the need for access control such as CTCSS, forcing all users to generate tone to use cross-band facilities in accordance with their licence conditions.

And how does this "Novice filter" restriction apply to Amateur Internet Linked Systems such as IRLP? The WIA is still seeking clarifications from the ACA on that matter.

The full LCDs can be read at http://www.sma.gov.au/legal/determin/lcd/amateur.htm

ar

UK Foundation Licence one year on

David A. Pilley VK2AYD

In February 2002 I wrote about the new revolutionary Foundation Licence introduced in the U.K. We have watched the progress carefully and recently, whilst in the U.K., I had the opportunity to meet with President Bob Whelan, G3PJT, and General Manager Peter Kirby G0TWW, of the Radio Society of Great Britain and discuss the development over the past year and what changes if any they are considering this year.

History

Over the years various types of licences, such as Novice, Tech VHF, etc., have been introduced in the U.K. in the hope it would stimulate interest and provide a class of licence to suit the neeeds of the experimenter. However the number of people taking the radio examinations has fallen by 90% over the past ten years. It was percieved the entry barriers to Amateur Radio was too high and notably that it could take 9 months from the beginning study to passing the necessary examination. Morse was typically the down side and felt to be irrevelant.

The Government in the U.K. was also concerned with the declining interest in R.F. technology, both at the class room level and professional level and realised the valuable contribution that radio amateur makes to the economy.

It was time the hobby was brought into the 21st Century.

Objective

The R.S.G.B. in co-operation with the Radio Authority in the U.K. set two objectives:

(a) To develop a shared vision of the structure of amateur radio licencing after WRC 2003 when the requirement for Morse would hopefully be removed, and

(b) To see how, within this new structure, a simple-to-obtain

Continued on page 12

An experimental patch antenna for 70 cm

Greg Chenco VK3BLG

Twelve months ago, after about an 18-year absence from amateur radio, I decided to fire up my old IC22A on 2 metres and build some antennas. I was fortunate enough to be introduced to the 2100 net by Ken, VK3HKR and I found that the net was a very interesting forum which discussed anything from painting to heavy technical discussions on how a discone worked.

One of the regular topics of discussion was working satellites. I realised at this point if I was to be able to join in with these activities, I needed to upgrade my equipment. So I lashed out and bought second-hand IC271A and IC471A all mode transceivers.

After building up various antennas and achieving some limited success working UO14, FO20 and FO29 I came to the conclusion that to operate with these birds, especially FO20 and FO29, you really needed some sort of tracking equipment. As my Emotator Rotator was in bits (having pulled it apart 18 years ago to replace a pot) and also my QTH being a rented property, I didn't think that the landlord would appreciate the erection of a tower in the backyard!

In one of the 2100 net technical discussions one night, Robert VK3KRB brought up the topic of "patch" antennas and how patch arrays could be electronically steered. The topic of "patch" antennas generally drew a blank from every body else, including myself and we all decided that we didn't understand how they worked and these antennas were really used at microwave frequencies and didn't really have any application for VHF and UHF,

I had heard that there were a couple of high orbiting satellites namely AO10 and AO40. The big advantage with these satellites is that their footprint at times covers half the world and the prospect that you could work the States and Europe on VHF/UHF was quite exciting. The other advantage was these satellites moved relatively slowly compared to the low orbiting satellites which meant you could point your antennas at them and be able to leave them there for a considerable period of time without the need to track them across the sky.

I then decided to concentrate on AO40 and managed to convert a 2.1 GHz down converter to 2.4 GHz, down converting the downlink on AO40 to 2 metres. After a lot of persistence, late one Saturday night using this converter with its grid reflector, I managed to hear the middle beacon of AO 40. It was only one S point above the noise. I could also hear some weak sideband signals and some Morse code. In the next few days I managed to transmit into AO 40 on 70 cm and heard myself and couldn't believe the enormous time delay which seemed to be at least 1 second.

Photo 1. Final dual patch array

My first contact on AO 40 was to Charlie, VR2XMT in Hong Kong and second was to Scott, NX7U in the States. After emailing Scott, and having given him a signal report of 1*1, his report on my signal was 5*6. At this point I realised that my downlink was not working well.

When I was over at Peters QTH, VK3DI, I spotted a large 1.5 m microwave dish lying outside in his back yard, which Peter kindly loaned me. I worked out that if I used this dish for the downlink, the additional gain taking into account circular polarisation, I should achieve an additional 10 db.

After measuring up the dish to ascertain the focal length etc, I calculated that I would need a 1.86 turn helical to optimally illuminate this dish. The problem with this is that a 1.86 turn helical would not perform as calculated as the general formulas for helical antennas were only applicable for a helical of a number of turns (probably 3 to 4 turns minimum). Any way I built a 2 turn helical and this immediately lifted the AO 40 beacon from 1 S point above the noise to 3 to 4 S points above the noise. I could also hear a dramatic increase in the readability of other stations.

Very pleased with this I managed to work a number European stations and even the UK.

I was not convinced that the helical was illuminating the dish as I thought. I wasn't achieving a 10-db increase over the grid antenna.

After looking at the web for some clues, I found a commercially advertised 2.4 GHz dish which had, you guessed it, a "patch" feed. The radiation pattern was ideal and the axial ratio, which is a measure of the antennas circular polarisation, was near perfect. (A 2 turn helical does not have a good axial ratio).

The "patch" feed had come back to haunt me.

After referring the matter to the 2100 net technical forum, Robert, VK3KRB emailed me some URLs on articles on "patch" feeds. One of the articles was a very detailed description of all the antennas on AO 40 written by the people who built the bird. Lo and behold, the antenna used for 70cm was an array of 6 "patch" antennas. Whilst it didn't give a technical description of how they worked, there was very detailed information on dimensions, feed points, impedances and how to connect to create circular polarisation.

The only technical description referred to a patch antenna being equivalent to a couple of slot antennas. I thought it was time to re-familarise myself with the principles of a slot antenna, so I dug out an old textbook, which dealt with slot antennas and after skimming over a lot of maths the final analysis, is relatively simple.

A slot antenna is simply a slot cut in a large sheet of metal. However if you were to make a dipole out of the piece of metal, which was cut out to create the slot, there is an interesting relationship between that dipole and the slot created.

The two antennas are complimentary and almost exact duals, in other words everything is opposite i.e.

1. The centre feed point impedance of a dipole is minimum at the centre corresponding to a current maximum and impedance maximum at the ends corresponding to a voltage maximum.
2. The centre feed point impedance of a slot is a maximum across the centre of the slot corresponding to a voltage maximum, and impedance minimum at the ends corresponding to a current maximum.
3. The impedance of a centre fed resonant dipole in free space varies from about 60 to 70 ohms (depending how fat it is) and the impedance of a centre fed resonant slot varies from about 590 to 510 ohms (depending on how wide the slot is). The fatter the dipole the lower the impedance, the wider the slot the higher the impedance.
4. A horizontal dipole creates horizontal polarisation whereas a horizontal slot creates vertical polarisation.

But how does this relate to the "patch" antenna?

Whilst having to do further reading on the subject and not knowing whether this is strictly correct, the analogy I see is that a "patch" antenna is the unbalanced form of slot antenna as the quarter wave ground plane antenna is an unbalanced form of a dipole.

The "patch" antenna has 2 vertical slots and two horizontal slots created by the space between the edges of the patch and the ground plane. The horizontal slots radiate vertical polarisation and the vertical slots radiate horizontal polarisation. The patch is grounded in the centre so the feed point impedance varies from zero ohms at the centre to somewhere near 300 ohms at the centre of the patch edges (assuming my analogy is correct). So the "patch" antenna is like 2 separate antenna sets in one (although I am not sure whether you could feed each antenna set with a different transmitter)

Having both polarisations available lends this antenna to creating either right or left hand circular polarisation by connecting the horizontal and vertical slots together with a quarter wavelength of coaxial cable to provide the 90 degrees phase shift. This is similar to how crossed yagis are connected to create circular polarisation.

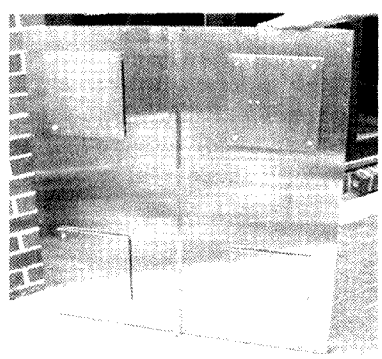

Photo 2. One of the 4 patch arrays

Construction:

Initially I was ready to built one of these for 2.4 GHz using the dimensions quoted. However after further discussions with the 2100 net, Dave, VK3AAD suggested I build one for 70 cm to make sure it works before building the 2.4GHz version

It is strongly recommended that prior to building any of these antennas you:

1. Read the article on the AO40 70 cm "patch" antennas http://www.amsat.org/amsat/sats/phase3d/antennas.html
2. Adhere closely to the dimensions given.

The ground plane I used in the prototype was a piece of aluminium sheet 600 X 600 mm. The size of this is not critical and this can be reduced somewhat. I believe that the ground plane should be at least 100 mm larger than the patch (providing 50 mm extension of ground plane on each side of the patch)

The patch is made of 1 mm brass sheet and measures 315 X 315 mm. I decided to use brass sheet as this would make it easy to solder a connection to (There is no reason why you couldn't use aluminium sheet). This was found to resonate at 438 MHz. This is slightly smaller than quoted in the Amsat article as I found that the original size of 0.47 wavelengths (325 X 325mm) resonated somewhere below 430 MHz.

The centre of the patch is grounded and spaced from the ground plane a distance of 12mm, by using a 3/16 stainless steel bolt with two stainless steel locknuts used as spacers. The patch is supported at the corners at a height of 12 mm using inch nylon bolts with two nuts used as spacers. The support points in my prototype are 40 mm from each corner along the diagonals of the patch.

Feeding the "patch" antenna is achieved by running the coax from behind the antenna, through a hole in the ground plane, connecting the outer to the ground plane and the inner to the feed point on the patch. As is the case generally when working with UHF, all lead lengths should be kept to a minimum. The outer braid of the coax should be continued through the ground plane and cut just short of the connection to the patch.

The 50 ohm feed point is located at 0.078 wavelengths from the centre of the patch along the line joining the centre of the patch and the middle of one of the patch edges. Feeding the patch at this point will excite the slot closest to the feed point and the other parallel slot.

Connection to the other pair of slots is done in exactly the same manner.

Circular Polarisation:

To create circular polarisation, with a linear antenna array we require the following:

1. Two identical antennas polarised at 90 degrees to each other.
2. A phase shift in the feed to the

antennas of 90 degrees so that one of the antennas is either leading or lagging the other by 90 degrees depending on whether you want Left Hand (LHCP) or Right Hand Circular Polarisation (RHCP).

The concept of creating circular polarisation with 2 linear antennas can be quite confusing especially when it comes to determining which connection creates RHCP as opposed to LHPC.

There are a number of important points regarding circular polarisation:

1. The direction of rotation of circular polarisation is the direction of rotation of the electric field vector in the direction of propagation.
2. The polarisation rotation is as viewed from behind the antenna.
3. RHCP is the most the common.
4. In the case of an axial mode helical, the direction of rotation is the same as the winding direction.
5. When using linear antennas to create circular polarisation, ***impedance matching is vital.*** A quarter wave piece of coax is a "dangerous" length to work with because any mismatch here will produce impedance transformation leading to unequal power being delivered to each linear antenna.
6. For crossed yagis (one at 90 degrees to the other) feed the 90 degree one first, with a quarter wave connection to the 0 degree one for RHCP. Vice versa for LHCP.
7. For "patch" antennas feed the horizontal slots first, with a quarter wave connection to 90-degree connection to the vertical slots for RHCP. Vice versa for LHCP.
8. When the antenna is driving a dish the polarisation is reversed i.e. for RHCP drive the dish with LHCP.
9. Another simple way to change from RHCP to LHCP is to add a half wavelength of coax to the existing quarter wavelength of coax.
10. All lengths are electrical lengths and the velocity factor of the coax must be taken into account together with the electrical lengths of connectors etc.

Because the patch antenna can be tapped anywhere between the centre and the outside edge, the 50 ohm points on the vertical and horizontal slots can be joined by quarter wave length of 50 ohm coax. This provides the 90-degree phase shift for circular polarisation.

By paralleling the 50-ohm points, the impedance at those points now becomes 25 ohms. By now tapping the 100-ohm point, the impedance at this point now becomes 50 ohms after connecting the 50 ohm points with the quarter wavelength of 50 ohm coax. The 100-ohm point is found at 0.115 wavelengths from the centre. (See photos in part 2)

In my prototype, I actually used N type connectors to tap the 50 and 100-ohm points so that I could do various measurements. As a result, when taking into account the electrical length of the connectors and connection to the feed point, I had to add either a half or full wavelength of coaxial cable to the quarter wavelength because the resultant piece of coax to make up the electrical difference was too short and would not reach the connectors!!

Testing

Initially I tested the antenna connected for vertical polarisation. The VSWR at 438 MHz was less than 1.1 : 1 as driving the antenna with 25 watts from my IC 471A, there was virtually no reflected power as read on my Bird Wattmeter on the 25 watt range.

With the antenna at a height of 6 metres at my QTH in Bentleigh, all the local repeaters (RMU, RHF, RMM, RSE, RGL) were full scale on receive. Repeater RAD at Mitcham was about strength 5 and RPU at Arthur's Seat was strength 2.

I did some further tests with Rod, VK3DQF in Beaumaris and determined there was good cross polarisation rejection and using Rod's 70 cm helical there was about a 3db increase going from linear to circular polarisation.

The real test was a couple of nights later when I decided to see if I could get a signal into AO40. A 5 X 3 signal report from Rene, DJ1KM in Hanover, Germany completely exceeded my expectations. Not bad when AO40 was more than 60,000 kms away during this QSO.

I am so impressed with the performance of this very compact antenna; I am now designing an array of 4 patches to be used for further satellite work. I have also build a patch feed for 2.4 GHz to feed the 1.5 metre dish, but haven't fully tested this.

ar

Over to you

Foundation Licence

I would like to express my opposition to the proposed Foundation Licence. I oppose the dilution of the qualification to operate an Amateur Radio Station any further.

I was a confidant of Rex Black VK2YA (now SK) who lived at Springwood in the Blue Mountains in the 1970s, who formulated and lobbied for the introduction of the Novice Licence as an entrance level examination to the Amateur Radio Service, particularly for those kids at High School who had been introduced to radio via the Youth Radio Scheme.

As I remember the Novice Licence originally had a Sunset clause, where the holder was given two years to upgrade or lose the licence. However this carrot was removed, so that a person could remain a Novice Licencee without ever having to upgrade. Other restrictions such as band usage and power limitations were also modified in the licence conditions; we opted for QUANTITY rather than QUALITY! Do we really want to perpetuate that mistake?

Surely entry to Amateur Licence holder status is low enough as it is, with multi choice questions, with a 1 in 4 chance of guessing the correct answer, the availability of answers to questions most asked in former exams, not to mention the crammer courses run by some Radio Clubs.

A further watered down entry level Amateur Licence to gain members to our ranks would be akin to branch stacking in politics. We might as well go the whole hog and advise the ACA to sell a licence through the retailer when a transceiver is sold!

Those who really want to gain an Amateur Licence with the minimum of effort will do so via the Novice Licence examination. This is the Foundation Licence as it was always ment to be. I say leave it that way.

Neville Chivers VK2YO

Six metre half wave vertical using a CB whip

Peter Cosway VK3DU
67 Brswater Street, Essendon 3040

I wanted a mobile aerial for six metres, preferable using a magnetic mount, making it easily transferable on or off a vehicle.

I have used a two metre quarter wave whip, on a magnetic mount, with great success - but six metres was not so accommodating. My attempts to use a quarter wave whip, on a magnetic mount, all produced unsatisfactory results. The SWR fluctuated, depending on where the mount was placed on the roof, and the coax was not doing its job but was acting as part of the radiating aerial. A quarter wave whip attached to a roof rack bar or a bull-bar etc has a ground of sorts. In some cases with this style of mounting even a two metre five-eighths whip can be made to work on six.

What to do? Would a choke in the coax help? I discussed the problem with Mark Harrison VK3BYY, one night, at a North East Radio Group meeting here in Melbourne. A suggestion from Mark set me towards a solution. "You need a ground independent aerial, something like an end fed half wave". Yes, OK, but how? A half wave vertical on six metres was too long! We have overhead tram wires here in Melbourne, as well as all the other usual impediments. Even though my interest was mainly in the horizontally polarised SSB part of the band I had earlier dismissed halos, turnstiles, clover-leafs etc as being too cumbersome - and difficult to arrange on an easily transferable mount.

Then I thought of using a 27 MHz CB quarter wave whip. I had one I had picked up somewhere. It would theoretically be a half wave on somewhere above 54 MHz - it should be possible to tweak it a bit lower in frequency. I also had a magnetic base with an S0239 UHF socket. This made the coax shield accessible. The alternative, a mount that just uses a threaded shaft connected to the coax centre, would not work for what I had in mind. The handbooks say a half wave dipole gives a theoretical gain of 1.8 dB over a quarter wave but in an end fed configuration presents a high impedance.

A look around at various commercial half wave aerials indicated that a tapped loop feed was popular for matching. It matches the high load impedance to low impedance coax, and hopefully isolates the braid from the radiating aerial. An aerial for home use on six metres could be built with a full length half wave element. For mobile work though a helically wound CB whip would be more practical. The one on hand was wound with an even pitch and was very light weight.

Initially however, I could not get this whip to load up. I tried to trim the horizontal loop to frequency with a fixed capacitor across it, and tried to bring it on frequency using a Grid Dip Oscillator. It seemed to be on frequency but I could not get a match point with the variable tap.

After talking to Mark VK3BYY again I took his advice to try it with a variable capacitor and a full length half wave. I parked the car under a tree and dangled a length of aluminium down on a rope and attached it to the loop. The tap was made with an alligator clip on a short length of stout hook-up wire soldered to the pin of the coax plug. After varying the tap position I found I could load it with an acceptable SWR for the side-band end and the FM portion. Then I tried the CB whip. It tuned up but was only usable over about 500 kHz. The whip is now tuned up centred on 50.150 MHz. By moving the alligator clip and resetting the variable capacitor it can readily be re-tuned to work in the FM portion of the band. The 50 pf trimmer is a small 4 plate capacitor from the junk-box.

Now that the arrangement has been proven it could be replaced with a fixed capacitor to make a more weatherproof layout. Also the matching connections could perhaps be enclosed in a plastic box with the loop coming in and out through holes in the side. A full length half wave could be fine for the whole band but a helically wound whip would not be so versatile without the variable capacitor. The range and variety of 27 MHz CB whips is endless so be prepared to experiment.

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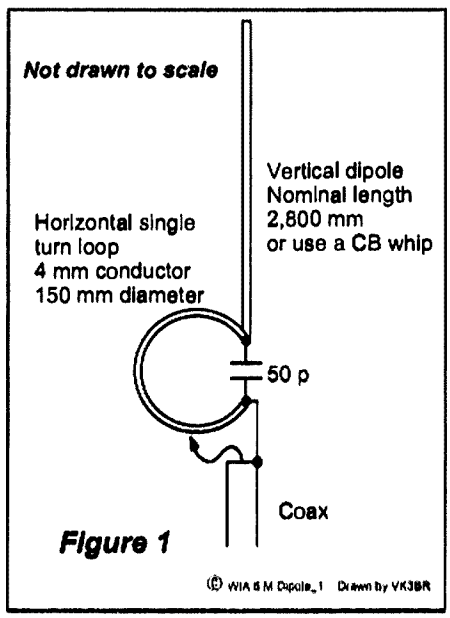

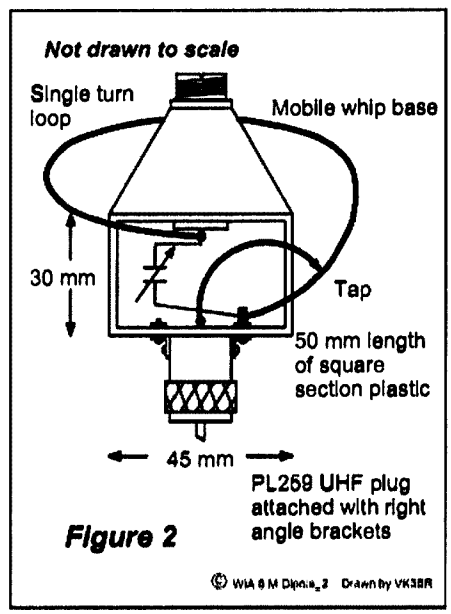

Figures 1 & 2. A loop fed six metre vertical dipole

Measuring echoes and propagation on the HF bands
Part 2

By H. de Waard (PA0ZX) and J.G.C. Niehaus (PA0FA)
Translated by Pater Kloppenburg VK1CPK from 'Electron' of October 1993

In Part 2, PA0ZX and PA0FA start with the Monostatic long-distance Radar, a cheap propagation monitor for the HF bands and how this can be used by Radio Amateurs.

Measuring propagation

On the basis of experiments described in the previous paragraph, refer to the December 1993 issue of 'Electron', a simple instrument is developed with which we can determine if there is propagation.

Many Amateurs ask themselves sometimes "What are the conditions at the moment". The normal way to find out is to listen on the various bands, or call "CQ-DX" and then wait to see if something comes up. This action does not tell you if the band is open in some other direction! In silence, the wish is often expressed "Apart from my ohm-, volt- and amp meter, I could do with a propagation meter".

The measurement of propagation at an arbitrary moment was until now only possible to be performed by Government departments and scientific institutions. To ordinary mortals it seemed to be an enormous effort to get the required information at any particular time.

It will become evident from the following that with presently available means, much can be done about this, without denying the benefit of predictions and the youngest branch of Amateur activities, packet clusters.

Monostatic Radar

After the tests described in previous paragraphs with separate transmitter and receiver, the bistatic radar, the question came up whether it was possible to combine transmitter and receiver in one and the same place. One step further is the common use of a directional antenna for transmit and receive. After this, we realised that we could work with one transceiver, provided a number of conditions were met. In this way, monostatic radar was realised. Based on previous experiences, the following starting points were formulated:

1. The transmitter must output pulse-shaped signals
2. The changeover from transmit to receive must happen very quickly.
3. The received echo must be able to be observed on a simple oscilloscope.

This was carried out by PA0FA as follows:

1. The NE-555 was wired as a pulser. Refer to Figure 3 (page 11, AR December/January). At the Key-input of the transceiver appear pulses at 10 Hz, 10 ms wide, with each pulse followed by a rest period of 90 ms. As a consequence of an in-built circuit delay, the transmitter output consisted of pulses with a width of 3 ms in this instance (ICOM IC-765).
2. The short HF pulse is only generated when the transceiver is in the "full break-in mode". The dead time right after the pulse is transmitted is about 20 ms, which when added to the transmit pulse of 3 ms, gives a minimum delay of 23 ms.
3. The two-channel scope is triggered through channel A by the pulser, and the audio signal is connected to channel B. The scope's timebase is usually set for 10 ms/div. When a single channel scope is used, the trigger input is used for pulses and the audio signal is connected to the Vertical Input.

In the previous paragraph we mentioned that the first echo returns after 12 to 18 ms, these cannot be seen using this particular transceiver. Although this is very unfortunate, the monostatic tests were continued with, because the results were sensational from the beginning. Where in the bistatic setup the first echo was clearly defined and the second one reasonably so, in the monostatic setup the second echo was also clearly defined and well above the noise. To be able to observe more clearly the reflections from locations much further away, it was necessary to improve the receiver's signal to noise ratio. This was not a great problem with the built-in narrow-band filters. The standard IC-765 is equipped with a 500 Hz CW filter. An optional 250 Hz filter was also installed. With each transmitted pulse, we now received nearly always-different reflections from points on the earth's sphere, at ever increasing distances. (See Figure 11)

Observations with the Monostatic long distance radar

Left, on the scope's screen, is a pulse that is generated by the "Side-tone" oscillator (BFO). The length of this pulse compares with the transmit time of the HF pulse. About 20 ms after the trigger pulse, the receiver recovers to its normal sensitivity (AGC on fast). During the time interval until the next pulse is transmitted, any echoes present can be observed (Figure 11). The sound that comes from the speaker is first the short side-tone simulation of the transmitted pulse. After that you can hear the reflected signals that are made audible by the BFO facility. The Pitch-Control should be used to make these signals have a high pitch, to get a well-defined display on the scope. You can expect the first echo to appear after 25 ms probably with fluctuating amplitude.

It is recommended to keep the noise level confined to within one major division on the scope screen. The returning echo signals can then be observed in the correct ratio above the noise level. Recognisable Echoes have been observed with delays of 65 ms after the transmit pulse. With some doubt, it is better to say, "Saw no echo". Naturally,

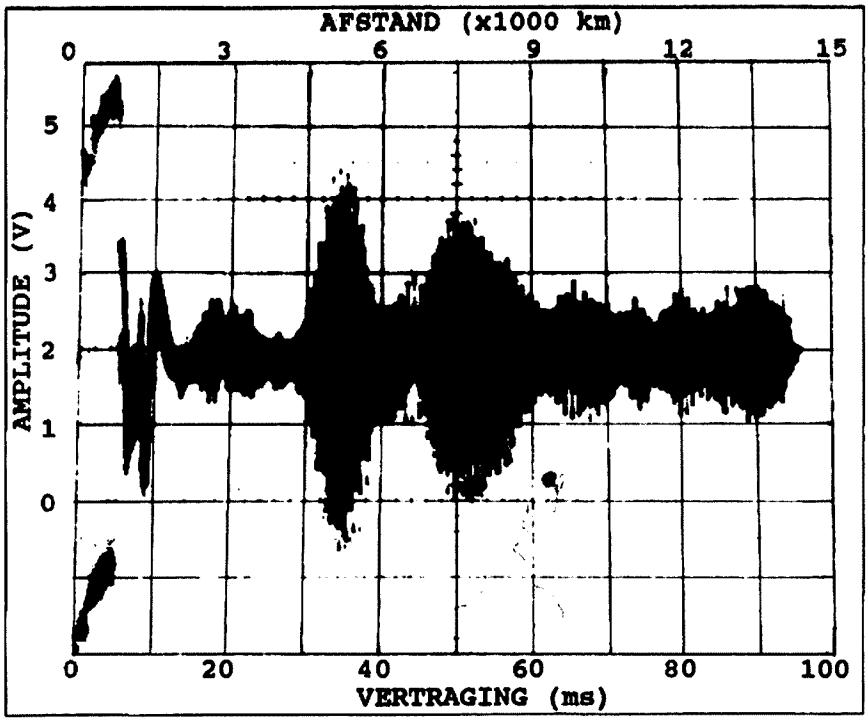

Figure 11: Record of echoes using monostatic radar (PA0FA). The sinus-shaped signals come into existence when the BFO is switched on. Left, the transmitted pulse, followed by a few decaying oscillations; after a dead time of about 20 ms, in which the first echo appears, we clearly see a second and a third echo. Recorded on 17 September 1992 at 15:20 UTC. Frequency 21.23 MHz, Bandwidth 250 Hz, Beam heading 100°.

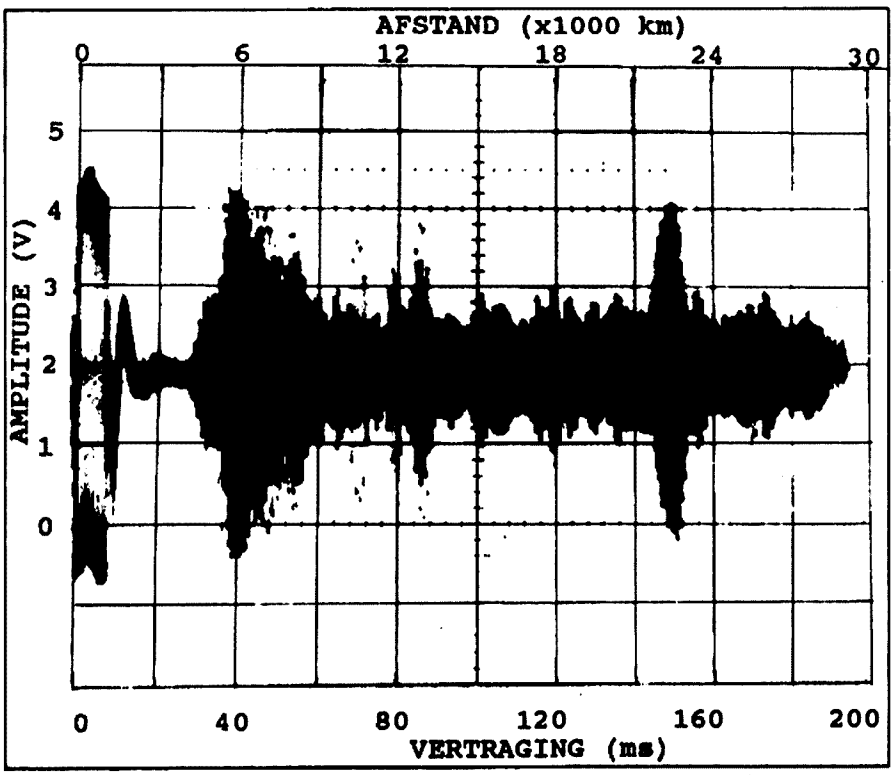

Figure 12: Record of echoes using monostatic radar, using a longer time scale (PA0FA). Here you can also see, apart from the 'normal' return, a sharp peak with a delay of about 140 ms, coming from a pulse that went once around the earth (not an echo, for which the scale is valid). Recorded on 18-10-92 at 08:20 UTC. Frequency 21.42 MHz, Bandwidth 250 Hz, Beam heading 230°.

the presence of echoes is completely dependent on propagation in a particular direction. No echo, no propagation.

Distinguishing between echo and noise can give problems. With noise, we mean any signal that does not result in recognisable or regular repetitive echo signals at the correct frequency. It is possible to make a good distinction between a repetitive echo and noise by detuning the receiver by about 1 kHz using the Receiver Incremental Tuning (RIT) control, and leaving the transmitter unchanged. The real echo will disappear then. Another possibility is changing the heading of the antenna; there are always directions from which no echo returns.

Pulse length and Pulse-Repetition-Frequency (PRF)

The transmitted pulse must be long enough to drive the output stage to maximum power, but short enough to quickly observe a reflection. The pulse length should not be longer than 10 ms, since the first echo can return to the receiver after 10 ms. The PRF seems to be an arbitrary business. It would be rather sensible on the one hand to match it to the position of the scope's timebase switch, but on the other hand taking account of the time required by the fourth echo to return.

With "Short Path" echoes, a PRF of 20 or 40 is the most useful one. (Scope owners would set the timebase switch to 5 ms/div or 10 ms/div.) With an PRF of 10 (20 ms/div), a certain amount of flickering shows up on the screen, but this can be overcome by setting the timebase switch back to 10 ms/div. Use of a timebase set to 20 ms/div and a PRF of 10, provides the opportunity of observing "Long Path" echoes, as well as observations of propagation around the earth.

A tour around the world in 140 milliseconds

During tests with the objective of detecting "Long Path" echoes, a PRF of 10 was used. At different times and from diverse directions a signal was observed with a delay of about 140 ms (Figure 12). Very soon, it was realised that the transmitted pulse had made a tour of 40,000 km around the globe. The signal came through the back of the antenna

suffering an added attenuation of 20 dB because of it. No further argument is necessary to realise that with two rotatable antennas interesting observations can be made.

Disadvantages of echoes on the bands

We have seen in the foregoing which are the useful and enjoyable aspects that echoes can provide. We can study the behaviour of the ionosphere, we can check in which direction DX contacts can be made, and we can often make contacts with Amateurs within the skipzone. This last advantage becomes known when, from a limited area, more stations want to contact a DX station.

However, we must also deal with the less pleasant aspects. Problems can develop for AMTOR contacts. When the other station receives a relative weak signal during the contact, a large number of ERRORS can develop because the control signal of the other station is overrun by that station's own echo signal. How serious this is depends on the time taken until the station's own echo signal returns, on the currency of the control signal from other station to ones own station, and on the signal strength of the station's own echo relative to the signal of the other station.

It can happen, that, judging by the sound, an excellent Amtorlink produces a large number of repeats because of the echo effect. Generally, you would not recognise this immediately.

An example with numbers can give somewhat more insight. Assume that the AMTOR timing details are known. Imagine an AMTOR contact between two stations separated by a distance of 3000 km. We call A the master and B the slave. The delay from A to B is 3000 (km)/300,000 (km/s) = 10 ms. After receiving a "Block" from A, B returns a control block back to A. The beginning of this control block arrives at A after 20 ms. After 25 ms A's own *second echo* returns. It takes little imagination to realise, that a collision of sorts can take place between the control block and the echo. Even if only one bit of 10 ms comes across faulty, the whole block is rejected and a request for a repeat is send out. Prolonged faults can result in time-outs.

The licence conditions

Naturally, on-air manners have to be upheld at all times. You must realise that other stations in general do not completely understand what all that ticking is about. Please adhere to the following rules:

- Ask first if the frequency is in use
- Give clear station identifications at regular times
- Mention that you are conducting a ionospheric test
- Don't make your transmissions longer that necessary
- Don't use too much output power; peak power of 100 watt is sufficient

When switched to "CW", the bandwidth of the transmitted pulses is limited in every commercial transceiver by a filter. From the rise and descent times of the received pulses (using a receiver with a wide bandwidth) we are able to conclude that the transmit bandwidth in our case is only about 500 Hz.

Conclusions

This article has described a number of circuits to aid our echo-experiments on the HF bands and the results that were obtained. Its most important objective is to show that with a few extra simple circuits, a new dimension can be added to our hobby. Not all the experiments that were made have been described, in particular not the coming into being in the morning and the disappearance at night, of propagation on the 10 metre band, caused by the occurrence of sunrise and sundown. Also the small differences in delay time of echoes on various bands and the change in this delay during the day have not been accurately analysed. Another, mysterious appearance is the occurrence of echoes with very long delays: many seconds. Scattered over many years, something has been written about it, but there is still no satisfying explanation of the phenomenon. With Amateur patience and a slow-running tape-recorder, something new can still be discovered. Our method of echo recording on photographic film or on audiotape is electronically seen, very primitive. Modern memory chips and digital data processes provide the means for getting much more quantitative details.

There is still much original detective work to be done. The professionals have not seen everything. The variation of the adventures which electromagnetic waves in the ionosphere and on the freakish, reflecting earth surface can experience is nearly unlimited.

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FEDERAL WIA CONVENTION
APPOINTMENT TO FEDERAL POSITIONS

The WIA Federal Convention and Annual General Meeting of the WIA will be held in Adelaide on 4, 5 and 6 April 2003.

At this meeting, a number of positions will be filled. Nominations from interested persons must be received by the Federal Secretary at the registered office of WIA Federal in Melbourne no later than **close of business on 21 February 2003.**

The positions are:

(A) Federal Executive

President
Directors (3 positions to be filled)
Company Secretary

(B) Officers and Coordinators

Editor "Amateur Radio" magazine
Publications Committee
WIA/ACA Liaison Committee
IARU Region III Liaison Officer
ITU Conference & Study Group
Federal Web Page Coordinator
Chairman Federal Technical Advisory Committee
Federal Education Coordinator
Federal Historian
AMSAT Coordinator
Intruder Watch Coordinator
Federal Contest Coordinator
Federal Awards Manager
Federal WICEN Coordinator
International Travel Host
ARDF Coordinator
Federal QSL Manager
VK9/VK0 QSL Bureau
QSL Collection Curator
Videotape Coordinator

Nominations received direct will be considered but preference is likely to be given to Divisional nominees

Peter J. Naish, VK2BPN
Federal Secretary

UK Foundation licence one year on

Continued from page 3

licence, with limited but valuable privileges, might be developed and launched, in advance of WRC 2003.

Conclusion

It was concluded that there should be a three tier licence structure commencing with a Foundation Licence, followed by an Intermediate Licence leading to a full or un-restricted Licence. It was also concluded that to reach the full licence it was necesary to progress from the Foundation Licence with no possibilities of over-passing any step. Each level of licence would have the syllabus so designed that no subjects were repeated within the progression.

The structures were agreed by the R.A. and in October 2001, following a pilot course, the Foundation Licence was born and commenced in January 2002.

Foundation Licence

The syllabus for this entry licence had to be very basic but covering all the necessary subjects to ensure disciplines and procedure are known to create a safe and competent Amateur Radio operator. The current course requires a study time of about 12 hours and includes the essential aspects of electronics, R.F., antennas, safety and EMC, together with operating and licencing requirements. The Morse code is also a requirement and similar to that required by a pilot, in as much as it is at 5 wpm and crib sheets are permitted. (It was interesting to learn that no one has so far failed the licence because of the code requirement!).

The course is often taken over a weekend and candidates have to make both HF and VHF live QSO's on air as part of the course. They have to show they can tune a ATU and set up a HF transceiver as well as use correct operating procedures.

Privileges

The foundation Licence offers full H.F. availabilty with the exception of 28 MHz and frequencies above 440 MHz. Power is restricted to 10 watts and the equipment must be commercial and recognised by the authorities. Recognised kits are permitted. (I understand that the 28MHz band was omitted because un-authorized CB equipment being available).

Tutorial

A full tutorial is available so that candidates can prepare themselves in advance. However they must still take the course. The course is given by any Full licence Radio Amateur and is generally conducted by local Clubs. (This incidentally has led to an increase in Club membership around the country). To-day over 300 Clubs are registered to participate in the programme.

Examination

The examination is conducted by authorised persons with Invigalators present. The papers are marked and verified at the completion of the examination so that the candidate can then make immediate application to the R.A. for their licence.

It all sounds simple but be assured there was a tremendous amount of work and disciplines necessary to ensure smooth working.

One Year On

At the end of December 2002, 6,000 Foundation Licences had been issued. Of these 3,500 were brand new entries. The remainder were conversions from other classes of licence. It is interesting to note that of the 19,000 Class B VHF licence holders in the U.K., only 2,500 converted. So where did 3,500 people suddenly appear from? They came from family associates of existing amateurs who now found a simply way to join in the hobby. The Scouting and Cadet Forces found it more than useful to teach their members communications and give them an appreciation of HF communications. At the end of the year there were around 50 new licences issued each week. Statistics indicated that 800 were under the age of 21 and there were not many over the age of 75!

Other than just an influx of new Amateurs it was also interesting to learn that local clubs were also increasing their membership, with one club boasting they were down to 3 members and now have 36!

Anecdotes

Some of the interesting comments recorded were

1. We planed on having enough Foundation paperwork for 1,000 candidates in the whole year. By the end of March we had already sent out 3,000 copies! - RSGB HQ
2. Since the Foudation licence started, we have sold out of Morse keys and buzzers! - UK Retailer.
3. Since my son took an interest in amateur radio, he has no trouble with his school work on technology. - Parent.

Future

Very few changes are planned this year. The examination questions are being increased to 25 and any one failing cannot repeat for at least 2 weeks.

I asked about the need for the Morse test and was told that this would probably remain as it is not difficult using crib sheets and will provide an appreciation of another form of communcatios other than voice. (I was told the Military have re-introduced it into the curriculum for communications.

The RSGB has just completed the syllabus for the Intermediate Licence and is now concentrating on the syllabus for the Full, or Un-restricted licence.

Will testing be via the Interet one day? It is being investgated, You will just have to keep reading A-R

So, I think you will agree, the Foundation Licence is a success and a way into the 21st Century. My personal conclusions after the meeting at the RSGB HQ was that the U.K. was really leading the way. The W.I.A. Federal Council is studying this closely and it will be a major subject at the Federal AGM in April.

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The *Versatenna*

A traveller's antenna for VHF and UHF

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Web: http://www.alphalink.com.au/~parkerp/

What can be built in twenty minutes, requires just five parts and needs no trimming of elements? The answer is the Versatenna, a compact two element yagi designed for low power VHF portable use. The pull-apart design makes assembly a snap with no mounting screws to go missing. A detachable driven element and feedline lets the user choose between compactness and gain. As a bonus, you also get 70cm operation with the antenna forming a 3/2 wave dipole on that band.

The Versatenna's advantages accrue from the use of two commercially-available TV rabbits ears antennas. This allows both extremely simple construction and a broad frequency coverage ranging from VHF airband to the high-band commercial services. The Versatenna is thus a worthwhile project for scanner enthusiasts and radio amateurs alike.

Gathering the parts

Very little needs to be said as the antenna uses so few parts. You will need:

- Rabbit ears indoor TV antenna DSE L4655 (x2)
- Plastic tubing or conduit 18mm diameter, 490mm long (x1)
- RG-58 coaxial cable (3 metres) and PL259 plug (x1)
- Plastic suction cup (optional)

Other rabbit ears antennas can be used, but construction methods may vary. Whatever antenna you choose, get one with no base; ie designed to fit into the mounting hole on many TV sets. Also choose one with good access to the connections to allow the feedline to be easily attached.

Construction

Figure One should be almost self-explanatory.

Holes are drilled through the boom to accommodate the elements. Their spacing should be 400 millimetres. Start with a small drill bit and use a tapered reamer or old pair of scissors to gradually enlarge the holes until the rabbit ears are a tight snap fit.

The antennas specified have a

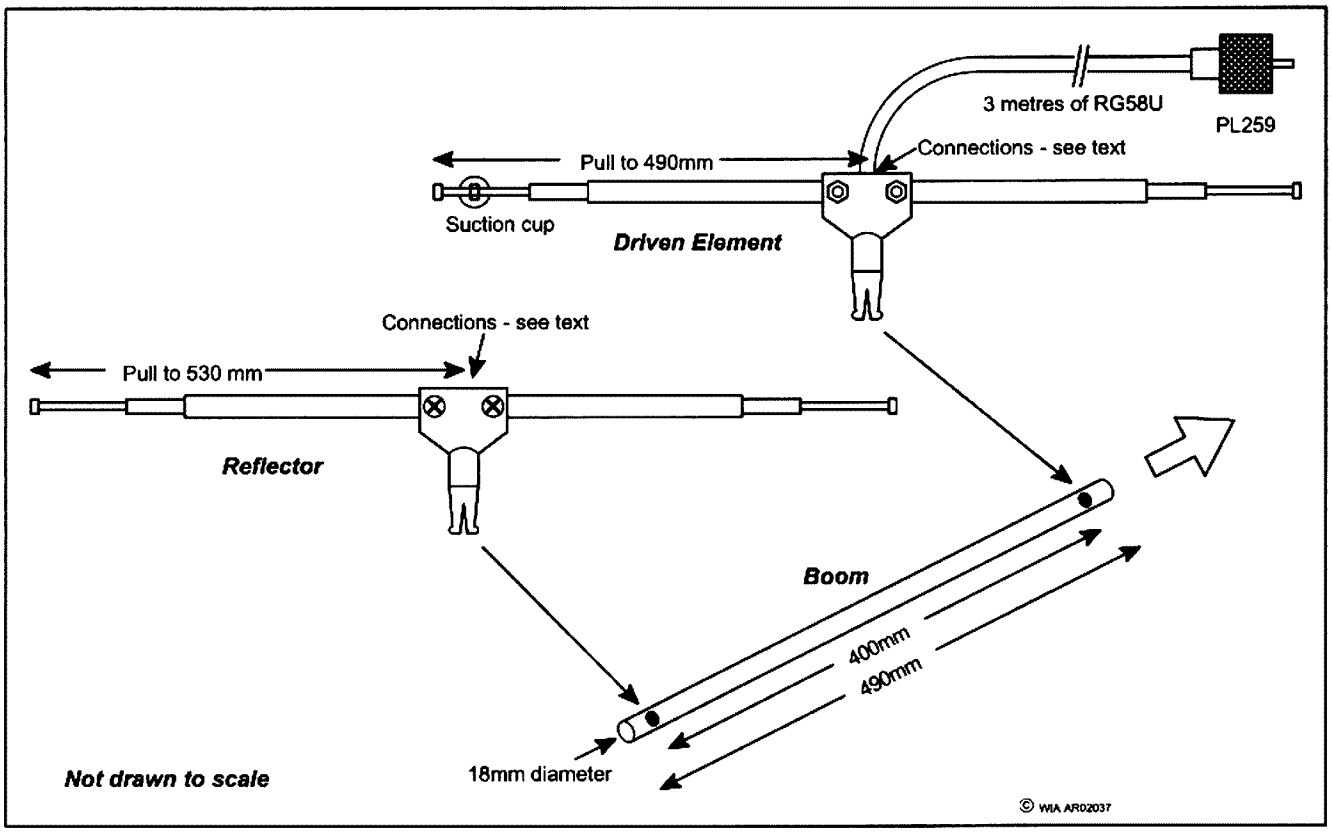

Figure 1

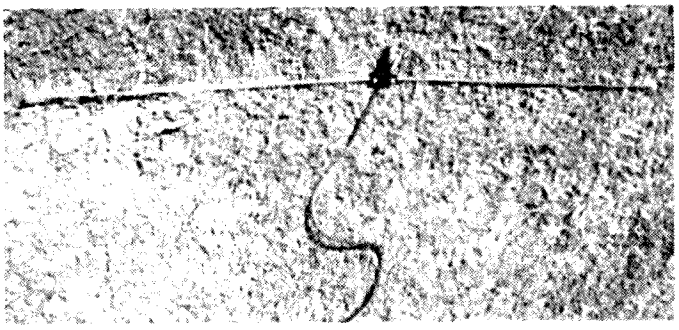

Photo 1. The Versatenna dipole

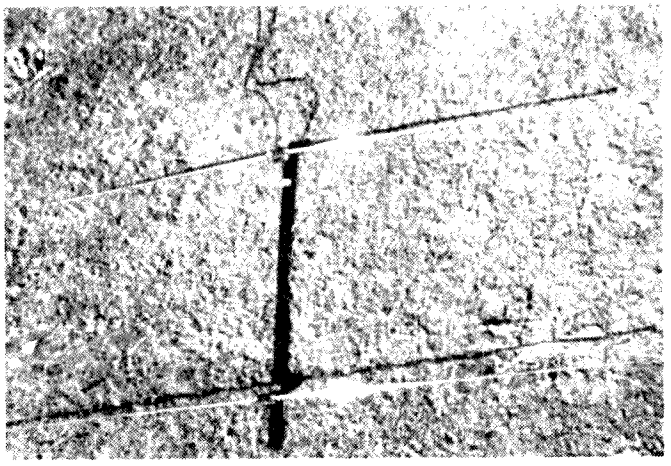

Photo 2. The Versatenna yagi

Photo 3. The Versatenna packed up

convenient plastic cover that can be eased off with a screwdriver, revealing the connections to the ribbon feedline. With a soldering iron unsolder the ribbon. On one antenna only solder a short piece of tinned coaxial cable braid linking both telescopic whips. Avoid melting the plastic. Replace the cover and put to one side. This will become the reflector element.

Drill a hole in the plastic cover from the remaining antenna just large enough to accommodate the RG-58 coax feedline. Push the cover about 10cm back from the end of the cable. Remove about 12mm of outer jacket from the feedline. Separate the braid from the inner conductor and strip about 4mm of insulation from the inner conductor. Tin both the braid and the inner conductor. Then solder one to each whip's solder tags, thus forming a half-wave dipole and the driven element.

Mark the whip that is connected to the cable's inner conductor with a strip of tape or white paint. This is so you know which side should be up when using the dipole only as an antenna.

For improved mechanical stability, squirt some silicone rubber sealant (eg Dow Corning 732) into the connection and replace plastic cover. Allow sealant time to dry. If you're planning to use the antenna inside a bus, train or hotel room, attach a plastic suction cup to the end of the driven element to which the coax inner is connected.

Testing

With the help of a tape measure extend both sides of the driven element so that both ends are 490 mm from the centre of the boom. Do the same for the reflector; in this case the length to measure is 530 mm.

Take the antenna and transceiver outside and tune for a beacon or busy repeater. The antenna should be clearly directional, with maximum signal being received off the front. There should be sharp nulls off both sides. With a VSWR meter in-line, take several readings across the band. If the lowest reading is below your desired centre frequency, shorten both sides of the driven element a little and repeat until the indication is 1.5:1 or less. If the lowest reading is too high, lengthen the driven element a little.

The lengths given above were those found most suitable for 144 MHz SSB use on the prototype. For 147 MHz FM expect them to be a little shorter.

The portable operator should carry as little equipment as possible. More gear means more bulk, more weight and the increased risk of forgetting something. The need for a tape measure was obviated in the prototype by purposely making the boom the same length as the driven element. Thus the length of the driven element can be set by holding it up to the boom. As a reminder that the reflector is 4 cm longer than the driven element, the label identifying the reflector mounting hole states 'REF = L+4'. For listening the element lengths are less critical, and a look-up table giving reflector and driven element lengths versus frequencies of interest will be adequate.

Results

The Versatenna was tested in rural WA during October 2002. It was used as a portable yagi and dipole for two metres and a 3/2 wave dipole for 70 centimetres.

When used as a yagi it allowed 144 MHz SSB communication with Perth while portable at Kellerberrin Hill. Transmitting power was three watts and the distance covered was approximately 200 kilometres. The contacts were repeated (at lower strength) on 70 centimetres when the reflector was removed and the unadjusted driven element was used as a 3/2 wave dipole.

The suction cup was used when the dipole element was stuck onto the inside window of a road coach. On two metres results were significantly better than a quarter wave whip on the handheld, with contacts established via repeaters up to 50 kilometres distant. Listening tests were also done with beacons in Perth and Bunbury on 50, 144 and 432 MHz. Despite the vertical polarisation, beacons were heard up to 120km away, with 432 MHz signals propagating as well if not better than 144 MHz signals.

Results could possibly be improved by trying alternative configurations, for instance adding dedicated elements for 70 centimetres or bending the elements and adding jumper wires to convert the antenna into a two element delta loop.

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Robin L. Harwood VK7RH

2003—already proving very interesting!

It looks as if more stations are deciding to leave short wave due to budgetary constraints. Radio Austria International is likely to depart shortwave, although the senders will continue to be used by commercial clients such as the Seventh Day Adventist Church, Radio Canada International (RCI) plus some small religious groups. Similar to the Norwegians, one of the domestic networks is likely to be relayed when not required by the commercial clients.

Merlin recently took over management of the external Norwegian senders. Norway suspended external broadcasts in 2002 it is continuing relaying Radio Denmark International from Copenhagen on the half-hour. The first 30 minutes is usually a relay of the domestic Norwegian network but you may now hear the BBC World Service in English after a 5 minute news bulletin in Norwegian. It now has been discovered that the particular domestic network does indeed relay the BBC World Service in English as an overnight filler.

The two senders also carry programming for the Afghan Government, besides airing several clandestine broadcasts. One of the recent clandestine programs is hostile to the present Saudi government and I have observed it on 9925 at 2100Z, underneath heavy bubble jamming. The station is Radio Al Islayh and I am reliably informed that they have a 24-hour satellite and Internet web feed.

The crisis in Iraq continues unabated and it looks increasingly as if there will be a war. Not surprisingly, over 27 different anti-Iraqi Clandestine stations have been observed, most via short wave. Other Middle Eastern nations and regions have been also been targeted, including Lebanon, Syria, Jordan, Iran. The Kurdish regions bordering Turkey, Iraq, Iran and Azerbaijan, also are where there so many clandestine stations.

Many of these clandestine stations naturally get severe jamming and to avoid this, they quickly adjust their frequencies up or down, often causing severe interference and disruption to legitimate users. These operations are often heard within the internationally allocated HF aeronautical allocations. I am aware that Australian aeronautical HF communications were disrupted late last year by clandestine stations with the accompanying bubble jammers.

Early morning operators on 40 meters would have encountered the anti-Iranian station, known as the "Voice of the Mojahadin". It is in Farsi and can be heard drifting around 7070 kHz at 2000 to avoid the jammers. Some maintain it is in Iraq yet sounds more likely to come from either the CIS or the Gulf region. There is generator hum present similar to that of UAE Radio in Dubaii.

But to return to the impending war with Iraq. The US has commenced their psychological warfare operations similar to that at the end of 2001, to broadcast simultaneously on MW, SW and FM. The HF frequencies selected are presently underneath existing broadcasters. 9715 is supposed to be one of the channels but is blocked by either Deutsche Welle in Slavonic languages or Radio Liberty. The other channel of 11292 is of course well out of the broadcasting bands but of course inside the aeronautical allocations. All I have heard is a carrier just prior to their sign-off at 2000 but cannot detect any modulation.

Another flashpoint emerged in December 2002 on the Korean Peninsular, following the public admission of the DPRK that it had kept up its secret nuclear program and was resuming the operations of the nuclear reactors and it expelled IAEA inspectors. Another casualty was amateur radio and the sole authorised operator was told to dismantle his equipment and take it out of the country.

The DPRK on North Korea is easily heard on the following channels, usually in Korean, Japanese or Spanish from 1000 UTC. 3560,6400, 6520, 6570, 9345 or 9970 kHz usually carries the External service. A clandestine station purporting to come from the South, "the Voice of National Salvation" but of course is north of the DMZ is easily observed on 3480 4120 or 4470 plus Bubble jamming.

A South Korean clandestine "Echo of Hope" is aimed at North Korea on 6348 but use LSB as the AFRTS feeder on Guam is extremely loud on 6350 USB. There is a domestic North Korean station on 2850 but as no shortwave sets exist there, programming must be for the Korean Diaspora in Japan and SE Asia.

HCJB commenced operations from their Kununurra (WA) senders on January 5th at 0700Z. The local time in WA was 3 p.m. and at sign-on, I could detect a carrier but the audio was weak. Listening much later was easier. Programming comes from studios in Melbourne and the channel of 11755 is used. Programming directed to the South Pacific is from 0700 till 1200. However they announced on the final broadcast from Ecuador to the South Pacific, that they were only using 25 kW from WA and would progressively crank it up to 50. There was a delay in broadcasting to the Indian sub-continent to the 12th of January, due to high wind damage. The full 100 kW will be used from 1230 to 1700 on 15480.

DW in Cologne has announced that they are hoping to commence regular broadcasts in DRM to Asia as from June. Although no sets have yet been manufactured in commercial quantities, the majority of electronic factories are located within Asia and would presumably use the DW signals to align their receivers. However early last month, DW announced they were to suspend HF broadcasting to Australasia and North America. It is unclear if this is only in English but indications are that this will also include German. Again budgetary over-runs has led to this decision. They are also scheduled to move their studios to Bonn from Cologne, this year.

Well that is all for this month. Don't forget you can email your news or comments to me at vk7rh@wia.org.au.

73 de VK7RH

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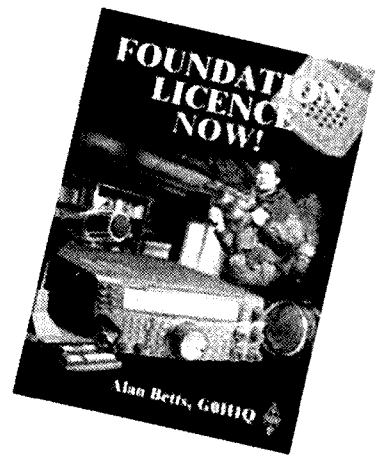
Peter Kloppenburg VK1CPK

Foundation Licence Now!

by Alan Betts G0HIQ

How would YOU like to get access to virtually all of the amateur HF bands in return for spending 12 hours of study, followed by an exam with 20 questions, while having your study material beside you? After the Radiocommunications Agency (RA) introduced the Foundation Licence, the Radio Society of Great Britain commissioned Alan Betts (G0HIQ) to write a practical study guide for those with little or no prior knowledge of amateur radio.



Amateur radio clubs or individual radio amateurs can use this study guide to run a course that provides the practical training to prepare candidates for the foundation licence exam.

The guide presents the practical aspects of the course in an easy to understand style of writing, without radio amateur jargon, using block diagrams, photographs of commercially build transceivers, drawings of antennas, simple charts, and cartoons.

Alan has incorporated the RA's foundation syllabus into the guide to ensure that candidates learn only those subjects essential to pass the exam. Surprisingly, compared with other guides such as "The Novice Operator's Theory Handbook" by G. Scott (VK2KE), there are only eight what you might call 'technical' subjects. Two others deal with Licence Conditions (Regulations) and Morse code. The depth at which these subjects are covered is low, as the guide consists of only 32 pages. Scott's Novice guide covers the same subjects plus six others in 92 pages!

According to the statutes of the International Telecommunication Union (ITU), it is necessary to pass a Morse code test to use the 'high frequency' bands, i.e. the bands which allow world-wide communication. The authorities in the licensing country decides the Morse code speed and the conditions under which the exam is taken. The AR has made an important decision in regard to the foundation licence, by not setting any speed at which Morse is sent or received during the assessment. Therefore, candidates have only to familiarise themselves with the Morse code, but no speed has to be demonstrated. The Morse assessment is on a one-to-one basis and the character speed and spacing may be chosen by the candidate. All the essentials of the Morse assessment are contained on one page.

The band plans for the UK and Australia are not the same. Some of the differences, as shown in the chapter entitled "Licence Schedule", are allocations to the 2210 metre band (0.1357-0.1378 MHz) and the 4.286 metre band (70.00-70.50 MHz) The foundation licence limits transmitter output power to 1 Watt erp on the LW band, and 10 Watts on all the other HF, VHF and UHF bands.

The two-page chapter on safety shows a drawing of a typical mains plug as used in the UK. These plugs carry a fuse inside them that goes open-circuit when the current through the cord exceeds a given level. Explanations are given why it is important to fit the correct fuse and how the plug should be wired. The inclusion of this chapter shows that the RA considers that safety is an important issue and should not be compromised in any way. The same concern is expressed in "Electromagnetic Compatibility". Don't touch the antenna wires when transmitting, you could get a nasty burn. How not to cause interference to your neighbour's TV reception. What can be done to reduce interference? These matters are given considerable attention and detailed solutions suggested.

This guide is well written for its purpose and covers all subjects of the foundation syllabus. Subjects are similar to those in Novice licence study guides except for the depth and breadth of presentation. The emphasis is on practical rather than theoretical aspects, making the text easily accessible to anyone interested in attaining the foundation licence. If the concept is adopted in Australia, the guide could be used as is, except for the differences in allocated frequency bands and the type of mains power plugs. The study guide should be available in school libraries, and would make a good birthday present to anyone with a bent for electronics.

The main headings in the study guide include; *Propagation, Licence conditions (Regulations), The training course, Operating Practices & Procedures, Materials & Information, Electromagnetic Compatibility:, Technical basics, Safety considerations, Transmitters, Licence schedule, Receivers, Morse code, Feeders & antennas*, and finally, *Good luck*

The allocated frequency bands are as follows:

Low Frequency KHz	High Frequency MHz	Very High Frequency MHz	Ultra High Frequency MHz
0.1357-0.1378	1.810-2.000	50.00-52.00	431.0-440.0
	3.500-3.800	70.00-70.50	
	7.00-7.100	144.0-146.0	
	10.100-10.150		
	14.000-14.350		
	18.068-18.168		
	21.000-21.450		
	24.890-24.990		

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Published by Radio Society of Great Britain (RSGB). ISBN: 1-872309-80-1

My new beam for DX on two

W.M. (Bill) Sinclair VK2ZCV
35 Wayfield Way Port Macquarie NSW 2444
bilsinvk@oceania.net QTHR 02 6583 9302

After having experimented over a period of several years with various types of antennae for 144MHz (ie. Phased arrays, skeleton-slots, collinear arrays, ZL type feeds and yagi of 6 to 9 elements) it was decided to attempt the ULTIMATE for a normal domestic house lot. As most interest here is centred on the low end of the band using SSB long haul ie. Sydney and beyond to the south, Brisbane and beyond to the north on a daily basis, the design frequency was chosen to be 144.5 MHz. What was needed was an antenna with the maximum forward gain, good F/B ratio and side lobes down about 20db.

The beam in use.

At the time design and construction was started, the main antennae in use was a home brew 9 element yagi of DL6WU basic design. Having had excellent results with these antennae, it was decided to continue along this approach for the new array. After a lot of reading/ research and practical aspects, a 14 ELEMENT design was settled upon. This is roughly equivalent to 2 of the original 9 element designs in stack as far as forward gain is concerned but with a much better F/B ratio. (The stack had been tried.)

Design

A computer program by KY4Z and W6NBI and edited by K4VX based on information from an article 'Extremely Long Yagi Antennas' by Gunter Hoch, DL6WU; VHF Communications, 3/82, was used to calculate the actual dimensions. This program also computes the gain, which is 15.7 dbi. Several other programs confirmed the gain and pattern.

Construction

The materials chosen and used in the design were: -

- Boom square section 25 mm. x 25 mm. x 1.2 mm;
- Elements 10 mm. x 1.2 mm. tubing;
- Driven element Folded Dipole and stay hangers 20 mm. x 3 mm. flat strapping;
- Stays 25 mm reclaimed TV antennae booms;
- boom joiner's 25mm. ID. "U" section;
- Pop rivets 4 mm. Element mounting hardware is an extrusion used on the side of caravans to attach annexes and is cut to 25 mm lengths.

The above all aluminium. Stainless steel bolts, washers and Nylok nuts as required. Six 25 mm. x 25 mm. Plastic chair tips were used in the boom as strengtheners or stoppers.

The Boom is 752.6 cm plus 50 mm. long, this meant that it must have joins, as the material is not available in one piece. The method adopted was as follows; two sections of the 'U'material were cut 300 mm.long. A plastic chair tip was inserted into each open end of the boom and the assembly clamped and drilled on each side of the joint (see photo 1). The far side of the boom and 'U' were tapped 3/16" Whitworth. to suit the bolts. The near side was drilled a neat fit for the bolts so there was no play at all, in fact the bolts must be gently screwed in place.

All elements were cut to length and deburred, then inserted in the mounting extrusion after the centre section had been smeared with a little jointing compound. (Alminox). Each of these assemblies was drilled on a drill press to take the pop rivets. See photo 2.

The folded dipole was then cut and bent to the required shape. By using strap type material, it is much easier to make folded dipole assemblies; various other feed methods had been tried in the past with some success when set up correctly. A section of boom material was cut so as to allow the centre of the driven element to be in line with the centre of the other elements. Some fibre glass (ex sail stiffener) flat stock was used as a mount for the fed section of the dipole and support for the balun. See photo 3.

The element positions were carefully marked out on the boom. A wooden jig was used to align the elements at right angles to the boom and a hand electric drill used to drill the mounting holes for the rivets. The elements were then mounted after smearing the bottom of the mounting flange with jointing compound.

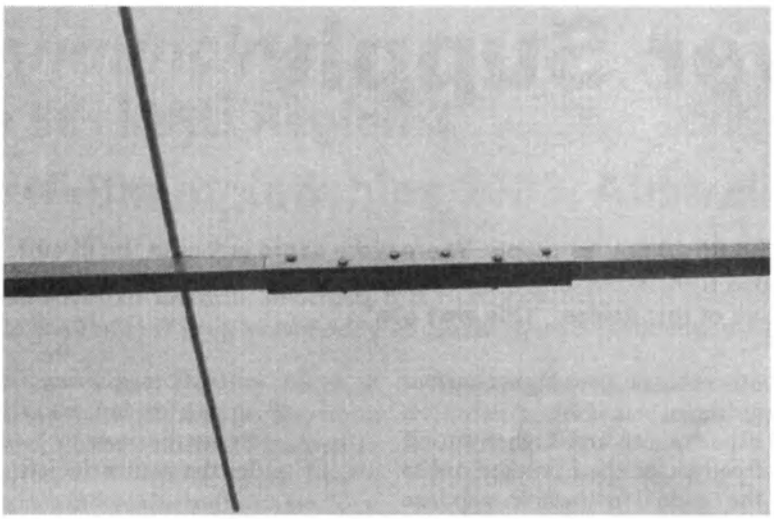

Photo 1 The boom joint construction.

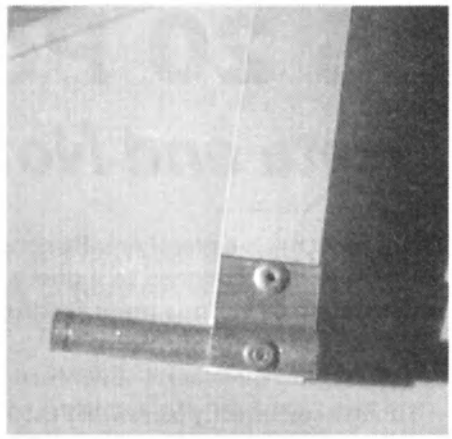

Photo 2 Element mounting arrangement

A mounting bracket for the 'N' type connector was cut to size and mounted on the bottom of the boom. At this time the $^1/_2$ wave coaxial balun was cut to length and mounted. RG59 was used as this has a higher break down rating than RG58.

Initial testing began by mounting the antenna on two wooden trestles in the clear in the back yard. This proved the design did work, in fact at one stage VK2ZAB and VK2KU, Sydney and Blue Mountains were both worked with the beam at fence height and 7 watts from the ICOM 706 barefoot. Further testing confirmed the matching to be excellent.

The ends of the elements were sealed with neutral cure roof and gutter sealant to prevent them whistling in the wind and causing the material to crystallise and fracture. The ends of the coax cable 4/1 balun were also sealed but with RTV 738 a non-corrosive compound. The complete aerial was coated with Tectal 151 a clear anti corrosion compound, the feed point connections were coated with Tectal 506 a brown non-setting moth balling compound.

To keep feed line losses and weight to a minimum LDF450 coax was used from the feed point to the boom to mast clamp. This clamp used some 3 mm scrap flat sheet, which was on hand and was folded into a 'U' section so as to straddle the boom and allow the use of two standard TV type 'U' bolts and clamps. By using this method of assembly the boom was not weakened. The hangers for the stays/braces were bent from flat stock and were drilled to take 6.3 mm bolts fitted with a sleeve of

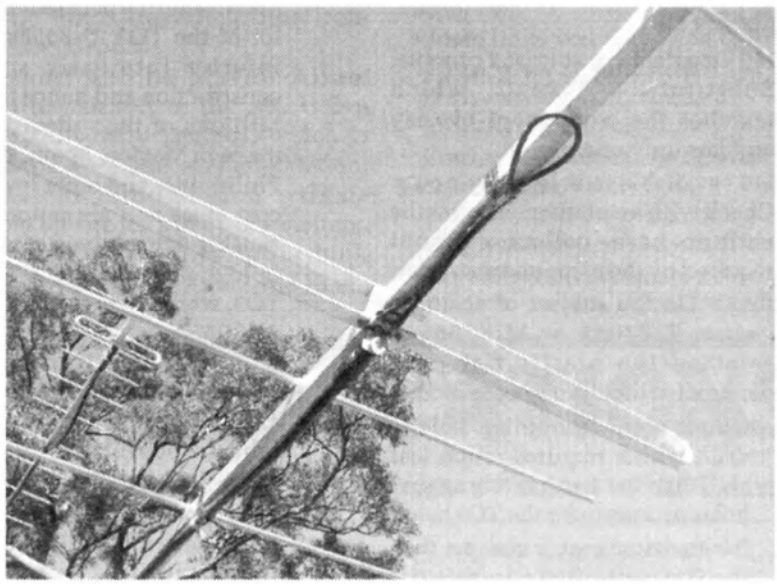

Photo 3 Driven element assembly

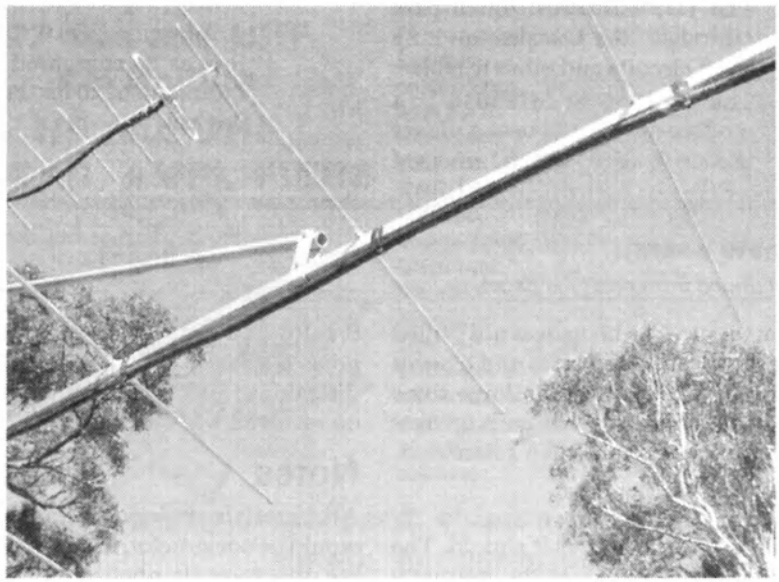

Photo 4 Hanger attachment

RS 20 Power Supply

Errata and Notes

Jim Tregellas VK5JST

There have been several emails concerning the RS 20 power supply. There were some errors in the circuit diagram and in response to a query on the 3055 transistors Jim Tregellas has provided information on the construction of various manufacturers versions of this device, "Oils ain't oils"

ERRATA

TIP2955 - incorrectly labeled TIP2995 on circuit.

1K5 - incorrectly labeled 1K8 on component overlay

1N4004s - incorrect polarities shown on circuit diagram

COMMENTS

BD139 - available in at least 2 pinouts. Substitute a TIP41C, which matches the component overlay and has only one pinout.

BC548 - available in at least 4 pinouts. Check with an ohmmeter to get the emitter- base- collector pinout required by the component overlay.

2N3055 - On the subject of 2N3055s versus TIP3055 or MJE3055, I selected the plastic flat pack version for the following reasons:

1. Only a single mounting hole to drill, which requires much less skill than the 4 accurately spaced holes necessary for the TO3 beast.
2. It is the same cost or cheaper than the TO3 depending on where you source it.
3. The TO3 has leads which pass *through* the heatsink inviting short circuits and other troubles.
4. The TIP3055 or MJE3055 is a modern device and uses a planar transistor dice, which, amongst other things, gives higher current gains, smaller junction capacitances and higher cut-off frequencies. As I pointed out to the original reviewer in response to his original criticism, I am aware, from my semiconductor manufacturing background that a lot of the TO3 2N3055s use an inferior internally soldered construction and hence the note. Millions of these devices were made in Mexico, Spain, Italy, the Philippines and other low labour cost areas and are notorious for causing unexplained oscillations in high power circuits. The only TO3, which I can recommend are 2N3055s, made by Motorola, which I know from personal examination, contain planar chip construction with all of its inherent advantages.
5. Any other TO3 should be treated with grave suspicion until the top of a sample device is removed for examination. Typical solder construction TO3 3055s have the following properties:
   - current gain (hfe) @ 4 amps as low as 5 (compared with a minimum of 20 for the planar device)
   - cut-off frequency (ft) @ 4 amps a few hundred kilohertz in comparison to 5-10 MHz for the planar device.

There are other subtle differences such as the base spreading resistance which is very much larger in the soldered construction, and larger junction capacitances which lower the cut-off frequency, increase internal feedback and consequently affect system stability. Such devices also exhibit large internal phase shifts at high frequency (Stability problems again)

Furthermore a lot of the devices manufactured never met industry standard specifications straight out of the factory. ***Moral:*** Use old TO3 2N3055s or 2N2955s and other similar TO3 power devices in amplifiers, power supplies or other high power environments at your peril. The design of this power supply assumes the current gains and other properties of a modern device and also assumes that the devices used meet their published minimum specs.

Hope this clarifies the questions that have been raised.

Jim VK5JST

My new beam...

(continued from previous page)

10 mm tubing. The boom was not drilled at these points as the bolts and sleeves are on the top of it; this allows some adjustment if required, but pulls up tight and locks in position when assembled.

Results

This new beam works as it should. The VSWR is below 1.1/1 at the normally used frequencies; with the improved F/B ratio and side lobe reduction, less noise is now picked up from unwanted directions resulting in a better S/N ratio on received weak signals.

Notes

All materials are locally available. Any would be constructor, feel free to contact me direct- on air, phone or email.

Recommended reading.

Amateur Radio, November 2001 page 7 & all reference articles mentioned in the appendix on page 8

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Announcing...

the 5th IARU Region 3

ARDF Championships 2003, Australia

The IARU Region 3 Amateur Radio Direction Finding Championships is to be held next year at Ballarat, a large provincial city in Victoria, Australia. It is to be hosted by the Wireless Institute of Australia (WIA) and will be held in the Ballarat area from Friday 28 November to Wednesday 3 December 2003.

The Victorian ARDF Group which is organising the event is expecting up to 100 participants from member societies in Region 3 including Japan, Korea, China, New Zealand, and Australia. Guest competitors from other IARU Regions are expected to also attend. WIA Victoria is sponsoring this important event and assisting the organising committee with financial backing.

The proposed program in 2003 is:

Friday 28th November: Arrival Day

Saturday 29th November: Equipment Check & Opening Ceremony

Sunday 30th November: 2m ARDF Competition

Monday 1st December: Tour Day

Tuesday 2nd December: 80m ARDF Competition & Closing Banquet/ Prizes

Wednesday 3rd December: Departure Day

Ballarat is a historic gold mining town in North Western Victoria, but is only about 1.5 hours travelling time from Melbourne Airport.

Transport will be provided from Melbourne Airport to the Mt. Helen Victoria University Campus, which is the event centre and accommodation. An amateur radio station will be provided on site for use by our visitors.

Entries will be available for both official Region 3 competitors and in the worldwide Friendship categories.

Team results will only apply for Region 3. A and B (2 teams of up to 3) will be allowed in any age/sex category (over and above this further Region 3 competitors may be allowed in the friendship only category if there are vacancies).

Some links you may wish to look at:
http://www.ballarat.com
http://www.ballarat.edu.au
http://www.ardf.org.au

Further enquires can be directed to Mr. Jack Bramham VK3WWW,
Federal ARDF coordinator,
Wireless Institute of Australia
vk3www@alphalink.com.au

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ALARA

Christina Taylor VK5CTY
vk5cty@vk5tty or geencee@picknowl.com.au

Happy New Year!

Did you have a good New Year's Eve even if a cold and wet and windy one? Hope so, and hope the rain was welcome. It seems as if most parts of OZ had rain over the New Year period. For most of us, apart from making us change the plans for a barbie the rain was a good sign of a better year to come for our hard-pressed farmers. It is amazing how many people on the land have radio licences. A licence means you are able to "talk to the world" whenever you want to. It helps to share your worries and to realise that there are farmers in other parts of the globe experiencing hardship, too, and that the hard times are followed by the good times. Let's hope that is so for you, in 2003.

The problems of Christmas presents

Into this household came some expected and some unexpected Christmas presents, BUT, expected or not, some of them didn't fit the equipment we already had. It somewhat spoils the pleasure for the giver and the recipient if the present can't be used (or at least tried out) immediately.

I gave the OM a device to sharpen his drills - great idea, except that it won't fit on his existing drill. His present electric drill has done good service and it still works well and doesn't need to be replaced, BUT he will have to buy a new model as well if he wishes to sharpen his drills because the shape of the part that holds the drill bit has been changed and made longer and the new sharpener needs this longer shape. This is not just designed obsolescence. It is a change made simply to force us all to buy a new style electric drill.

He gave me a digital camera. A great idea, now the photos that 'missed the point' can be deleted so they don't need to be printed automatically. BUT, to print the photos myself I will have to have a USB port added to my computer. Why could not the digital camera have been made to plug into either a serial or a parallel port which I already have on the computer. Again, this is not simple designed obsolescence. It is new design intended to force us all to 'upgrade' our computer whether it is working well or not.

I think I could be said to have made sufficient upgrades. Starting with a Vic-20, then a C64 followed by an XT (I missed the AT) and a 368, then a 468 which is now a Pentium - I had resisted some changes, as can be seen. How many more times will I be forced to upgrade just so that I can use the new devices. Surely they could accommodate me instead.

Do you think we could boycott the manufacturers to force them to allow some of us to be faithful to our tools that have served us so well? I wonder?

A report from Gwen VK3DYL about that DXpedition

YLs in the South Pacific

Following on our very successful YL DXpedition to Norfolk Island two years ago, we decided to try Lord Howe Island and the South Cooks for two more trips. Operators were Elizabeth VE7YL (CW), June VK4SJ, Mio JR3MVF and myself, Gwen VK3DYL. Our "Gofer" and general handyman in moments of crisis was again Doug, VK4BP, while Raija SM0HNV, was with us on Lord Howe for the first week.

Lord Howe is a crescent shaped World Heritage listed island 800 km N-E of Sydney. Two tall mountains dominate the southern end of the island while a surf-fringed coral reef encloses a turquoise blue lagoon and white sandy beaches. With Kentia palms, tropical forests, rare birds, fish and flowers, this was the exotic site of our YL DXpedition's first stop.

We planned the trip around the Equinox when DX conditions were supposed to be at their best but the weather didn't take much notice of that! Wind and rain in abundance. However, Mio and I managed to find one fine day to go up for a scenic flight round the island and out to Ball's Pyramid, a needlelike protuberance sticking up out of the sea. The flight in the little Cessna was superb with fantastic views of the island and lagoon.

Equipment-wise, Murphy came with us. Elizabeth's automatic morse keyer broke down between Canada and Australia and refused to send the letter Q. This was extremely awkward when she wanted to call CQ – hi! The radials of June's Turlin got chopped up by the ride-on mower and a couple of pieces of equipment emitted smoke at odd times. Elizabeth and I claim the record for the fastest dipole changers in the South Pacific though there is still a stone and some string lodged in a certain palm tree. We made 5,441 contacts using the callsign VK9YL obtained for us by the WIA Vic. Div.

Internet had just been installed at the local Museum but it was having teething problems finding the satellite at times. The rest of the island was much as I remembered it from 40 odd years ago – the main difference being that the planes now landed on terra firma instead of flying boats coming down in the lagoon. Such is progress!

After an overnight stay in Brisbane, we took off again for the Cook Islands N-E of New Zealand. The Cooks comprise 15 tiny islands scattered over 2 million square km. of ocean and, for radio purposes, are divided into North and South Cook – we went to the latter and

visited the islands of Rarotonga and Aitutaki. We were welcomed at the Raro Airport (at 1 am) by Vic ZK1CG, with armfuls of beautifully scented leis. Great!

On Aitutaki, half the group stayed at *Gina's Garden Lodges* run by Des, ZK1DD, and his XYL, Queen Manarangi ("just call me Mrs. Clark!"), whilst Mio and I stayed at a motel on the edge of the lagoon. Sitting under a thatched roof shelter and being served breakfast of tropical fruit whilst gazing at the fish jumping in the lagoon and crabs chasing each other across the sand, was a life I could easily have become accustomed to. Apart from the mosquitoes. It was interesting driving through the interior of the island dodging chooks, goats and pigs, all running wild plus the locals all riding round on their motor scooters. There were a lot of derelict houses and most families had their ancestors "planted" in their front garden, some with most elaborate shrines. Doug and June went snorkelling on the reef and were thrilled with the fish they saw. After a week of this ideallic existence (and making 3,241 contacts), we returned to Rarotonga where we again set up our antennas. Our arrival broke the local drought, so much so that we had to buy umbrellas!

Raro is a bustling metropolis compared to Aitutaki with lots of souvenir shops, restaurants, motor scooters for hire and, everywhere you looked, shops selling locally-dyed sarongs and the famous black pearls. Again the world was waiting for us and we had lots of dogpiles to deal with. Elizabeth's keyer (functional again) worked overtime whilst the rest of us ended up with hoarse voices. We managed to work another 4,075 contacts, making a total for the whole DXpedition just over the 12,800 mark. A lot of QSL cards to deal with – hi!

de Gwen, VK3DYL. (For extra pictures, check my web site: www.qsl.net/vk3dyl)

Now it is up to you to apply for those QSL cards

The ALARA Contest

The full results of the Contest were printed in the Dec/Jan issue of AR but the members of ALARA wish to congratulate all the section winners.

We were especially pleased to be able to award the Florence McKenzie Trophy to Pat VK3OZ at the ALARAMEET in Murray Bridge. Only a few times in the life of the Contest has the winner of this special trophy actually been presented with it. The trophy is rather large and rather awkward to package for postage so the winner usually receives only a certificate with a photo of the trophy.

Florence McKenzie was the first YL amateur in Australia. She held the callsigns of VK2FV with which she was active for many years. She was an electrical engineer and a fully licensed electrician, again the first young lady to hold such a licence. With her husband she ran a very successful electrical and electronic shop in Sydney. During WW2 she taught thousands of young men and women to become Morse Code operators. She was instrumental in persuading the then Minister for the Navy, Billy Hughes, to employ women as radio operators, thus releasing many young men to serve in more active roles.

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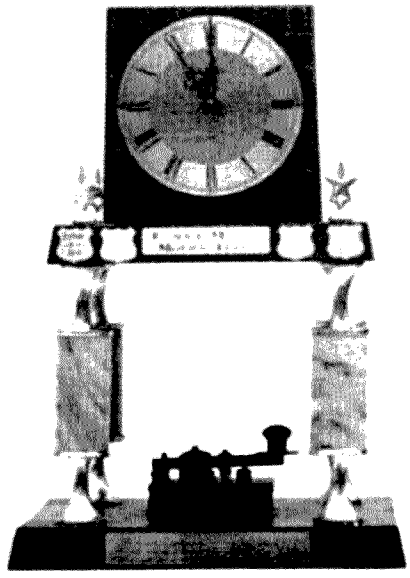

The Florence McKenzie Trophy

Club News

Adelaide Hills Amateur Radio Society

The end of the year is always hectic for members of AHARS with many members helping WICEN to provide communications for the Classic Adelaide Car Rally in early November, our own "Buy and Sell" toward the end of November and our Christmas Dinner in December, but attendance at all of these activities was enthusiastic.

The last meeting for the year at Blackwood High School was also enjoyed very much. Members came along armed with soldering irons, 'third hands' and magnifying glasses, prepared to make up a device from components supplied by Graham VK5ZFZ. This year it was a 'crystal set' with an IC based two-stage audio amplifier, which must have worked if the expression on the face of Jim VK5JST is correct.

In January, the club meeting is an informal barbecue as the school premises are unavailable, but visitors are welcome for all normal meetings.

If you are in Adelaide on the 3rd Thursday of a month please contact either Geoff VK5TY or Alby VK5TAW for details of the venue and the topic for the night.

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Jim VK5JST

Beyond Our Shores

davpil@midcoast.com

Good numbers in the USA

The numbers are in and they speak for themselves. Restructuring is finally having a very positive impact on ham radio growth in the United States. Amateur Radio Newsline's David Black, KB4KCH, has the good word: First, the General and Extra class have increased substantially since the 13 and 20 word per minute Morse code exams were eliminated April 15th of 2000. In fact, the number of people holding these licenses has increased by well over 25,000 for each license class. And that's great news for ham radio equipment suppliers since they rely on higher dollar high frequency transceiver sales for much of their yearly income. The Technician class is holding its own, too. The number of new Tech license holders is keeping pace with the number of hams either upgrading or dropping out of amateur radio. The net change is close to zero. The bottom line is that for the last 12 months ham radio has seen an average of 16-hundred brand new ham licenses issued each month. That's an improvement of 160 a month over the previous year. And that improvement is very good news for ham radio.

(W5YI via ARNewsLine)

Digi Radio Experiment

Ham radio has been asked to be a part of an important digital radio experiment. Bill Pasternak, WA6ITF, has the details: "Digital Radio Mondiale, or DRM, is a project aimed to revitalise the short-wave, medium-wave and long-wave AM radio broadcast bands. This, by using digital signals to provide near-FM quality. Radio Amateurs and serious broadcast-band listeners have been invited to become part of the DRM Software Radio Project. They may also be among the first to access the initial DRM programs when test transmissions begin next month. James Briggs is the DRM Projects Co-ordinator with Merlin Communications in Dorset England. Biggs says that the project relies on adding an extra down-converter board to existing receivers and then using software to decode the signal via a PC soundcard". To find out how you can play a part in the DRM experiment take your web browser to www.drmrx.org

(Media Network via ARNewsLine)

Ham frequencies

Seventy-five years ago, in 1927, an International Telecommunication Union Conference in Washington established internationally-agreed frequency bands for radio amateurs, the harmonically-related bands. These bands came into use in 1929. Let's keep them clean and enjoy the privileges.

The Golden Antenna

Each year the town of Bad Bentheim in Germany presents the 'Golden Antenna' Award for outstanding humanitarian deeds involving Amateur Radio. The recipient of the 20th Golden Antenna Award was Eric Mackie, 9Z4CP, from Trinidad and Tobago. He received it for his part in the rescue of the skipper of a Swedish sailing boat that was in distress of the coast of Venezuela when it was attacked by pirates who shot the skipper. After the pirates left, his wife managed to call on Amateur Radio. Eric took the call and arranged for the skipper to be taken to the St. Clair Medical Centre in Trinidad for treatment.

Nominations are now being taken for 2003. If you wish to nominate someone, contact Stadt Bad Bentheim, PO Box 1452, D-48445 Bad Bentheim, Germany or e-mail to jueriens@stadt-badbentheim.de

(RSGB Nov RadCom)

ITU says 'yes'

Marrakesh, 27 September 2002 — The International Telecommunication Union announces the Youth Education Scheme (YES), a project to assist talented young people to continue their university studies in telecommunications.

ITU, in partnership with leading companies will provide scholarships for young people who demonstrate that they are at the top of their university classes and who require financial assistance to complete their degrees. Assistance will be given in the form of tuition, preferably to complete a degree already initiated at a local institution.

"There is a serious need for human resources from a wide variety of competencies and specialities to manage and utilize telecom technologies and services for bridging the digital divide," said Hamadoun Toure, Director of the ITU's Telecommunication Development Bureau. "Every unfinished degree in telecommunications spells the loss of a capable mind to the sector. YES is an expression of a positive and assertive stance by ITU in support of needy and deserving young people wanting to carve out a career in communications", Touré added.

A screening process and procedures for YES will be strictly adhered to, including direct payment of tuition fees to the universities upon receipt of invoices.

The initiative is one way that ITU's Telecommunication Development Sector is integrating youth issues into its activities, including programmes with emphasis on capacity building. Resolution 38 of the World Telecommunication Development Conference 2002 also requests the Secretary-General of ITU to bring issues relating to youth and ICTs to the attention of the Plenipotentiary Conference 2002, currently in session in Marrakesh. This is being done with a view to raising appropriate resources for youth-related activities and functions.

More information on YES will be made available to interested organizations that wish to include assistance to youth in their social responsibility chapter.

More information on YES can be found at www.itu.int/ITUD/hrd/yes/index.html

(ITU Web site)

Ron Smith VK4AGS, Federal Education Co-ordinator
r.g.smith@cqu.edu.au

Proving worth

One of the discussions around at the moment relates to whether there is a need for a third level of entry into amateur radio. While personally I believe there is, such discussion raises the question of a much bigger issue which relates to syllabi, training and education courses, and the system to be used for a person to demonstrate they have the necessary knowledge and skills to enter amateur radio.

Over the lifetime of the now quite old current syllabi and exam system, technology (including the electronic technologies) has at least doubled. Additionally, if only one of the new computing technologies now in the research laboratories becomes a commercial reality then all current computing technology in shacks, households and businesses worldwide will become redundant by 2012.

Educational technology has also developed, particularly, but not uniquely, in the school systems and smaller universities. In many ways Australia leads the world in educational technology and methodologies. On the other hand, Australia also has institutions and educational systems that have not embraced the new educational technologies.

Of the many issues here at a coal face level, the rewriting of syllabi in a more generic style and the nature of "proving worth" systems needs to be addressed.

Over the coming few issues I will explore different types of "proving worth" approaches. I will not advocate any particular approach as they all have their strong and weak points. However, some are certainly more educationally accurate that others. Some focus more on understanding while others favour shallow or surface learning, which is not strongly supported in education but unfortunately happens, even unknowingly. The information to come will be useful in discussions about updating education technology in amateur radio and making it amenable to future developments in both the electronic and educational technologies.

A very important early point to consider is that all educational assessment involves the same complex series of decisions. These may be taken in a different order in different systems but the decisions are always the same. Some of the decisions are subjective or opinion and some are objective. For example, with the current system where 70% is the pass mark the objective decision is to pass somebody with 78%. One subjective decision is setting the 70% as the pass mark in the first place. This 70% is an opinion. We just cannot escape subjectivity or opinion.

Additionally, we cannot avoid having to trust people with the implementation of the system. We can have as many complex legalistic procedures in place as we like but somewhere there is a step, which involves trust. Where this step is depends on the system.

The "proving worth" approaches I will look at in the coming issues will include multiple choice examinations, essay or extended answer examinations, assignments or projects, mentor or teacher opinion, course work, and portfolios. It is also worth considering combinations of these.

More later.

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***Beyond Our Shores* continued**

First Amateur Transatlantic HF Digital Voice QSO reported

Radio communication pioneers Ten-Tec and Thales have announced that they've used an amateur radio linkup to span the Atlantic on HF digital voice for the first time. Ten-Tec's Doug Smith, KF6DX, and Thales' Didier Chulot, F5MJN, successfully transmitted and received HF digital speech signals November 22 between Paris, France, and Ten-Tec's Sevierville, Tennessee, headquarters.

"Amateur radio has long been at the forefront of technological development," said Smith. "It's nice to be able to show that our legacy is alive and well." Tests are being conducted under the auspices of ARRL's Digital Voice Working Group, which Smith chairs. A written report on the tests is due in January.

Calling it "a major breakthrough," a Ten-Tec news release said the two amateur stations "demonstrated the advantages of digital audio during the conversation, including noise-free, FM-like reception and the potential for simultaneous voice and data." The feat was accomplished on 15 metres using Ten-Tec transceivers and Thales Communications Skywave 2000 digital audio software. Operating as F8KGG, Chulot spoke with Smith for several minutes over the HF digital link, operating within a 3-kHz bandwidth.

Smith said he and F5MJN used unmodified Ten-Tec transceivers in upper-sideband mode, although AM or FM mode also would work. No additional hardware was required beyond the cables connecting the transceiver and the microphone to the PC sound card. Smith said audio quality was roughly the same as a conventional telephone circuit. An amateur radio version of the Thales system is expected to appear on the market early next year.

In terms of amateur radio, Alinco was the first manufacturer to come out with a digital voice option for some of its transceivers. ICOM debuted its D-Star digital "concept radio" system last May at the Dayton Hamvention—where Smith chaired the Digital Voice Forum—and demonstrated it at the ARRL-TAPR Digital Communications Conference in September. The unit, which operates on 1.2 GHz, was scheduled to hit the ham radio market this fall.

Technical details of the Thales system are available from

http://www.arrl.org/tis/info/pdf/x0301049.pdf.

(ARRL N/L)

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Technical Abstracts

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Common Faults and Cures

An interesting item appeared in the Technical Topics column of Pat Hawker G3VA in Rad Com October 2002 which came from Harry Leeming G3LL. Harry Leeming G3LL was involved in servicing amateur radio equipment for many years. The following comments from Harry refer to common and intermittent faults.

Intermittent Faults . These can be very time consuming. Often the best approach is a few prods and pokes in likely areas.

Dirty Contacts. Controls and switches are largely self cleaning if they are used regularly. But the never or very seldom used switch or control that is tucked behind the back of the rig or, even if at the front, is a common source of trouble.

Relays. A common cause of intermittents. Removing the case and gently poking at the contacts with an insulated tool will usually if this is the trouble. Be sure to clean them with a cleaner free of lubricant, such as video head cleaner.

Plug In Circuit Boards. Another weak link, especially if the socket and contacts on the boards are made from different metals. G3LL found that gold plated memory and non gold plated sockets on computers needed cleaning every couple of years.

Crimped Connections in Plugs. These tend to start becoming troublesome after 20 years or so, and are a common cause of faults on the FT707.

Intermittent dry or broken joints. These cannot be blamed on smoking , but often occur where a largish component , such as an audio output or regulator IC , is clamped onto the chassis and soldered to a PCB with resultant movement between the two as the board flexes.

The first five problems are are much more likely to occur where the owner of the rig smokes. G3LL reckoned that while he was in business a third of his repair income came from undoing the faults caused by cigarette smoke .

G3LL found that often the most difficult aspect of fault tracing is obtaining the complete story of what has happened from the customer. Write everything down and attach a note to the rig with a day time telephone number . The better the information , the quicker the fault will be to fix, and the less the cost of the repair

GW4ZXG Remote Tuner

A simple means of adjusting a tuning stub on a quad antenna devised by Louis Thomas GW4ZXG appeared in the Antennas column of Peter Dodd G3LDO in the August 2002 edition of Rad Com. The tuner used a modified bulldog paper clip as an adjustable short for the tuning stub. The antenna was a diamond quad with the stub located on the lower end of the fibreglass reflector element support. The idea could be used on other antennas if a suitable stub support were provided.

The tuner is shown in Fig 1. The bulldog paper clip clamping spring is drilled to pass the stub wires. An egg insulator is used as a pulley for the upper adjusting cord. Nylon cords are used to move the sliding clip which acts as a moveable stub shorting bar up and down along the stub. The stub can be adjusted with the antenna at full operating height. Once the correct length is found a more permanent stub can be used.

When adjusting the stub either a remote signal source or a remote field strength meter can be used. The aim is to adjust the stub for either maximum gain or for maximum front to rear ratio. The gain approach whilst attractive may not be as good as having minimum signal off the rear of the antenna. The rejection of unwanted signals and noise may be more important than a fraction of a dB of forward gain when making difficult contacts.

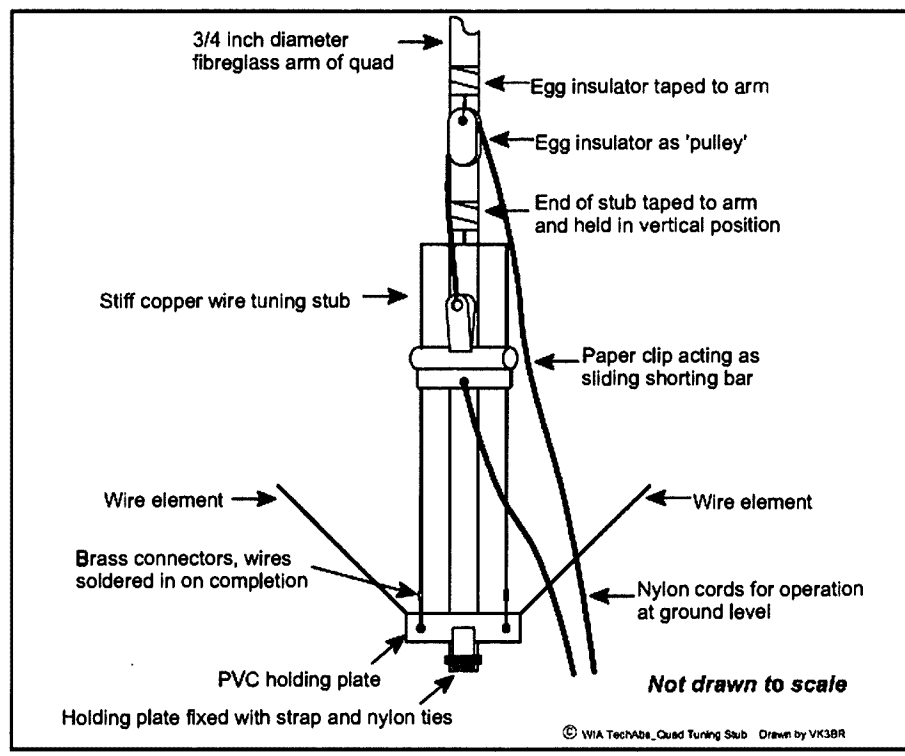

Fig 1. GW4ZXG Remote Tuning Slider.

Quiet Antenna Tuner

A different form of quiet antenna tuner was published in QEX May/June 2002 by Tony Lymer GM0DHD. The idea was to use a different configuration of a type of SWR meter as a quiet tuner. The idea is to use a dual directional coupler of the type used in "The Tandem Match" of John Grebenkemper KI6WX which is featured in recent ARRL Handbooks and to simply swap two connections. The principle was described by Underhill and Lewis in Electronic Letters 4 Jan 1979. The coupler used was patented by Sontheimer and Frederick (US patent 3426298) in 1969.

An SWR meter using a dual directional coupler is shown in Fig 2. By rearranging this the SWR meter can be converted into a quiet tuner as is shown in Fig 3. The connection of the reflected power termination and indicator has been swapped with the transmitter. You should note that one of the dummy loads, the forward power one, must be capable of dissipating the full transmitter power. In the configuration shown in Fig 3 the power radiated while tuning is reduced from 100 watts to just 1 Watt. This is for 20 dB coupling in the dual directional coupler. For a 30 dB coupler the radiated power would be 10 db less. The radiated signal during tuning is much reduced hence the Quiet Tuner name.

A more practical quiet tuner is shown in Fig 4. Here the transmitter input to the coupler block and the reflected power termination and metering are swapped with a switch between the operate and the Quiet Tune positions. This is shown for low power operation and for higher power use an appropriate termination would need to be used for the dummy load in particular. The resistor in series with the meter could be replaced with a potentiometer to allow adjustment of full scale reading. With a 20 dB coupler a dummy load capable of dissipating full legal power would be needed and the termination of the reflected power would need to be able to dissipate $1/10$ of the full power. This means either 120W and 1.2w terminations or 400W and 4W terminations for tuneup at full single tone power.

The article included a suitable coupler for use at the 5 Watt level and this is shown in Fig 5. The core used is a Fair Rite 2843000302. Similar cores of type 43 material μ=850 or near equivalents may be used. The windings are 12 turns of 30SWG/28AWG enamelled copper wire and the single wire windings are 26SWG/25AWG. The coupling factor is given by 20log (N) where N is the number of turns. 10

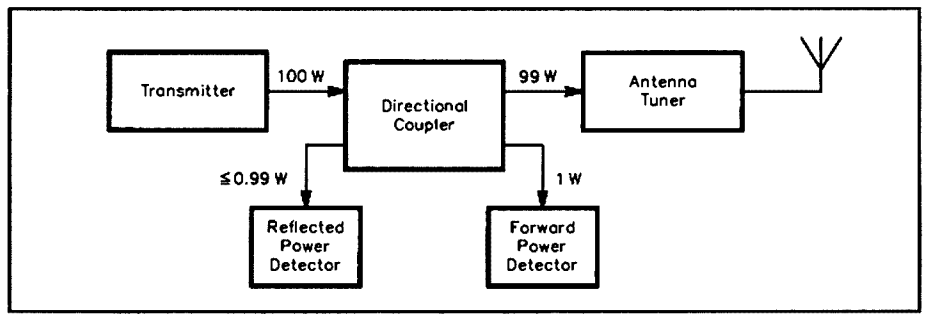

Fig 2. Conventional Dual Directional Coupler SWR Meter.

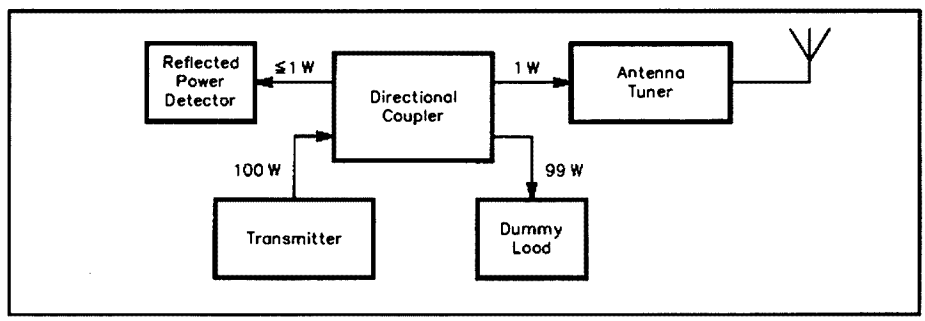

Fig 3. SWR Meter converted to Quiet Tuner.

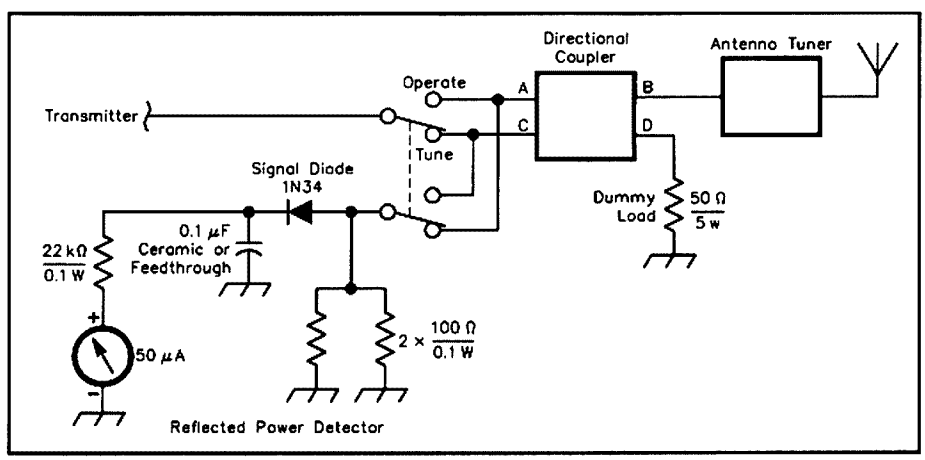

Fig 4. Quiet Tuner Schematic.

The performance of the coupler of Fig 5 is shown in Table 1. The performance was measured with an Agilent 8753C network analyzer. Performance is adequate to 50 MHz but drops off at 146 MHz.

An alternative high power coupler is shown in Fig 6 and is derived from the one shown in the Tandem Match article in the ARRL Handbook by John Grebenkemper KI6WX with further work by Zack Lau KH6CP published in QST April 1988 and also a letter by Frank Van Zant KL7IBA in July 1989 QST.

The toroids used are T-68-2 powdered iron toroids. The windings are 40 turns of 26 to 30 gauge enamelled wire spread

evenly around each core. The lines forming the primary windings are RG8/RG213 with the PVC jacket removed. The braid is insulated by winding Teflon tape over the braid which allows them to be slipped into the toroids.

Table 1.Performance of Directional Coupler of Fig 5.

	1.6 MHz	50 MHz	146 MHz
Through Path Loss	0.14 dB	0.09 dB	0.12 dB
Coupling Factor	-21.6 dB	-21.7 dB	-21.6 dB
Directivity	31 dB	31 dB	17 dB

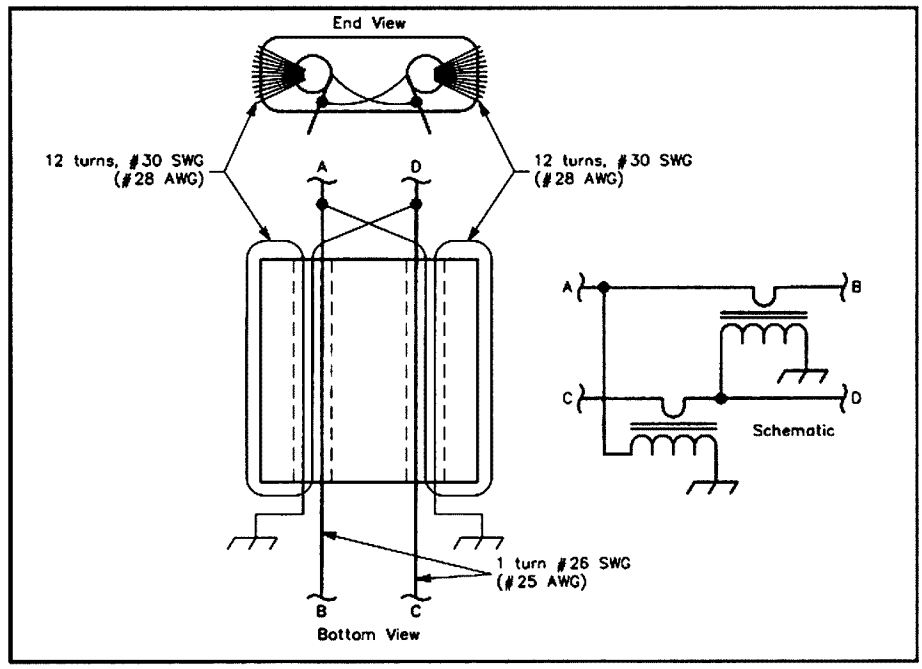

Fig 5. Directional Coupler for Low Power.

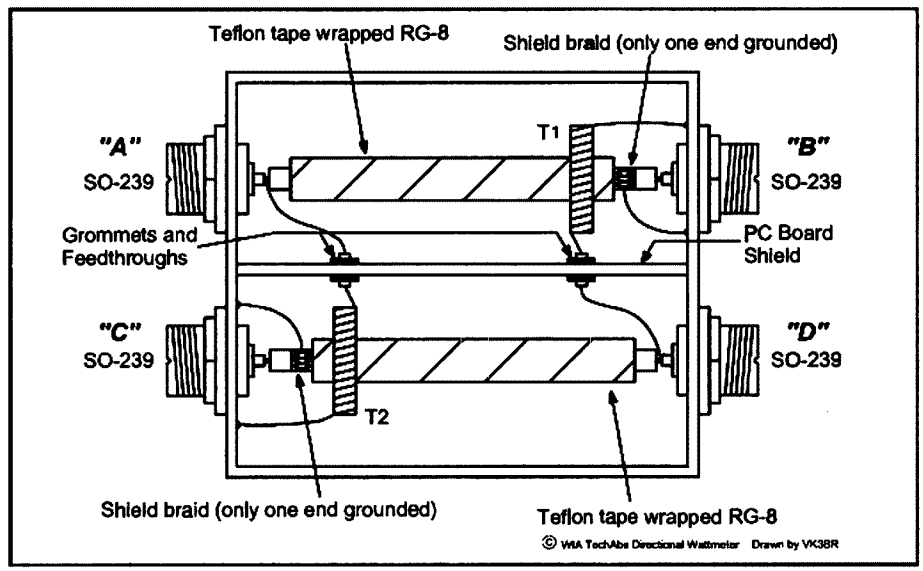

Fig 6. High Power Directional Coupler.

M0BMU LF Loop

In the LF column of Dave Pick G3YXM in Rad Com July 2002 an interesting loop for 136 kHz reception was described. The loop was the work of Jim M0BMU and it has the tuning components and the loop amplifier in the shack safe from the elements.

The loop consists of a single turn of insulated wire outside with an enclosed area of 20 square metres. This could even be a wire thrown over a small tree. The ends are connected to a coaxial cable running back to the shack where the cable is connected to a high Q coil and tuning capacitor. A low noise preamp with good signal handling capability is used to boost the signal. The bandwidth of the loop is broad enough to allow coverage of the UK 136 kHz band.

The loop is shown in Fig 7. The loop is 2m high by 10m long for an area of 20 square metres. The shape of the loop is not critical. The transformer used is a 1:1 design wound as 30 bifilar turns of 32 SWG on an RM6 potcore. (RS Components 2318735)

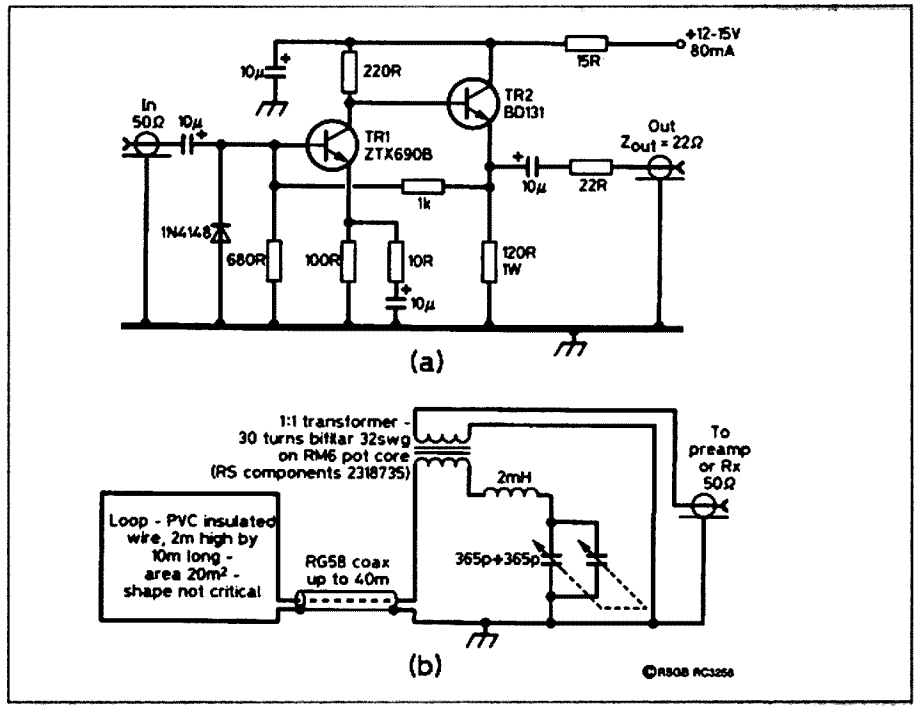

Fig 7. M0BMU Receiving Loop and Amplifier.

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SETG Convention June 2002	Wayne Kilpatrick VK5ZX	May	39
Urunga Field Day		February	27
VK3GH Hamfest		February	17
WIA Federal Convention 2002.	Peter Parker VK3YE	July	14
WIA Federal Convention Comment	Ernest Hocking VK1LK	June	3
Winners Urunga 2002	B.J. Slarke VK2ZCQ	December	28
Operating			
1S Spratley Islands ARRL Ruling	Mal Johnson VK6LC	May	34
66 tips for 6	Neville Mattick VK2QF	February	8
Gridsquare League Table update	Guy Fletcher VK2KU	April	48
Sunspot Numbers February 2002		April	45
Sunspot Numbers June 2002		August	53
UHF Records 75, 241, 322 GHz	David Minchin VK5KK	January	49
WIA DXCC standings (335) (June 30 2002)	Mal Johnson VK6LC	August	45
OTU			
"It's a pity.."	Don Jackson VK3DBB	December	24
Academic cost cutting is an	Malcolm Haskard VK5BA	September	53
Are new EMR regulations a threat ?	Peter J. Kriel VK5AUA	July	47
Attention to "Old Timers"	Murray Burford VK5ZQ	August	52
Attention to Atttenuators	Lindsay Lawless VK3ANJ	August	52
Attention to detail	Col Harvey VK1AU	August	52
Australian Foundation Licence	Alan Wills VK4YAR	June	53
Bad operating habits	Wayne Melrose VK4WDM	December	44
Cardiac Pacemakers and Amateur radio	Ron Tulloch VK4BF	January	56
Changes in regulations causes frustration	Ottavio Tonon VK6QU	May	52
Correction Photo headings March 2002		May	53
CRTB	Ken Knox VK6ZO	February	56
Don't lower the standard	Bill McCarthy VK4WMC	February	56
Enter into the Entry Level debate	Lindsay Lawless VK3ANJ	August	53
Hooks for new recruits	Laurie Ernst VK4KLE	October	53
Internet and Amateur radio	Bruce Bathols VK3UV	February	56
Internet not part of Amateur Radio	Stan Ellis VK2DDL	January	56
Internet Question banks" essential for	Neil Trainor VK3IJ	July	55
Internet repeater linking	Alan Taylor VK6BN	January	56
Is JOTA dying	G. Scott VK2KE	December	65
Jim Linton VK3PC answers EMR critics	Jim Linton VK3PC	July	47
Koala Crystals	Steve Mahoney VK5AIM	October	53
Look after "Old Timers"	Steve Mahoney VK5AIM	May	53
Mainland Problems	Ron Churcher VK7RN	December	24
Math for AR	Lindsay Lawless VK3ANJ	October	53
Mental Illness and the Amateur Code	Heinz J Baytala VK3BEW	April	56
Novice Cram Course A Review ?	Neil Cornish VK2KCN	November	53
On air behaviour	Neville Mattick VK2QF	November	53
Perspective on Recruiting and training	Ian Trainor VK3IJ	January	55
Reply Godsil Contest Column Jan 2002	Steve Mahoney VK5AIM	May	52
The Future of Amateur radio	Lindsay Lawless VK3ANJ	December	28
VK5SIG	Godfrey Williams VK5BGW	March	56
What are Band Plans for ?	Ray Turner VK2COX	October	53

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Wills page, May AR 02 Attention to	Murray Burford VK6ZQ	August	52
People			
A Radio Active Life - Harry Atkinson	Mrs H Atkinson	October	44
A Sad farewell.	Eric Jamieson VK5LP	November	34
Antenna at VK3MO	Ron Fisher VK3OM	September	67
Dr Wally Howse VK6KZ wins Technical		October	23
Hams at home	VK3OM and VK3IO	November	67
Journey Round my Uncle Norm Hurll	N J Hurll	November	21
Martin Luther VK6GN- who builds his life	Colwyn Low VK6UE	May	11
Re-appointment of Federal Director		September	3
Remembrance Day Talk 2002	Mr Horrie Young VK2AMZ	September	23
Thomas Lynd		September	21
WIA Awards Coordinators		January	14
Women in Radio. Jean Hillier and Sue		June	22
Propagation			
Sunspot Numbers Dec 2001		February	56
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Satellites			
Operating Hints - Working with Satellites 2	Peter Whellum VK5ZPG	March	34
Operating Hints - Working with Satellites 1	Peter Whellum VK5ZPG	February	35
Oscar -7 back after 22 years silence	Bill Magnusson VK3JT	August	38
Six monthly Update Operational AR	Bill Magnusson VK3JT	July	32
Silent Key			
Arie Bless (one time VK2AVA)	Ron Fisher VK3OM	November	47
Barrie Lakey VK3BL	Midland Amateur Radio Club	March	38
Bill Bower VK7AV	Robin Harwood VK7RH	February	31
David Jessop Parry VK2CX	Stan Bourke VK2EL	September	52
David Mathison VK2KLV	Gerry Barker VK2TSR	July	17
Edward Charles "Eddie " Hornbuckle		March	33
Fred Stirk VK2ABC	Ade Stirk	January	27
Geoff West VK2BT	Bob Hawksley VK2GRY	February	10
Gordon William Lanyon VK2AGL	K.R. Harvey VK2BKH	April	27
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Ian Sewell VK3IK	VK3XC,VK3JO and VK3OM	November	32
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John Eastaugh VK5GY	Derek Hague VK5AFP	April	14
John Ewen Gerber OBE; AFC VK1EG	Col Harvey VK1AU	April	38
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Les Kinch VK2BBD	J.R. Blackman VK2KJB	January	27
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Active Antenna	Gil Sones VK3AUI	May	15
Antenna Tuning Unit	Gil Sones VK3AUI	April	24
Battery saver Timer	Gil Sones VK3AUI	March	27
Blu Tack Swarf Catcher	Gil Sones Vk3AUI	October	43
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Copper Wire current ratings and usage	Gil Sones VK3AUI	August	26
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Finding a break in multi core cable	Gil Sones VK3AUI	March	26
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Permeability tuning for simple AM Radios	Gil Sones VK3AUI	June	26
Portable Two Element triband Yagi	Gil Sones VK3AUI	February	25
Rigid Stayed Tower	Gil Sones VK3AUI	September	26
Sardine Sender Updated	Gil Sones VK3AUI	February	26
Shortening Screws	Gil Sones VK3AUI	August	29
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Simple CW Filter	Gil Sones VK3AUI	December	31
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Soldering Litz wire	Gil Sones VK3AUI	March	26
Stealthy Delta	Gil Sones VK3AUI	September	27
The Miracle Whip	Gil Sones VK3AUI	April	23
Top Drive	Gil Sones VK3AUI	August	27
VFO Temperature Stabilisation	Gil Sones VK3AUI	April	24
WBR Receiver	Gil Sones VK3AUI	January	24
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Technical Antennae			
A Field day or Emergency Portable mast	Keith Gooley VK5OQ	February	11
A home brew dish and the weather	Norm Rosensweig VK5ZAH	January	7
Alternative to AZ/EL Tracking Systems	Bill Magnusson VK3JT	October	34
Low Loss Current Balun for 1.8- 30 MHz	Peter Woodland VK3ZPW	October	9
More about Shack in a Brief Case	Ron Holmes VK5VH	September	15
The DISCONE - A good broadband	Mike Todd VK6JMA	February	9
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A low cost microwatt meter	Dale Hughes VK4DSH	July	18
An LF-VHF Milliwatt.watts Power Meter	Drew Diamond VK3XU	April	4
Charlie's Toys Grid Dip Meter	Charlie Sims VK2ABF	March	10
Correction VHF SWR and Watt Meters	Gordon McDonald VK2ZAB	October	14
DTMF encopder from an old tepephone	Don Gamble VK6KAR	August	15
Measuring Q with the simple Q meter	Lindsay Lawless VK3ANJ	January	12
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A Digital Frequency Display	Phil Rice VK3BHR	September	6
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A 25 watt AM/CW Valve Txr 1.8- 3.5 MHz	Drew Diamond VK3XU	November	4
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Some Uses for a Dip Oscillator	Drew Diamond VK3XU	December	4
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The RS-20 Power Supply	Jim Tregellas VK5JST	November	11
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Gridsquare League Table

Guy VK2KU

Formatted copies are available on the website of the NSW VHFDX Group: http://www.vhfdx.oz-hams.org (press the "Gridsquares" button) either as a Word 6/95 file or in HTML format.

While the usual minor changes have occurred to the Tables, one feature deserves comment. Five participants in the 144 MHz terrestrial table have improved their scores by more than 10 squares (4 of these by more than 20 squares). Such increases are without precedent in the lifetime of these Tables. There is no single reason for this. One station has recorded his first update for about a year. Barry VK3BJM has been out portable on SSB in some rare squares in Western NSW (thanks Barry). But by far the biggest factor has been the recent trip by Rex VK7MO into rare squares of central and southern Queensland and Northern NSW. While a few of Rex's contacts have been by SSB (and even JT44), the great majority of these rare squares were activated by the meteor scatter mode FSK441. Those stations taking advantage of this bonanza have had a "field day" - thanks Rex for making it all possible.

Happy reading, and congratulations to ALL those who have lifted their scores.

Gridsquare Standings at 26 November 2002

144MHz Terrestrial

VK2FLR	Mike	96
VK2KU	Guy	85
VK3FMD	Charlie	76
VK2ZAB	Gordon	72 SSB
VK2KU	Guy	66 SSB
VK3BRZ	Chas	66 SSB
VK2DVZ	Ross	59 SSB
VK3EK	Rob	57
VK3KAI	Peter	54
VK3TMP	Max	53
VK3XLD	David	53
VK3BDL	Mike	50
VK3CY	Des	50
VK3ZLS	Les	50 SSB
VK2EI	Neil	46
VK3BJM	Barry	45
VK3WRE	Ralph	44
VK2DXE	Alan	43
VK2TK	John	41
VK3CAT	Tony	39
VK3KEG	Trevor	39
VK7MO	Rex	32
VK2TK	John	29 SSB
VK4KZR	Rod	29
VK4TZL	Glenn	28
VK6HK	Don	28
VK4DFE	Chris	24
VK2KU	Guy	23 Digi
VK3KME	Chris	22
VK3HZ	David	21
VK2TG	Bob	20
VK3YB	Phil	20
VK3TLW	Mark	19
VK6KZ	Wally	19
VK3AL	Alan	17
VK6KZ/p	Wally	16
VK2TK	John	13 Digi
VK3DMW	Ken	13
VK2LRR	Leigh	11 FM
VK2DXE/p	Alan	10
VK3ANP	David	10
VK2TWO	Andrew	5
VK2CZ	David	1

144MHz EME

VK2FLR	Mike	90
VK3CY	Des	66
VK2KU	Guy	21
VK3KEG	Trevor	4
VK3FMD	Charlie	3
VK2DVZ	Ross	2
VK7MO	Rex	1

432MHz

VK2ZAB	Gordon	50 SSB
VK3BRZ	Chas	46 SSB
VK3XLD	David	44
VK3FMD	Charlie	41
VK3ZLS	Les	36 SSB
VK2KU	Guy	32
VK3EK	Rob	32
VK3BJM	Barry	29
VK2DVZ	Ross	27 SSB
VK3BDL	Mike	26
VK3KAI	Peter	26
VK3TMP	Max	25
VK3WRE	Ralph	24
VK3CY	Des	23
VK3KEG	Trevor	21
VK3HZ	David	15
VK7MO	Rex	15 SSB
VK3CAT	Tony	14
VK4KZR	Rod	14
VK2TK	John	13 SSB
VK3TLW	Mark	13
VK6KZ	Wally	12
VK3AL	Alan	10
VK3ANP	David	10
VK2TG	Bob	8
VK3KME	Chris	8
VK3YB	Phil	8
VK6KZ/p	Wally	8
VK4DFE	Chris	6
VK2FLR	Mike	5
VK4TZL	Glenn	5
VK2CZ	David	3
VK2TWO	Andrew	3
VK2DXE/p	Alan	2
VK3DMW	Ken	1

1296MHz

VK3XLD	David	29
VK3BRZ	Chas	28 SSB
VK2ZAB	Gordon	25 SSB
VK3FMD	Charlie	25
VK3ZLS	Les	24 SSB
VK2KU	Guy	19 SSB
VK3EK	Rob	19
VK3KWA	John	19
VK3WRE	Ralph	16
VK3KAI	Peter	14
VK2DVZ	Ross	13 SSB
VK3BDL	Mike	12
VK3BJM	Barry	12
VK3TMP	Max	11
VK7MO	Rex	10 SSB
VK4KZR	Rod	9
VK2TK	John	8
VK3AL	Alan	7
VK6KZ/p	Wally	5
VK3BVP	Shane	4
VK6KZ	Wally	4
VK3KEG	Trevor	3
VK3YB	Phil	3
VK2DXE/p	Alan	2
VK3CY	Des	2
VK2CZ	David	1
VK3DMW	Ken	1
VK4TZL	Glenn	1

2.4GHz

VK3WRE	Ralph	8
VK3KAI	Peter	7
VK3FMD	Charlie	5
VK3BRZ	Chas	4 SSB
VK3EK	Rob	4
VK3XLD	David	4
VK6KZ	Wally	4
VK3BJM	Barry	3
VK4KZR	Rod	2
VK3TLW	Mark	1
VK4TZL	Glenn	1

3.4GHz

VK3FMD	Charlie	4
VK3KAI	Peter	4
VK6KZ	Wally	4
VK3EK	Rob	3
VK3WRE	Ralph	3
VK3XLD	David	2

5.7GHz

VK3FMD	Charlie	7
VK3WRE	Ralph	7
VK3KAI	Peter	5
VK6KZ	Wally	4
VK3XLD	David	3
VK3BJM	Barry	2
VK6BHT	Neil	2

10GHz

VK6BHT	Neil	9
VK3FMD	Charlie	6
VK6KZ	Wally	5
VK3EK	Rob	4
VK3KAI	Peter	4
VK3WRE	Ralph	4
VK3XLD	David	4
VK3TLW	Mark	3
VK2EI	Neil	2
VK3BJM	Barry	2

24GHz

VK6BHT	Neil	3
VK2EI	Neil	2
VK6KZ	Wally	2

474THz

VK7MO	Rex	1

Additions, updates and requests for the guidelines to Guy VK2KU, vk2ku@hermes.net.au, or by mail (QTHR 2002).

Next update of this table will be in February 2003.

Stations who do not confirm their status for more than 12 months may be dropped from the table.

ar

PLAN AHEAD

John Moyle Field Day
15, 16 March

Urunga Field Day
19, 20 April

Division News

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

It was, "**Silence! - Lights! - Cameras! - Action!**", when Canberra's One Tech '02 Radio and Electro-Technical Symposium got underway at 10.00 am, on Sunday, November 17 at SoftLaw House, National Circuit, in Canberra. The conference hall resembled an ABC-TV big-event studio. There were three video cameras on tripods, plus another link from the computer-projector. Up to five microphones were used apart from the camera links. This service was provided by the Gladesville ARC of NSW, which sent an Outside Broadcast (OB) van with equipment and a camera crew of seven to videotape the event for posterity

Convened, directed, and moderated by Peter Ellis VK1KEP, the purpose of the symposium was to bring university and industry researchers, TAFE teachers and students, and radio amateurs together, and have them present state of the art developments to each other in a controlled environment.

Peter was successful in assembling a range of speakers on subjects as diverse as: The use of Plasma as an antenna, Radio astronomy in your backyard, Satellite communications, including FEDSAT – the Aussie satellite, Data modes in Amateur Radio, including RS-485 data control of radio equipment, and WIA – the Federal Picture. More detail is available at the Divisional Website www.vk1.wia.ampr.org

Midway through the day, a handful of movers and shakers, such as Dick Smith VK2DIK businessman, Ernest Hocking, VK1LK WIA Federal President, Gilbert Hughes VK1GH ex-ACA executive, Hugh Blemings VK1YYZ, VSB Pty Ltd, and John Gordon - Defence, engaged in a panel discussion on issues related to amateur radio and its future. Many questions were asked when the panel discussed subjects such as: How to stimulate a renewed interest in amateur radio; What is Dick Smith going to do next year?; The pros and cons of introducing the Foundation Licence; and, should the WIA reconfigure itself into one single body?. Some of the speakers brought equipment for display and demonstration. Dale Hughes VK2DSH showed off his radio astronomy, 10 GHz receiving gear, as used with a dish antenna at his home. Interestingly, those of us who have the equipment to communicate on the 23 cm band, can use it in the pursuit of radio astronomy at any time. Dale also said that with a simple dipole antenna cut for 38 MHz, interstellar signal sources - hot spots - can be received with simple radio receivers. The next step up would be the 'hydrogen line' at 1420 MHz, again, a simple Tuned Radio Frequency receiver (TRF) would give surprising results. Many interesting books on radio astronomy were on display as well. All of them written for amateurs, with some giving full details of how to build the receivers, antennas and tracking mechanisms. Not surprisingly, they were all titled "Amateur Radio Astronomy". Another display, by Kerry Richens VK1KRF, showed how the 'Serial Data Control Protocol' (RS-485) can be used to automate radio station operation, including antenna switches and rotators, and other equipment around the house or work place. Peter Westerhoff VK1NPW, together with Geoff Gatward VK2XJG, Carl Makin VK1KCM, Michael Thurgar VK1TMT, and Darryl Smith VK2TDS, provided back-room support, and showed how easy it is to install an APRS system in the car. A few black boxes, including the modem, were all the items required to use the system. Peter was instrumental in setting up the APRS node in Canberra.

The next important event was the Special General Meeting on Monday, November 25, '02 at the Scout Hall in Farrer. This meeting was called to get approval from the members to change the Objects and Rules (Constitution), and, to have an end-of-the-year celebration. Both were successfully completed. The first one within 40 minutes from the start of the meeting, the second, after midnight. The amended constitution will be available from the secretary in either hard copy, on disk, or via the Internet, after approval has been obtained from the Registrar General, in a few weeks time.

All members are invited to attend the Annual General Meeting on Monday, February 24, 2003. All positions on the committee are up for election, but both the president and the secretary have completed their three-year terms. Some of the present committee members have indicated that they will nominate again, but some will not. So, this is your chance to secure a seat on the committee and help move things along.

Cheers.

VK2 Notes

by Pat Leeper VK2JPA

Welcome back! We hope you are all revitalised after the holiday break and raring to go.

The first item of interest this month is the upcoming annual general meeting which will take place on Saturday 12th April. Nominations are due on Saturday 1st March at the office at 109 Wigram Street Parramatta.

Forms can be obtained from the office by phoning 9689 2417.

Give some thought to helping out your association in whatever way you can. Councillors' duties are not onerous, so don't be afraid to give a hand to keep the Institute going along on a level keel. You might be pleasantly surprised how interesting involvement can be.

The Institute will be present at the Wyong Field Day and you will be able to meet the councillors and exchange views - perhaps come up with some suggestions for the future direction of the Division.

That's all for this month.

VK3 Notes

By Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

2nd inductees to the EHoF

The WIA Victoria Elmer Hall of Fame (EHoF) has received many positive comments about the recognition being given to Elmers who have helped VK3 radio amateurs.

Even though best efforts were made to widely publicise for about six months in advance, some were not aware of the EHoF until it was launched in November last.

However they have been quick to nominate a few more Elmers who are fine examples of the type of individual that deserves recognition by being inducted to the EHoF.

There are certain to be others just as worthy for nomination. The 2nd induction of Elmers to the WIA Victoria Elmer Hall of Fame will occur in May.

Before submitting a nomination please check the EHoF on the WIA Victoria website, and read the citations for each Elmer as a guide to what is required.

To make a nomination email wiavic@wiavic.org.au and please put "Elmer" in the subject line, or write to: Elmer Hall of Fame, WIA Victoria, 40g Victory Boulevard, Ashburton 3147.

Busy year ahead

It is certainly shaping up to be an extremely busy year for the WIA with 2003 packed with events including:

- WIA Federal Convention will be held at the Glenelg Conference Centre, Glenelg, Adelaide, 4-6 April
- World Radiocommunications Conference, Geneva, Switzerland, 9 June to 4 July
- IARU Region 3 Conference, Taipei, Taiwan 1-5 September
- The 5th IARU Region 3 ARDF Championships, Mt Helen Campus, Victoria University, Ballarat, 28 November - 3 December

Space travellers and amateur radio

Members of The Space Association of Australia were delighted at a recent meeting to hear first hand accounts of communication by radio amateurs with the Mir and ISS space stations.

Guest speaker representing WIA Victoria was Maggie Iaquinto VK3CFI who spoke about her experience of personal and school student contacts with the Mir space station while she was a teacher at Colac.

Using a powerpoint presentation Maggie gave an insight into the early days of earth-space amateur communications, and how she developed a personal rapport with a number of cosmonauts.

The presentation also included some copies of packet radio messages exchanged between VK3CFI and Mir, and various highlights of her contacts.

Congratulations to VK3 record achievers

In the latest update of the VHF/UHF distance records, two new national distance records have been set by VK3 radio amateurs.

The 2-metre national mobile record has been broken after 16 years: Peter VK3KAI/m to Bill VK6AS, 20/12/2002, 2274.4 km.

A new national 10 GHz Digital Modes record: Mark VK3TLW/3 to Ralph VK3WRE/3, 28/12/2002, 114.2 km.

A third record involving a contact between VK2 and ZL, is set to become a new 70cm national digital modes record.

At the time of writing these VK3 Notes, the record books had Ian VK3AXH/3 working Rex VK7MO/7 having achieved a record distance of 649.1km on 21/11/2002. However their achievement will be overtaken by the VK2/ZL contact once the claim is processed.

With what is being described as the best VHF/UHF propagation in a decade, more new distance records are likely to be set this summer.

SWL initiative

Amateur Radio Club Polonia VK3CRP is to be given a WIA shortwave listener number that it can use through the WIA Victoria QSL Bureau as an introductory incentive for potential club and WIA members.

The idea is that the WIA L3- number can be used to introduce the joys of shortwave listening and QSLing to beginners, who will hopefully gain an interest leading them towards becoming radio amateurs.

The WIA Victoria Council at its meeting in December adopted the initiative, and will arrange for a block of WIA L-3 numbers which will be offered to all WIA Victoria affiliated clubs.

Council news update

A report on the WIA Victoria Council meeting held on 3 December, 2002, can be read in the Council News Update section of the WIA Victoria website.

The next meeting of the Council is proposed for Tuesday 25 February 2003. Members are always welcome to make written submissions to the Council, which should be in writing to the Secretary.

WIA Victoria AGM

The annual general meeting date has been confirmed as Thursday, 22 May, 2003. A formal notice will be issued to members.

The three year term of office for the WIA Victoria Council concludes at the AGM.

Nominations for the 2003-2006 Council close at noon on Friday 21 February 2003, and can only be accepted on a form available from the Secretary.

The WIA Victoria Office opens after the holiday break on Tuesday, 4 February. The first VK3BWI broadcast for 2003 is at 8.00 pm on Sunday 2 February.

VK4 Notes

Alistair Elrick VK4MV

Qnews

TheTARCinc John Moyle Field Day Operations

14th to 16th March 2003

TheTARCinc will be active during the 2003 John Moyle Field Day from a tributary of the mighty Burdekin River. The Club Station VK4WIT will be located at Keelbottom Creek Camping Grounds, Herveys Range Developmental Road, Shire of Dalrymple.

Position 19deg 29min 25sec South - 146deg 19min 56sec East, 58.0 km by road from Thuringowa Central via Herveys Range Developmental Road with 12.0km unsealed road from High Range Training Area turnoff. Grid is QH30dm UTM 55K 429741 7844368 and an Altitude of 300metres.

Duration from PM Friday March 14th until lunch Sunday March 16th. Club Station and Singalong under the big TARC tarps, TARCvan in attendance.

The Townsville club hopes to not only test its mettle in emergency operating conditions but also to give people a chance to observe and participate in Amateur Radio activities. We welcome visitors to come and observe and (if they are game) to operate! Many of the TARC Radio Theory Class members will also be at the camp participating in the Field Day.

The John Moyle Field Day activity is a golden opportunity for anyone with an interest in electronics or radio to visit and have a go operating by voice or Morse. There is also the chance to pick the brains of other operators who will be very glad to help out with that niggly problem you might be having.

This field day we hope to do:

Swimming, Bushwalking, Vertical Ascent Apparatus Piloting, Bush Cooking, antenna tweaking, swimming and, oh yes, some radio operating as well! Class Members/Novices/ Limiteds... your chance to work the unrestricted bands with a full call as your willing slave! The traditional Saturday Night marathon singalong will be happening too (be sure to pack the musical instruments as well as the radio gear!)

All this plus having a go in the contest. You Have To Be There!

Book early for this

On the 19th Sep 2003, for the North Queensland Amateur Radio Convention 2003. The date has been set for one of THE most popular conventions in the Amateur Radio calendar world wide. In its 30th year, the 16th North Queensland Amateur Radio Convention will be happening at James Cook University from PM Friday 19th to PM Sunday 21st September 2003.

VK4 Area Special Interest Groups — WICEN

Ewen McLeod VK4ERM
State Co-ordinator,

A regular net exists Sunday mornings 7.075 at 0830k. November has come and gone and once again, the Brisbane Area WICEN Group assisted the Endeavour Foundation in the running of the annual 500 Summer Challenge foot relay. 18 teams of approx. 20 runners per team, each team member required to run a minimum of 25 km over the three-day weekend. The relay started at Mt Gravatt heading to Boonah via Dreamworld, Oxenford, Canungra and Beaudesert. Restarting on Saturday in Boonah heading to Toowoomba via Cunningham's Gap and Warwick. Restarted again in Toowoomba on Sunday, heading to Ipswich via Gatton and Laidley. The WICEN team consisted of a "Pathfinder", 8 Change Point Vehicles with two operators and a Repeater Vehicle. The changeover points are approximately 5km apart. The "Pathfinder" (VK4KV) marks out the change points, places each operator in position and reports on any problems with the course. The repeater operator (VK4AL) controls the overall communications on HF, VHF & UHF. While Simon (VK4TSC) travels with the Event Director to advise him of any problems, reported by the operators. The relay required operators to work from daybreak to dark, to be in position for the runners. VK4AL & VK4KV set up a 2-metre repeater at Eagle Heights. VK4AL operated a portable 2-metre repeater (on the same frequency) and through careful listening by operators, the use of two repeaters on the one frequency did not cause `hidden transmitter' difficulties as may have been expected. This exercise helps WICEN gain knowledge, which would be required for evacuations in bushfire emergencies etc.

Weird and Wonderful FM DX

Indicated by sharks in Brisbane? Marcus Fitz writing to Peter Parker reckons he has found a new yet crude way of knowing when VHF DX is biting! Marcus says around Brisbane if there are sharks chasing schools of fish close to shore, FM DXing conditions will be pretty good. Is this because the fish are close to the shore due to warmer water? Last time this happened was in March/ April. He lives in Brisbane's inner south 8km from CBD and could clearly receive Noosa 96.1 FM from Mt Wolvi about 160km or more to the north and this is with only 500 watt his way. See we'll have to get this weird and wonderful to QNEWS reporter Trevor Taegge VK4BAT as he's the News Director of Noosa's 96.1 (aptly named "THE HEAT"). VK4BAT also does most of the QNEWS voice identification tracks. Though water takes a while to warm, so it may need a few days of high temps first. Or is it the signals are reflected off the shark nets strung for safety down the VK4 coastline? Whatever, when the sharks are in, go DX fishing!

73s from Alistair

VK6 Notes

Annual General Meeting 2003

It is hereby notified that the Annual General Meeting of the Wireless Institute of Australia Western Australian Division Incorporated will start at 10am on Saturday 19th April 2003.

The venue for this year's AGM event will be the Board Room at CWA House 1174 Hay Street West Perth and the agenda will be:

1. Consideration of the Council's annual report
2. Consideration of the financial report
3. Consideration of other reports
4. Election of office-bearers (President, Vice President and seven other Councillors)
5. Election of two Auditors
6. Appointment of a Patron
7. General business which has been duly notified.

Notices of Motion for the AGM must be received by the Secretary not less than 42 days prior to the meeting (i.e. by the 7th March 2003), and must be signed by at least three members.

The Secretary's postal address is WIA WA Div. PO Box 10 West Perth WA 6872.

Nominations of candidates for election to Council must be received by the Secretary, in writing, not less than 42 days prior to the meeting (i.e. by the 7th March 2003), with an intimation that the candidate is willing to act.

A candidate may submit a statement, not exceeding 200 words, outlining his or her experience and case for election. Each nomination shall be signed by two members proposing the candidate. Candidates must possess a current amateur licence.

Any financial member who is entitled to vote may appoint a proxy, who must also be a financial member who is entitled to vote, to speak and vote on his or her behalf. Written notice of such proxy must be received by the Secretary prior to the meeting, and be in the following form:

> I, ... (full name)....., a member of the Institute, hereby appoint .... (full name)....., also a member of the Institute, to act for me as my proxy, and in my name do all things which I myself being present could do at the meeting of the Institute held on the 19th April 2003.
>
> Signed: .....
> Witness:.....
> Date: .....

Lunch will be provided in the form of sandwiches, cakes, biscuits, coffee and juice.

Council trusts there will be a quorum for the AGM by 10am. Lunch will be at 12 o'clock. It could be followed by up to two hours of discussion about Amateur Radio, plus "Any Questions"

Listen to NewsWest for more information.

VK5 Notes

The AGM will be held on Tuesday the 22nd of April 2003 at the St Johns Hall, Arthur Street Unley commencing at 7:30 p.m.

Nominations are called for the positions of President, Secretary, Treasurer and Minute Secretary.

Nominations are to be in writing and must be received by the secretary prior to the commencement of the meeting. Nominations may be sent to the Secretary, GPO BOX 1234, ADELAIDE, SA 5001.

All nominations to be proposed and seconded by financial members and signed by the nominee as accepting the position.

Regards & 73

Peter Reichelt VK5APR
Hon Secretary.

VK7 Notes

QRM

Amateur radio got some good publicity on a recent Wednesday evening via one of our Tasmania wide Commercial TV stations when they broadcast a segment on one of our very longtime hams, VL7LZ, Col Wright. Col has just turned 90 and has had his ticket for over 70 years. He has now had to leave his home of many, many years at Geeveston and has moved into the Rosary Gardens Home in Hobart. As a lifelong HF man Col is very frustrated with now having only 2 metres. The segment was done in association with Rex Moncur, VK7MO.

With the very mountainous nature of Tasmania we often get problems with north/south/northwest links for both our Sunday broadcast and the Monday "Spectrum" magazine broadcast. Through the good offices of Tony, VK7AX and Jim, VK7JH on the coast, Joe, VK7JG in Launceston, and Danny, VK7HDM an audio streaming system has been set up which allows the Hobart "Spectrum" relay to be in excellent FM quality and the reverse for the north and northwest relays of the Hobart based State broadcast. BIG improvement!!.

Cheers for now Ron, VK7RN

AMSAT

Bill Magnusson VK3JT

Foreword:

I had the misfortune to suffer some antenna damage to the satellite system in early December. Two very severe wind and hail storms cut through Milawa and surrounds causing quite a lot of structural damage to homes and property. Add to this that the column is being written on my laptop in Perth, WA where I have been visiting my grandchildren for Christmas. Therefore most of the items in this column have been gleaned from Internet and web based sources rather than personal experience. I hope things will be back to normal next month.

Initial Phase 3E Planning Meeting in Marburg

Late in 2002, more than 30 experts from ten countries met in two working groups at AMSAT-DL in Marburg, Germany.

At the meetings, the first design criteria for the next project, AMSAT Phase-3E were finalised. This amateur radio communication satellite should be in the 150 kg class and very similar in design to its predecessors AO-10 (P3B) and AO-13 (P3C). The goals are to provide both analogue and digital radio communication, essentially between 145 MHz and 2400 MHz. Experimental modes for wavelengths in the cm and mm range were also proposed.

The meetings were fully reported by AMSAT-DL President Peter Guelzow, DB2OS. His report can be downloaded as a PDF file from AMSAT-DL's Internet site using the URL: http://www.amsat-dl.org/p3e/p3e-20021120.pdf [taken from a report in the AMSAT-DL journal].

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141,
Adelaide, SA. 5001.

Graham's email address is:
vk5agr@amsat.org

New German Amateur Radio Satellite Launched and Operational

The German amateur radio satellite SAFIR-M was launched by a converted Russian ballistic missile on Friday December 19 2002,

It was launched from Baikonur Cosmodrome along with a cluster of five other satellites for a variety of organisations around the world. One of these projects is believed to have been a third Saudi-Sat for a Saudi Arabian customer. SAFIR-M is a project of a group called the "Working Group for Amateur Radio and Telecommunications in Schools". SAFIR-M was developed in close co-operation with the University of Applied Sciences in Pforzheim, Germany by a team under the leadership of Henning Rech DF9IC. The main purpose of the satellite is to give students easy access to space communications. It will have a downlink at 145.825 MHz with AX.25, 9k6 packet as well as an optional voice message beacon. The uplink is at 435.275 MHz (AX.25, 1k2), offering Mode B operation.

The callsign will be DP0AIS. (DP-zero-AIS). SAFIR-M is designed as a "store and broadcast" system for APRS based messages, dedicated for use by schools in combination with the existing WX-Net and planned buoy experiments in Germany. Its success will extend German space educational activities to a European and global base. Details on SAFIR-M can be found on the world wide web at http://amend.gmxhome.de.

At the time of writing the SAFIR-M homepage is still in German, but work is underway to add the information in English. The above information was supplied by Oliver DG8BCE. There has been no word yet of how the general amateur community can take part in these experiments. Late breaking news indicates that the downlink baud-rate is not quite as expected and some of the comms protocol will require slight alterations to software. This is being worked around at the time of writing.

Some Questions and Answers Regarding AO-40

Stacey Mill, W4SM, recently took time to answer a few questions recently posted via the AMSAT-BB email reflector.

From time to time a lot of interest is generated by particular questions posted to the AMSAT bulletin board. These usually fall into the "things that everyone wants to know but are too afraid to ask" category. As in the following examples an AMSAT guru usually comes to the fore with authoritative, easy to understand answers.

Q1: Why is LEILA only switched into the U-band uplink when stations on L-Band are much stronger? Is there a technical problem with LEILA?

Stacey: "There are no technical problems, per se. Everything related to Leila works as it should, as far as I know. However, if you review the telemetry specs, you will see that U-band can be connected to either Leila-1 or Leila-2. L1 can only be connected to Leila-1 and L2 can only be connected to Leila-2. Therefore, we have several options. We can run L1 and U through Leila-1 and disconnect L2, we can run L2 and U through Leila-2 and disconnect L1, or we can run both LEILAs. Because LEILAs are not perfect and they often chase "ghosts" having both LEILAs connected means twice as many false

alarms on the passband, disrupting QSOs and draining transmitter power for the siren. The command team would prefer not to pursue this option at the moment. The huge AGC suppressions on U-band (I saw -23 dB last night!) mandate that Leila remain active on this band. Otherwise, a few powerful signals will suppress the U-band AGC to the point that others cannot use the passband. This is a major cause of the "fades" heard on the downlink from time to time. The AGC on L-band shows little or no response to the uplink signals, so signals on L-band are not suppressing L-band receiver sensitivity. They may ultimately affect the S2 ALC, but I see no evidence of that in the recent telemetry. Nonetheless, it is likely that as L-band use grows Leila will need to be added to this uplink from time to time. To do so will require shutting down one of the L-band links and it will also mean that Leila will be spread "thinner" in the sense of having two uplinks to police. This means that while Leila is notching out a strong L-band signal that is not suppressing the L-band AGC or affecting the S2 ALC, other U-band signals may be severely depressing the U-band AGC. Leila is not a cure all, and is no substitute for common sense and good operating practices. Fortunately, the great majority of AO-40 operators are very good in this regard. However, telemetry capture is still hampered by occasional individuals who insist on zero beating the beacon or repeatedly swishing through it. Although S2 has 250 kHz of passband, from time to time someone feels the need to tune directly on top of another QSO. Leila cannot affect these occasional poor operating practices. Leila does not treat all signals the same. CW signals stronger than the beacon are not uncommon and will escape LEILA's attention. SSTV signals are relatively immune to Leila. Even the tone of one's voice seems to affect LEILA's "attention." LEILA's current sensitivity setting seems about optimal. Turning the sensitivity up will result in too many false alarms, decreasing sensitivity would lead to even more AGC suppression. Leila, like everything else in life, is a compromise". (If you haven't worked it out already, LEILA is a device on board AO-40 that tries to prevent unthinking or uncaring people from using more uplink power than necessary. It sounds a 'siren' and turns down the gain in the segment of the passband where such transgressions occur. So – in theory anyway – the only person who suffers is the one using too much power ... vk3jt).

Q2: How long can AO-40 remain at ALON/ALAT = 0/0?

Stacey: "We can hold this position until early March 2003, at which point we must begin slowly moving ALON toward +35 degrees, running ahead of the sun. This will allow some time for the sun to move up the ecliptic. In mid to late April, we can then raise ALAT to about +25 deg, drift past the sun for a couple of weeks, drop ALAT back to 0 at ALON ~325, then chase the sun back to 0/0, as before".

Thanks very much to Stacey for the explanations.

UO-22 Returns to Service

After several short breaks to service, UO-22 is again operational. Some new software has been loaded to try and keep the downlink operating most of the time.

Chris Jackson reports: "It seems that after around 60 000 charge/discharge cycles the Nicad batteries are starting to show their age (!!) and it's probable that the power system will no longer be able to support operations when UO-22 enters a period of eclipse in a few months time (around 20th April 2003 ... according to the SatSpy program ...vk3jt) although we'll do all we can to try and keep it operational. The downlink will also be switched off from time to time over certain parts of the globe. Generally these quiet periods should be out of range of most stations. Currently, they are in the middle of the Pacific Ocean, Indian Ocean, and central China. This is required to allow the attitude control system to operate correctly since the power system can not supply enough power to support both the transmitter and the magnetorquers. Enjoy the bird while you can! At 11 1/2 years it's doing well, but it may not be available for a lot longer."

When I last worked UO-22 my antenna system had suffered damage from high winds but the signal was loud and clear for about half the pass. Then it took a dive and almost disappeared. No data was retrieved on the latter half of the pass. This situation seemed to repeat each pass so there may be some problem with the orientation of UO-22 causing its antennas to be obscured for some of each pass. Or – it could be something to do with the damage to my antenna system. Perhaps it is a function of the power restraint problems mentioned by Chris in the above message. UO-22 has been one of the most reliable satellites ever devoted to the amateur radio satellite service.

Since its launch it has provided two wonderful areas of service to radio amateurs. It has serviced packet radio enthusiasts worldwide by the courtesy of a network of "satgate" stations setup and maintained by volunteer operators. At times there were up to 50 such stations operating and they were responsible for much of the overseas packet radio mail forwarding. It also provided a host of high speed digital comms enthusiasts with a flying bulletin board using store and forward techniques. Chris's wonderful program WiSP was developed with this group in mind and still provides a stable platform to which many operators entrust the control of their entire satellite stations.

UO-22 will be sadly missed by all digital satellite operators should it fail to respond to the measures Chris has outlined above. Its two 'companion' satellites KO-23 and KO-25 have had checkered careers and have now failed altogether so the old reliable UO-22 is holding the fort once more. There is already much discussion among satgate operators on a strategy to continue this service in the event that UO-22 is lost. If no other suitable satellites are launched in the near future, the packet radio community may have to rely on Internet forwarding. I for one would be sad to see another amateur radio link bite the dust in favour of the Internet. But you never know what's just around the next corner.

New Award for Working the ISS

The ISS Fan Club is proud to announce the introduction of the "ISS Achievement Award". http://www.issfanclub.com/iaa

The IAA is the first ham-radio award issued for making contact with the International Space Station. It is a handsome award, printed on picture quality paper. It would grace any radio shack wall.

Here are the award rules:

1. The "ISS Achievement Award" is given for contacting or listening to the ISS International Space Station using amateur radio. There are 3 different categories:
   (a) VOICE (for 2 way QSOs)
   (b) PACKET (for successful sending or reading of a PMS message or using the digipeater).
   (c) SWL (for receiving the ISS: Voice and/or Packet)

   Others categories, like SSTV, will be added when they become operational on ISS.
2. Applications will be accepted beginning December 15, 2002. Contacts may have been made at any time since November 2, 2000.
3. The applicant must auto-certify the authenticity of log information he provides by sending a normally compiled QSL card for each category he wishes to claim.
4. This award is available to all Amateur Radio and SWL operators anywhere in the world.
5. The donation necessary for the ISS Achievement Award is US$10. Stickers for category upgrade are available for US$3. This is a no-profit award. All collected money will be spent for printing, postage and handling costs. Any excess funds will be donated to AMSAT-NA.
6. Applications for the award or for category update must be sent by priority mail to:
   Claudio Ariotti, IK1SLD
   Via Montessori, 6
   15033 Casale Monferrato (AL)
   ITALY.
7. Processing status, award listings and more information will be available at: www.issfanclub.com/iaa (This information courtesy of the ISS FanClub).

ARISS Meeting gives approval for APRS Experiment on ISS

The December 2002 meeting of the ARISS team considered a proposal from Bob Bruninga to incorporate an APRS transceiver into a US Navy solar cell experiment which is to be launched to ISS around the middle of 2003.

Approval was given for Bob's proposal and should it be carried through it will add another facet to the expanding world of satellite APRS. The reliability of power on ISS should overcome many of the shortcomings of the present dedicated APRS satellite (PCsat), NO-44. PCsat has been plagued by power deficiencies since launch and has required heroic efforts on the part of many control stations around the world to keep it operational.

The new device will be known as PCsat2 and details should be available on the ARISS website shortly. So dust off the Kenwood TD-H7 or whatever and the GPS and get ready. A reliable APRS satellite should give this field of endeavor the shot in the arm it has needed for a few years. I can already imagine my friends tracking me on their computer screens as I make one of my frequent car trips from Milawa to Perth. Using PCsat2 on board ISS and having regard to ISS's reliable 6 or 7 orbits per day, its use as an automatic APRS positional digpeater for outback travellers will become quite feasible. The footprint isn't quite big enough to cover the entire continent from east to west but nevertheless it will enable good tracking across wide stretches of the outback. The experiment will remain on board ISS for one year. Good on you Bob!

ar

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Disturbing news for the world of amateur radio

The recent North Korean operation by Ed, P5/4L4FN has come to an end. The North Korean authorities called a halt to Ed's amateur radio activities on the 22nd of November according to a press release from Bruce Paige, KK5DO. Apparently, Ed was called to an impromptu meeting with the authorities on the Friday evening at which he was requested to cease all amateur radio transmissions and to pack his amateur equipment into boxes. His Saturday was spent dismantling the antennas on his roof and packing the equipment and in the mid afternoon an official called at Ed's house and placed a seal on the equipment boxes and antennas. At the same time Ed was requested to remove the equipment from the country when he departed on his next leave period on the 10th of Dec. Ed also says "for a number of reasons" he feels sure that there will be no further P5 activity in the future.

This is disturbing news for the world of amateur radio because P5 had been one of the most wanted entities for many years. Ed spent a lot of time on air trying to get as many contacts from P5 into as many logbooks as he could giving many of us a chance to work this 'rare one', a chance that, hopefully, may re-appear in the not too distant future. One can only guess at the reasons behind the North Korean governments' decision for halting amateur operations, but perhaps the recent international tensions may be to blame. Lets hope that P5 is not QRT for long!

A few months ago Great Britain and the United States released spectrum for trial on a new amateur band at 60 metres (the UK has allocated five channels each 3 kHz wide at 5260, 5280, 5290, 5400 and 5405 kHz). Extensive propagation studies have been conducted on both sides of the Atlantic and results are being collated for submission to the authorities for a permanent amateur allocation. Canadian hams have also recently been granted similar access and are enjoying exploring the properties of this new band. According to VO1NA (and DL8AAM) The Marconi Radio Club of Newfoundland has been granted authority to perform experimental transmissions using CW (A1A) and USB SSB (J3E) on 5260, 5269, 5280 5290 5319, 5329, 5400 and 5400 kHz using the call sign VO1MRC. The authorisation is only valid for short periods (22nd till the 25th of November 2002, 20th till the 23rd of December 2002 and the 20th until the 23rd of June 2003). Essentially, the experiment will examine the differences in ground and sky wave propagation on 3.5, 5.3 and 7 MHz. Over the past few years amateurs in many countries have been granted permanent (or long term access) to spectrum at 73 kHz, 136 kHz (and now 5.2 MHz) by their respective governments while we in Australia have had to be content with the occasional 'test' on 136 kHz. Is there any good reason why we in VK are precluded from participating in similar activities on similar frequencies?

Meanwhile, David VK8AA/VK2CZ says that all VK hams will get access to the segment 3776 to 3800 kHz beginning on the 1st of January 2004. The WIA has been negotiating with the ACA for extended access to this 'DX slot' at the top end of the 80 metre band for some time now and it seems that their efforts have finally paid off. We should show our appreciation to the WIA and its negotiators by supporting the WIA by becoming members, and remaining long term members. Perhaps the same negotiating team can take up the challenge of gaining permanent access to an amateur allocation at 136 kHz and 5.2 MHz?

I have been busy these past few days installing SSTV and PSK31 software onto my shack PC and becoming familiar with it. The sound card will need a simple interface circuit to allow audio level adjustment to and from the transceiver and it will also require a control line from the PC serial port to operate the PTT line. So hope to work you soon on CW, PSK31 or even SSTV.

The DX

9G, GHANA. Arno, DL1CW and Andy, DL3G are planning a trip over the period of the 5th until the 18th of February. They have applied for the calls 9G5AP and 9G5GA but have not had confirmation that these will issued. The pair plan to be on all bands 80 – 10 metres including WARC and 6 m using CW, RTTY and some SSB. They plan to enter the WPX RTTY and ARRL DX CW contests too. [TNX DL1CW and The Daily DX]

A5, BHUTAN. Dr. Glenn Johnson, W0GJ, is heading back to Bhutan for a month. He is expecting to be on air from the 3rd until the 26th of Feb. Glenn will be operating during his spare time and will make a special effort on CW on 3505 kHz during the local mornings and evenings. He will be running an amplifier to a loaded vertical and will use a separate antenna (beverage) for receiving. Listen out for him on 30 and/or 40 metres if conditions on 80 m are poor and on the higher bands after his dawn. QSL via W0GJ. [TNX W0GJ and The Daily DX]

AC8, ST. KITTS. Stan, AC8W, and Hank, K8DD, are planning to be active from St. Kitts between the 12th and the 19th of Feb 2003. They also intend to participate in the ARRL CW DX Contest. They may

also have one or two more operators tagging along for the activity. The pair have applied for individual personal calls in addition to a contest call. Prior to the contest, and after, they will be on the WARC bands using PSK31 and RTTY. QSL will be via home calls. [TNX AC8W and The Daily DX]

C6, BAHAMAS. Bill, KM1E (C6AGN) will be active on all bands 160 - 6 metres from his QTH in the Bahamas from the 4th of January until the 4th of March. QSL via W1DIG. [TNX KM1N and The Daily DX]

FG, GUADELOUPE. Pierre, F6FXS, will be holidaying at his son's QTH on the main island of Guadeloupe (IOTA NA-102 - DIFO FG001) using the call FS/F6FXS between the 12th of Feb and the 12th of March. He will be operating CW, running about 30 watts from an IC706 to wire antennas. Activity will mainly take place at his local mornings and evenings on 40 – 10 metres. Try around 14030, 18070, 21030 or 28030 kHz +/- QRM. QSL either direct or via the bureau. [TNX F6FXS and OPDX]

FR, REUNION ISLAND. Freddy, F5IRO, expects to be active as FR/F5IRO until the end of February. He says that he will apply for permission to operate from Juan da Nova and Glorioso islands. [TNX F5IRO and OPDX]

HR, HONDURAS. Gerard, F2JD is currently in Honduras and will remain until the 3rd of March. He will be active signing HR5/F2JD on all bands 160-6 metres using SSB and CW. He expects to be located at La Entrada de Copan but he will attempt some IOTA operations. QSL via F6AJA either direct or through the bureau. [TNX F2JD and 425 DX News]

ST, SUDAN. Marco, ST1MN expects to be in Sudan until the end of June 2003. He is new to DX operations and pile-ups so please go easy on him. Marco says he will attempt to operate on all bands at some time during his stay. Claudio, IV3OWC (ex 9E1C) plans to join him in late March or early April and will be active as ST1C. QSL for either ST1MN or ST1C is direct only to IV3OWC. [TNX IV3OWC and 425 DX News]

YA, AFGHANISTAN. Hiro Nakanishi, JA1CQT received written permission from the Afghani authorities on the 12th of November to operate as YA1CQ. He had a short visit to Kabul in late Nov but will be back in mid December for a longer stay. QSL via home call. [TNX JA1CQT and The Daily DX]

V3, BELIZE. Gisela, DK9GG and Gerd, DJ4KW will be operating as V31GW and V31YN from Belize from the 9th of Jan until the 25th of Feb. They will mainly be using CW and SSB On the 8th of Feb they will be joined by Frank, DL2SWW and Gabi, DG2TM (V3 calls not known as yet) and the four plan to operate from NA-073 over the 21st till the 23rd of February. QSL via home calls. [TNX DL2VFR and 425 DX News]

VP6, PITCAIRN ISLAND. Ed, W2SN, say that he will be active from Pitcairn Island as VP6EM on the 4th of Feb between 1700 and 2359 GMT. Activity will take place on 10, 15 and/or 20 meters SSB and will depend on propagation. QSL to W2SN. [TNX W2SN and OPDX]

VQ9, DIEGO GARCIA. Larry, WD0HSP has retired from the US Navy and has taken up a civilian job on Diego Garcia (AF-006) and will be active as VQ9LA for at least the next year. He plans to operate on all bands 80 - 6 metres using RTTY, SSB, CW and FM. QSL direct only to DG21 Larry Arneson, PSC 466, Box 24, FPO AP 96595-0024, USA. [TNX WD0HSP and The Daily DX]

YI, IRAQ. Mike, OM2DX is based in the Slovak embassy and will be using the call YI9OM for a few weeks while awaiting his own call (YI9DX) to be issued from the Iraqi authorities. He will remain in Iraq for two to four years and has plans to operate on all bands using CW, SSB, RTTY and PSK 31 modes. Mike also likes 160 metres and topband operators should listen for him after 20.30 UTC on 1832-1833 kHz. [TNX OM3JW and 425 DX News]

Special Events

ZS, SOUTH AFRICA. The special callsign ZS90SAP will be on air from the 1st of January until the 31st of December 2003 to celebrate the 90th anniversary of the establishment of the South African Police Service. The SAPS was formed in 1913 to enforce law and order and to preserve a peaceful environment for all the peoples of South Africa. Members of the Vaal Triangle Amateur Radio Club, under the leadership of Jan Swanepoel, ZS6ZYM, will man the station signing ZS90SAP throughout 2003. The callsign will be active on the 80 – 10 metres (exc. WARC) as well as 6 metres. QSL cards will only be sent on receipt of your QSL card. QSL cards can be sent via the bureau or direct to ZS90SAP: Jan Swanepoel, PO Box 14393, Zuurfontein, 1912, South Africa. [TNX ZS6ZYM and OPDX]

ER, MOLDAVA. The special event call ER60SB was active during November 2002 but will also be back on air from the 23rd of Jan until the 2nd of Feb 2003. The ER60SB call is to commemorate the 60th anniversary of the Battle of Stalingrad. QSL via ER1DA either direct to Valery Metaxa, P.O. Box 3000, Chisinau, MD-2071, Moldova or via the bureau. [TNX ER1DA and 425 DX News]

SP, POLAND. Twelve stations will be on the air from Poland to commemorate the 70th anniversary of the breaking of the German code machine Enigma by Polish cryptographers. The stations will be on the air from the 15th of Dec until the 15th of March. Further information on the Enigma research can be found at http://www.enigmahistory.org/enigma.html and is well worth a look. The stations and calls are as follows;

HF70E (QSL via SQ9AOJ) S N 7 0 E (QSL via SP6CDP)
HF70N (QSL via SP7CVW) S N 7 0 N (QSL via SP6JKH)
HF70I (QSL via SP6IHE) SN70I (QSL via SP5PPK)
HF70G (QSL via SP2DNI) S N 7 0 G (QSL via SP1PBT)
HF70M (QSL via SP2PI) S N 7 0 M (QSL via SP5ZCC)
HF70A (QSL via SP9PRO) S N 7 0 A (QSL via SP9EVP)

A special 'Enigma Award' is being sponsored by the SP DX Club and is available for working these stations. For further information on the award visit http://www.sp5zcc.waw.pl/en/enigma.html. [TNX SP1DPA, SQ9MZ and 425 DX News]

DXpeditions

After the great success of the first Ducie Island DXpedition (in 2002) the second DXpedition to Ducie Island, planned for March 2003, is eagerly awaited by all DX'ers. Yoichi, JR2KDN, will be the team leader of the DXpedition and says they are expecting to begin operating from Ducie Island around the 8th of March and if all goes well activity should last for approximately one week. Transport to and from the island will be on board the Braveheart (a charter boat that has transported other DXpedition teams to other rare locations) and Yoichis says, "all other preparations are well in hand". The operators of the multinational team will consist of Yoichi (JR2KDN), Kan (JA1BK), FO3BM, Cookie (VP6AZ), Dave (VP6DB), Meralda (VP6MW) who will be the CW operator on 17 and 12 metres, and possibly a few more JA's. Further details of the DXpedition will appear in the March edition of AR. [TNX JA1BK, CADXA and OPDX]

Round up

Ever wondered why you can hear US stations on 40 metres but they never answer when you call them? Well, John (NT5C), who is one of the more successful US 40m SSB DXers, would like to pass on some advice to non-US stations on where to transmit on 40 metres in order to be heard in the USA. He says "below 7100 kHz most integral multiples of 5kHz, e.g. 7050, 7055, 7065, 7085, etc are 'owned' by nets and ragchewers in Central America, South America and Canada. The odds are much better for 40 metre DX'ers if they get between those integral 5kHz multiples. Good frequencies to try are 7047, 7052 and 7057 kHz which are above most of the CW but below the RTTY." So if you want to be heard in the US then you'll have to be tricky and tune in between the nets and wafflers.

The summer months in the Southern Hemisphere are when fresh crews and supplies are delivered to the various bases and research stations in Antarctica. The crews that have just finished wintering over will be looking forward to going home and thawing out after a long, cold and dark tour. Some of these fresh crews will be amateur radio operators who will be glad to hear the sound of a new voice after a while. Among them will be the following;

DP1, ANTARTICA. Felix Riess, DL5XL who will be serving as radio operator and electronics engineer at the German "Neumayer" base (WABA DL-03) on the Eckstrom Ice Shelf (AN-018), Antarctica from March until November 2003. He hopes to be active whenever time permits mainly on CW but also on SSB, RTTY, PSK31 and HELL using the call DP1POL. QSL via DL1ZBO either direct to Rainer Hilgardt, Hans-Sachs-Weg 38, D-64291 Darmstadt, Germany or via DARC bureau. For further information on Neumayer Station please visit their website at: http://www.awibremerhaven.de/Polar/neumayer1.html [TNX DL5XL and 425 DX News]

KC4, ANTARCTICA. Dave, NK3T is currently active as KC4/NK3T from McMurdo Station (AN-016, WABA K-09) Antarctica. He is normally on air between 0230 and 0400 UTC around 14243 kHz. Dave will be there until early Feb. QSL via NK3T. [TNX ARRL DX Bulletin]

R1A, ANTARCTICA. Wally, RU1ZC (R1ANZ) will be staying at Mirny base (WABA UA-07, IOTA AN-016) for another season until 2004 (I suspect he dislikes the heat in Moscow!) He can usually be found on 14160 kHz around 15.30 UTC when he has a regular daily sched with his friends in Russia. [TNX DL5EBE and 425 DX News]

HL, ANTARTICA. Lee, DS4CNB is heading south to join the team at the Korean base "King Sejong" (WABA HL-01) which is located on King George Island, South Shetlands (AN-010). Lee will be stationed here from the 1st of Dec 2002 until the 30th of Nov 2003. He plans to put in some activity on all bands and modes using either HL0KSJ or D88S as his callsign. QSL via DS4CNB or direct to Lee Dae Ryung, P.O Box 30, Tongyung 650-600, South Korea. [TNX DS4CNB and 425 DX News]

Roving DX'er Mirek, 9V1XE, is moving back to Australia from Singapore. After operating in Australia as VK3DXI and VK2DXI he will now sign VK6DXI from Perth. Mirek has been very busy during his time in Singapore making nearly 12,000 QSOs on all bands and modes during his 4 year stay. All his logs are now in the possession of DL4DBR. He requests those who still need a direct card for 9M8DX/2 or Z2/VK3DXI to please 'stand by' for a few months while he settles in Perth. [TNX 9V1XE/VK6DXI and 425 DX News]

Sources

This is the first DX Notes column of 2003 and, just like last year, the DX information is presented with the permission and courtesy of the following individuals and organisations. KK5DO, DL1CW, W2SN, ER1DA, 9V1XE/VK6DXI, IZ8DBJ, DS4CNB, DL5EBE, DL5XL, NT5C, SP1DPA, SQ9MZ, JA1BK, ZS6ZYM, OM3JW, WD0HSP, JA1CQT, F2JD, IV3OWC, F5IRO, K1MN, F6FXS, W0GJ, DL2VFR, AC8W, OPDX (BARF80), CADXA, ARRL DX Bulletin, The Daily DX and 425 DX News

W.I.A. DXCC Standings (335)

(Dec 31st. 2002)

Callsign	Countries
Honour Roll (326) Phone	
VK5MS	335/389
VK4LC	335/382
VK4UA	335/371
VK5WO	335/368
VK6LK	335/360
VK3AMK	335/354
VK3QI	335/349
VK3AKK	335/348
VK3DYL	335/341
VK3SX	335/341
VK2FGI	335/341
VK3EW	334/340
VK6NE	333/349
VK1ZL	333/339
VK6HD	332/358
VK3OT	330/344
VK4OH	330/337
CT1EEN	330/000
VK2AVZ	329/340
VK3CSR	329/338
VK2DEJ	329/335
VK4AAR	328/332
VK3YJ	327/333
General listing-Phone	
VK7BC	324/329
EA3AKN	323/331
VK5FV	323/326
VK4SJ	321/322
VK6VS	319/323
VK6ABS	316/000
VK4LV	313/307
VK3JI	310/325
VK6APK	310/315
VK5WV	306/326
VK6RO	306/312
VK4ICU	303/305
VK2UK	302/307
VK3IR	302/306
VK1TX	300/000
VK6LC	299/302
VK6DY	297/301
JA3EY	296/300
VK4DP	293/305
VK4EJ	291/293
VK2HV	288/000
VK2CSZ	286/289
VK7TS	285/286
VK4BAY	283/286
VK3DP	274/277
VK6ANC	267/271
VK2CA	265/000
VK3UY	264/266
VK3VQ	261/278
VK5IE	258/261

Callsign	Countries
General listing-Phone	
VK8NSB	255/000
VK3CIM	254/258
VK2FHN	232/000
VK8KTC	231/233
VK6APW	228/229
VK4AO	227/000
VK8AM	225/000
VK3SM	222/242
9V1RH	216/218
VK4IL	212/000
VK3DVT	201/204
VK6BH	200/000
PY2DBU	195/197
VK7JAB	186/000
G0VXX	184/000
VK6APH	168/169
VK4CHB	167/168
VK2BQS	164/167
VK4BP	164/000
LU5DSE	161/000
VK4ARB	159/160
VK2GSN	152/000
VK7LUV	148/000
VK2EJK	144/000
VK2SPS	141/143
OK1ZSZ	136/000
VK8LC	136/000
VK3DQ	133/147
VK2LEE	130/132
VK4FNQ	130/000
VK4VIS	126/128
VK2IRP	125/101
TG8NE	125/000
SM6PRX	121/126
VK2MH	116/118
VK2YN	113/115
VK5UO	112/115
JA8XDM	111/000
C21DJ	109/000
VK3MRG	108/000
ZS6IR	102/104
C21NJ	102/000
VK2FZR	102/000
SV1GYG	102/000
VK2EJM	101/103
VK3KTO	101/102
VK1PRG	101/000
VK6ISL	100/000
VK9RS	100/000
3W2LC	100/000
Honour Roll(326)CW	
VK3QI	334/346
VK6HD	333/354
VK5WO	331/347

Callsign	Countries
General listing-CW	
VK3AKK	312/317
VK3KS	307/335
VK4LV	297/300
VK4ICU	291/000
VK3JI	274/299
VK6MK	249/252
VK7BC	246/255
VK3DP	245/247
VK2CWS	245/247
VK4DA	237/239
VK3CIM	235/236
VK3DQ	234/261
VK7TS	219/000
IK1ZOD	210/000
VK4DP	205/216
VK7RO	201/204
VK2YN	201/203
VK6HW	179/182
VK5UO	171/172
VK4UA	151/164
OK2BNC	144/000
VK4AAR	143/145
VK8AM	138/000
N0TM	135/000
VK7DQ	131/132
DK6AP	120/000
VK8KV	112/113
K5QNM	110/113
VK5BWW	110/113
SM6GZN	110/111
OK1FED	109/000
VK4CXQ	106/000
UR5BCJ	103/105
VK3DG	102/000
SM6PRX	101/102
Honour Roll(326) Open	
VK7BC	334/343
VK6HD	333/360
VK5WO	335/372
VK4UA	335/372
VK4LC	335/382
VK4AAR	330/334
VK3UY	333/336
VK3QI	335/350
VK3OT	333/347
VK3AMK	335/354
VK3AKK	335/348
VK2AVZ	329/340
General listing-Open	
VK3JI	322/351
VK4LV	320/319
VK4DV	313/328
VK2UK	313/308
VK6RO	312/318

Callsign	Countries
General listing-Open	
VK4ICU	311/313
VK4DP	309/323
VK3DP	305/308
VK6LC	301/304
VK7TS	295/296
VK2HV	289/000
VK3CIM	284/288
VK3VQ	276/293
VK6ANC	269/273
VK6MK	256/259
VK8NSB	255/000
PY2DBU	254/257
VK5UO	251/255
VK2CWS	251/253
VK3DQ	246/275
VK6APW	239/240
VK4DA	237/239
VK2FHN	237/000
VK8AM	236/000
VK2YN	204/206
VK2BQS	182/185
VK4CHB	177/179
VK6APH	171/172
9A4KA	168/000
SM6PRX	162/169
VK3VB	153/155
VK2SPS	142/143
ON9MCR	129/140
VK3OZ	126/127
VK7CQ	123/125
NOMSB	117/000
VK3MRG	109/000
VK9RS	101/000
VK2AJE	100/000
General listing-RTTY	
VK3EBP	253/255
VK3AMK	200/202
VK2BQS	125/127
SP3CUG	124/000
VK5RY	100/102
Gen-listing 6m. Open	
VK4FNQ	137/000
VK4ABW	109/000
Gen-listing-2m. Open	
(Vacant)	
Gen-listing-Satellite	
VR2XMT	112/114
General listing-SSTV	
no repeater contacts	
(Vacant)	
General listing-Digital	
(Vacant)	
General listing-Fax	
(Vacant)	

The W.I.A. DXCC program has been audited to the month of December, if you find your Callsign not listed it means you have not updated in the past 5 years or your score has dropped below 100.

All of the Federal Awards are now computerised and we are in the process of digitising all existing documents. We have developed our Award Documents using the standard Microsoft Excel program, these are saved to a common file that will run on Excel 5.0/95 & 97-2002 versions.

For those that are on internet email system we recommend you enjoy the fast service offered by our new computerised awards system. We are still trialing our National Website for down loading all of the awards and it may be in full download mode early 2003. (Website: http://www.wia.org.au)

Awards are available by email or hard copy via the post. Email to awards@wia.org.au or post to Federal Awards Manager P.O.Box 196. Cannington. Western Australia. 6987. "de Mal. VK6LC"

ar

Ian Godsil VK3VP

Contest Calendar February - April 2003

Feb	8/9	CQ WW RTTY WPX Contest		
Feb	8	Asia-Pacific Sprint 40-20m	(CW)	
Feb	8/9	PACC Contest	(CW/SSB)	
Feb	8/9	RSGB 160 Metres Contest	(CW)	
Feb	15/16	ARRL International DX Contest	(CW)	(Feb 03)
Feb	21/23	CQ WW 160 Metres	(SSB)	
Feb	22/23	REF Contest	(SSB)	
Feb	22/23	UBA DX Contest	(CW)	
Mar	1/2	ARRL International DX Contest	(SSB)	(Feb 03)
Mar	1/2	Ukraine RTTY Contest		
Mar	8/9	RSGB Commonwealth Contest	(CW)	
Mar	15/16	John Moyle Field Day	(CW/SSB)	(Feb 03)
Mar	15/16	Russian DX Contest	(CW/SSB)	
Mar	29/30	CQ WW WPX Contest	(SSB)	
Apr	5/6	SP DX Contest	(CW/SSB)	
Apr	11/13	Japan International DX Contest	(CW)	
Apr	19	Holyland DX Contest	(CW/SSB)	
Apr	19	TARA PSK31 Rumble		
Apr	19/20	YU DX Contest	(CW/SSB)	
Apr	25	Harry Angel Memorial Sprint	(CW/SSB)	
Apr	26/27	Helvetia Contest	(CW/SSB)	

John Moyle Field Day Contest 2003

presented by Eric VK4NEF

15 - 16 March, 2003
0100 UTC Sat-0059 Sun

Well, once again those who enjoy a weekend in the bush should be planning for this year's John Moyle Field Day.

The rules 5, 6, 12, 13, and 17 have changed.

If anyone wishes to contact me privately to discuss rules etc, my home phone number is 07 3390 5664, and my address is as shown in the Log Submission section below. I wish all entrants good luck, and look forward to hearing you on air during the contest!

Overview

1. The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore designed to encourage field operation.
2. The contest takes place on the 3rd full weekend in March each year, and runs from 0100 UTC Saturday to 0059 UTC Sunday, 15-16 March 2003.
3. The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations.
4. Single operator portable entries shall consist of ONE choice from each of the following (e.g. 6 hour, portable, phone, VHF/UHF):
   a. 24 or 6 hour;
   b. Phone, CW, or All mode;
   c. HF, VHF/UHF or All Band.
5. Multi-operator portable entries shall consist of ONE choice from each of the following (e.g. 24 hour, portable, phone, VHF/UHF):
   a. 24 or 6 hour;
   b. Phone, CW, or All mode;
   c. HF, VHF/UHF or All Band.
6. Home and SWL single operator entries may be either 24 hours or 6 hours, All mode, All band.

Scoring

7. Portable HF stations shall score 2 points per QSO.
8. Portable stations shall score the following on 6m:
   a. 0-49 km, 2 points per QSO;
   b. 50-99 km, 10 points per QSO;
   c. 100-149 km 20 points per QSO;
   d. 150-199 km 30 points per QSO;
   e. 200-499 km 50 points per QSO;
   f. 500 km and greater, 2 points per QSO.

9. Portable stations shall score the following on 144MHz and higher:
   a. 0 to 49 km, 2 points per QSO;
   b. 50 to 99 km, 10 points per QSO;
   c. 100 to 149 km, 20 points per QSO;
   d. 150 km and greater, 30 points per QSO.
10. For each VHF/UHF QSO where more than 2 points is claimed, either the latitude and longitude of the station contacted or other satisfactory proof of distance must be supplied.
11. Home stations shall score:
   a. Two points per QSO with each portable station.
   b. One point per QSO with other home stations.

Log Submission

12. For each contact: UTC time, frequency, station worked, RST/ serial numbers sent / received and claimed score. (VHF and above location of other station and distance.)

    Logs must be accompanied by a summary sheet showing: callsign, name, mailing address, section entered, number of contacts, claimed score, location of the station during the contest, and equipment used, and a signed declaration stating "I hereby declare that this station was operated in accordance with the rules and spirit of the contest and that the contest manager's decision will be accepted as final". For multi-operator stations, the names and callsigns (legible) of all operators must be listed.
13. Paper logs may be posted to "John Moyle Contest Manager, 108 Queensport Road, Murarrie Qld 4172, Australia". Alternatively, logs may be e-mailed esr@powerup.com.au The following formats are acceptable: ASCII text or Office. Logs sent by disc or e-mail must include a summary sheet and declaration, but the operator's name (legible) is acceptable in lieu of a signature.

    Logs must be postmarked no later than 28 April, 2003.

Certificates and Trophy

14. At the discretion of the Contest Manager, certificates will be awarded to the winners of each portable section. Additional certificates may be awarded where operation merits it. Note that entrants in a 24 hour section are ineligible for awards in a 6 hour section.
15. The Australian portable station, CW section, with the highest CW score will be awarded the President's Cup, a perpetual trophy held at the Executive Office, and will receive an individually inscribed wall plaque as permanent recognition.

Disqualification

16. General WIA contest disqualification criteria, as published in Amateur Radio from time to time, apply to entries in this contest. Logs which are illegible or excessively untidy are also liable to be disqualified.

Definitions

17. A portable station comprises field equipment operating from a power source, e.g. batteries, portable generator, solar power, wind power, independent of any permanent facilities, which is the normal location of any amateur station.
18. All equipment comprising the portable station must be located within an 800m diameter circle.
19. A single operator station is where one person performs all operating, logging, and spotting functions.
20. A single operator may only use a callsign of which he/she is the official holder. A single operator may not use a callsign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multioperator entry.
21. A multi-operator station is where more than one person operates, checks for duplicates, keeps the log, performs spotting, etc.
22. A multi-operator station may use only one callsign during the contest.
23. Multi-operator stations may only use one transmitter on each band at any one time, regardless of the mode in use.
24. Multi-operator stations must use a separate log for each band.
25. A station operated by a club, group, or organisation will be considered to be multi-operator by default.
26. None of the portable field equipment may be erected on the site earlier than 28 hours before the beginning of the contest.
27. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders will be disqualified, and at the discretion of the manager, may be banned from further participation in the contest for a period of up to 3 years.
28. Phone includes SSB, AM and FM.
29. CW includes CW, RTTY, and packet.
30. It is not expected that any other modes will be used in the contest, but if they are, they shall be classed as CW.
31. All amateur bands may be used except 10, 18 and 24 MHz. VHF/ UHF means all amateur bands above 30 Mhz. Note: On 6 m, the region below 50.150 has been declared a contest-free zone, and contest CQs and exchanges may only take place above this frequency. Stations violating this rule will be disqualified.
32. Cross-band, cross-mode and contacts made via repeaters are not permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency where a repeater is not used for the contact.
33. Stations may make repeat contacts and claim full points for each one. For this purpose, the contest is divided into eight consecutive three-hour blocks: 01-0359. 04-0859. 07-0959. 10-1259. 13-1559. 16-1859.19-2159. 22-0059 UTC. If you work a station at 0359 UTC a repeat contact may be made after the start of a new block providing, they are not consecutive or are separated by five minutes, since the previous valid contact with that station on the same band and mode.
34. Stations must exchange ciphers comprising RS(T) plus a 3 digit number commencing at 001 and incrementing by one for each contact.

35. Portable stations shall add the letter "P" to their own cipher, eg. 59001P.
36. Multi-operator stations are to commence each band with 001.
37. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations, unless the receiving station is portable.
38. The practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and shall result in disqualification. The period of operation commences with the first contact on any band or mode, and finishes either 6 or 24 hours later.

ARRL International DX Contest

CW: 15/16 February, 2003
SSB: 1/2 March, 2003

1. **Object:**
   1.1. W/VE amateurs work as many amateur stations in as many DXCC entities as possible on 160, 80, 40, 20, 15, and 10 meter bands.
   1.2. Foreign amateurs (also including KH6, KL7, CY9, and CYØ) work as many W/VE stations in as many of the 48 contiguous states and provinces as possible.
2. **Date and Contest Period:**
   CW: Third full weekend in February
   Phone: First full weekend in March
   2.3. Contest Period: 48 hours each mode (separate contests).
   Starts 0000 UTC Saturday; ends 2400 UTC Sunday
3. **Entry Categories:**
   3.1. Single Operator:
      3.1.1. All Band:
         3.1.1.1. QRP.
         3.1.1.2. Low Power.
         3.1.1.3. High Power.
      3.1.2. Single Band.
         3.1.2.1. A participant may submit only one single band entry. If contacts are made on other bands, the log file must clearly be marked as Single Band in the header of the Cabrillo file.
         3.1.2.2. The same call sign may not be used by a different operator(s) to generate additional single band entries.
   3.2. Single Operator Assisted.
   3.3. Multioperator:
      3.3.1. Single Transmitter.
      3.3.2. Two Transmitter.
      3.3.3. Multi-transmitter.
4. **Contest Exchange:**
   4.1. W/VE stations in the 48 contiguous United States and Canada (except in the islands of St Paul and Sable) send signal report and state or province.
   4.2. DX stations send signal report and power (number indicating approximate transmitter output power).
5. **Scoring:**
   5.1. QSO Points
   W/VE stations count three points per DX QSO.
   DX stations count three points per W/VE QSO.
   5.2. Multiplier
      5.2.1. W/VE stations: Sum of DXCC entities (except US and Canada) worked per band.
      5.2.2. DX stations: Sum of US states (/except KH6/KL7/), District of Columbia (DC), and Canadian provinces/ territories:
      NB (VE1, 9), NS (VE1), QC (VE2), ON (VE3), MB (VE4), SK
      (VE5), AB (VE6), BC (VE7), NT (VE8), NF (VO1), LB (VO2),
      NU (VYØ), YT (VY1), PEI (VY2) worked per band (maximum of 63 per band).
   5.3. Final Score: QSO points x multipliers = final score.
6. **Miscellaneous:**
   6.1. Your call sign must indicate your DXCC station location (KH6XYZ/ W1 in Maine, KG4/W1INF at Guantanamo Bay, etc).
   6.2. The same station may be worked only once per band: no cross-mode or repeater contacts.
   6.3. Aeronautical and maritime mobile stations outside the US and Canada may be worked by W/VE stations for QSO credit only.
   6.4. DXpedition scores may be included in the Medium and Unlimited club totals only.
7. **Submission:**
   7.1. Entries for the CW competition must be e-mailed or postmarked by March 18, 2003.
   7.2. Entries for the Phone competition must be e-mailed or postmarked by April 1, 2003.
   7.3. Electronic entries for the CW competition must be e-mailed to:
   E-mail CW logs to:
   DXCW@arrl.org
   7.4. Electronic entries for the Phone competition must be e-mailed to:
   E-mail Phone logs to:
   DXPhone@arrl.org
   7.5. Submissions that are created electronically must be in the Cabrillo file format and must include the log file.
      7.5.1. Paper copies of electronic logs are not an acceptable substitute for the electronic Cabrillo format file. Paper logs that are entered into an electronic medium after the contest are considered electronic logs.
   7.6. Handwritten paper entries or diskettes should be marked on the envelope as either DX Phone or DX CW entries and mailed to: ARRL 225 Main St, Newington,

CT 06111 USA

7.6.1. Entries for the CW and Phone portions of the competition are considered separate contests and must be submitted in separate e-mails or envelopes to the appropriate contest address.

7.7. Forms for all ARRL contests may be downloaded from the Contest Home Page at: www.arrl.org/contests

7.8. Contest forms and rules may be requested from the ARRL by sending an SASE with 2 units of postage.

8. Awards:

8.1. Plaques (if sponsored) will be awarded in the following categories for both the CW and Phone contests.

8.1.1. Top W/VE scorer in each entry category—single operator-all band-QRP, single operator-all band-low power, single operator-all band-high power, single operator-single band (160-10 Meters), single operator assisted, multi-operator-single transmitter, multi-operator-two transmitter, multi-operator-multi-transmitter.

8.1.2. Top scorer in the single operator-all band category worldwide and on each continent. In addition, worldwide leaders in the single operator-all band-QRP, single operator-all band-low power, single operator-single band, single-operator assisted, multi-operator-single transmitter, multi-operator-two transmitter and multi-operator multi-transmitter categories will receive plaques.

8.1.3. Additional special plaques will be awarded as sponsored.

8.2. Certificates will be awarded to:

8.2.1. Top single operator-all band entries (QRP, low power, and high power) from each DXCC entity and ARRL/RAC Section.

8.2.2. Top single-band entries in each ARRL/RAC section and each DXCC entity.

8.2.3. Top single operator assisted entries in each ARRL/RAC section and each DXCC entity.

8.2.4. Top multi-operator entries (single, two and multi-transmitter) in each DXCC entity, US call area and in Canada.

8.2.5. DX entrants making more than 500 QSOs on either mode will receive certificates.

8.2.6. Additional certificates will be awarded as appropriate.

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Federal Contest Co-ordinator Position

As reported in November 2002, anyone who would like to assist in preparing Contest information is asked to use the following as a guide. Please contact the WIA Federal President, Ernie Hocking VK1LK, on president@wia.org.au

Federal Contest Co-ordinator — Job Specification

Applicants for the position of Federal Contest Co-ordinator are asked to consider the following guidelines —

1. To report frequently to the member of the Federal Executive appointed to oversee Contest activity and to keep him fully informed, especially of budgetary costs;
2. to liaise frequently with the Federal Office;
3. to write an Annual Report in February each year for presentation at the WIA's Annual General Meeting;
4. to liaise closely with the NZART Contest Co-ordinator;
5. to liaise closely with other Contest Co-ordinators and Managers, both in Oceania and world wide;
6. to produce a monthly information column in "Amateur Radio";
7. to organise for production and forwarding of trophies at various times each year as appropriate;
8. to keep accurate records of trophy winners and to arrange for engraving of Perpetual Trophies;
9. to see that information is available on the World Wide Web;
11. to oversee the supplies of available certificates and to organise replacements when necessary;
12. to write and post certificates on behalf of individual Contest Managers;
13. to arrange a speaker for the annual Remembrance Day Contest and to produce and distribute tapes of the speech for each Division and to arrange for audio to be available on the Internet;
14. to be available via telephone, postal mail and e-mail.

Spring VHF-UHF Field Day 2002: Results

Contest manager: John Martin VK3KWA

Call	Name	Locator(s)	6 m	2 m	70 cm	23 cm	12 cm	9 cm	6 cm	3 cm	TOTAL
Section A: Single Operator, 24 Hours											
VK3AFW	R. Cook	QF32	45	534	600	-	-	-	-	-	1179
VK4OE	D. Friend	QG50, 51, 60, 61	-	282	455	-	-	-	-	-	737
Section B: Single Operator, 6 Hours											
VK3KAI	P. Freeman	QF21, 22, 31, 32	32	387	455	440	320	320	320	430	2704
VK3AXH	I. McDonald	QF12	-	405	425	280	-	-	-	-	1110
VK7MO	R. Moncur	QE37	-	345	485	160	-	-	-	-	990
VK3KME	C. Morley	QF21, 22, 31, 32	43	264	385	256	-	-	-	-	948
VK3AFW	R. Cook	QF32	45	414	365	-	-	-	-	-	824
VK4OE	D. Friend	QG51, 60, 61	-	216	345	-	-	-	-	-	561
VK5ZMH	R. Mitchell	PF94, 95, 96	22	210	295	-	-	-	-	-	527
VK3JS	I. Godsil	QF21	56	183	175	-	-	-	-	-	414
Section C: Multi Operator, 24 Hours											
VK3ATL	(1)	QF21	49	468	540	904	620	320	210	210	3321
VK3EGC	(2)	QF42	54	606	500	592	-	-	-	-	1752
VK3AEF	(3)	PF03	21	252	225	256	-	-	-	-	754
Section D: Multi Operator, 6 Hours											
VK3BEZ	(4)	QF31	47	291	415	456	540	540	430	450	3189
VK3XPD	(5)	QF21	34	279	430	536	440	430	430	440	3019
VK3APC	(6)	QF22	38	339	295	-	-	-	-	-	672
Section E: Home Station, 24 Hours											
VK3FMD	C. Kahwagi	QF22	-	513	705	792	460	330	210	210	3220
VK3RS	A. Sutcliffe	QF32	27	78	130	200	-	-	-	-	435
VK5HKT	K. Thole	PF95	-	126	200	-	-	-	-	-	326
VK3VB	P. Pavey	QF12	22	222	-	-	-	-	-	-	244
VK4EV	R. Everingham	QG62	-	32	-	-	-	-	-	-	32

(1) Geelong ARC:
C. Gnaccarini VK3BRZ, D. Learmonth VK3XLD, L. Sim VK3ZLS.

(2) East Gippsland ARC:
R. Ashlin VK3EK, D. Pendergast VK3DMP, M. Stanford VK3VLR.

(3) J. Bywaters VK3AEF, B. Farmers VK3AQX, L. Ferris VK3BUN, W. Dougan VK3JWD.

(4) Eastern Zone ARC:
J. Morrissey VK3ZRX, J. Collins VK3ZYC, R. Edgar VK3WRE.

(5) A. Devlin VK3XPD, B. Miller VK3BJM, D. Williams VK3KAB.

(6) Moorabbin & District RC:
P. Parker VK3YE, C. Long.

Thanks to all stations who sent in a log, and congratulations to all for their efforts and very good scores. Of particular note this time is the very high score of VK3BEZ - nearly as many points in 6 hours as VK3ATL scored in 24. The 6 hour multi operator didn't attract as many logs as I had expected, and it will be interesting to see what happens with this new section in January.

Now some statistics on participation. To get an idea of the total number of active stations, I added up all of the different callsigns appearing in all of the logs. The figures are below, and I think they speak for themselves!

Call Area	6 m	2 m	70 cm	23 cm	12 cm	9 cm	6 cm	3 cm
VK1	0	2	1	0	0	0	0	0
VK2	0	9	3	0	0	0	0	0
VK3	24	76	36	20	9	5	5	6
VK4	0	8	5	0	0	0	0	0
VK5	2	15	10	0	0	0	0	0
VK6	0	0	0	0	0	0	0	0
VK7	0	6	2	2	0	0	0	0

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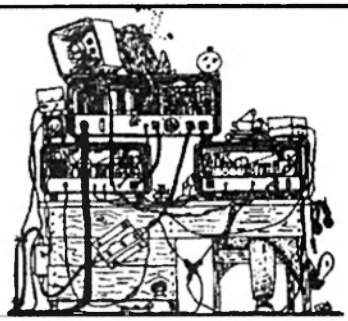
Ham Shack Computers



Part 22 - Computer Test

Alan Gibbs VK6PG
223 Crimea Street, Noranda WA 6062
Email: vk6pg@tpg.com.au

Have you noticed that two computer screens never seem to look quite the same? Which one is right, or are both badly aligned? One might look reddish, another looks whitish/blue and others never fit the screen or have pin cushion distortion. After all, the problem might be in your video driver card and not the monitor! Some computers and/or monitors suffer from colour problems where the screen sometimes loses colour - then mysteriously pops back to normal a few minutes later. Diagnosing these annoying problems is not easy, especially when the major software manufacturers never integrate the software tools to do the job properly. This edition of Ham Shack Computers offers both the right software, and tips on getting your computer screen to look like new again.

Do the basics:

Give both your computer and monitor a good clean up. Remove the video card from the computer and clean the edge contacts with a cloth dipped in methylated spirits. While you are inside the case, blow out dust, dirt, and doggy hairs. Reseat the card firmly in the motherboard. Clean up the monitor, and using a small paintbrush dipped in methylated spirits, thoroughly clean all the contacts on the interfacing cables. Plug back in and "boot up" the computer to check the problem. If it's still there, the fault might be inside the monitor case. Remove the case, blow out the dust and grime, and remove and clean each multi-pin connector one by one. The writer uses CRC 2-26 contact spray in tiny squirts, then reseat the connector back in place. Intermittent faults should now have disappeared, and we can get cracking with the calibration process.

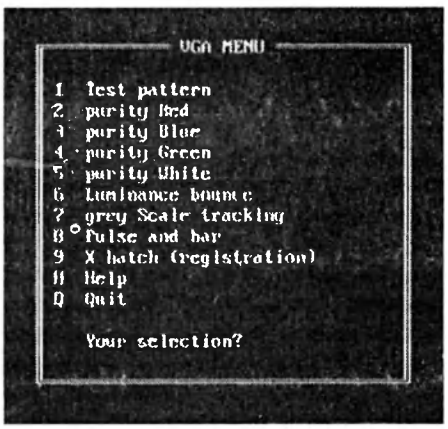


Figure 1

The Software:

Every Radio Amateur should have TESTVGA (1) loaded on their computer. It's a tiny, DOS program that runs nicely on any IBM compatible computer from the old XT's to fast Pentium 4's used today with Windows XP. Install the program in the Accessories Folder and place a shortcut on the Desktop - "click" to run and the TESTVGA Menu pops up seen in Figure 1. Everything needed to calibrate your video card and monitor is included in the menu. Select the number and the pattern will be displayed. For help, press H and a full description of the test is displayed. To return to the test, press Esc (escape).

Test Options

1. A colour test pattern to check and set resolution and chroma intensity

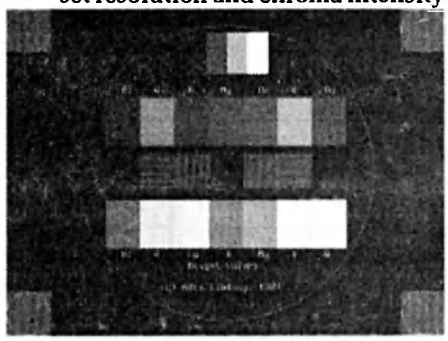


Figure 2

2. Selections 2, 3, 4 and 5 display purity signals to calibrate and match the monitor's RGB drive signals. Small adjustments can be made to each of the preset RGB pots on the display tube base printed card.
3. Selection 7, Grey Scale Tracking is needed for fine adjustments of brightness, contrast and RGB drives to ensure even tracking from black through grey then to white.

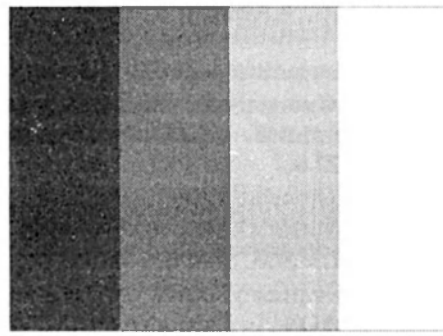


Figure 3

4. Selection 9 is a crosshatch pattern with fine lines used to adjust the horizontal and vertical linearity, and to correct pin cushion problems.

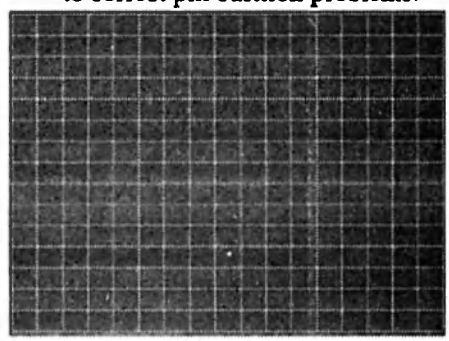


Figure 4

Making these adjustments takes time and patience but with care and determination the overall performance can be enhanced. White should be WHITE without a pinkish tinge, and the shift settings gets your display exactly where it should be.

5. Selection 5 is useful for determining high and low frequency responses. Called a Pulse and Bar waveform and used for the detection of HF ringing, poor electrical connections, bandwidth approximation, and DC restoration faults. For readers looking for "perfection" in their displays - this is the one to use!

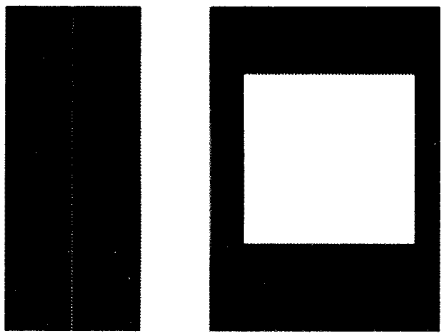


Figure 5.

At this point, readers should consider the complexity of reproducing these images in this publication. Sympathise with our printer because you may not see all of the attributes in the images - especially the pulse on the left-hand side of the image. This pulse is a fast, sine-squared shape used to determine the monitor's ability to display the upper limit of 5MHz in the line sweep. On your own monitor it will (or should be) clearly visible. RA's lucky enough to have an oscilloscope at their disposal will be able to "tweak" HF drive response very accurately. Low frequency problems are displayed as "smear" after the white blocks. The white blocks allow both vertical and horizontal smear errors to be seen on the same test signal.

All monitors and video card drivers these days start at 800x600-pixel resolution. Allowing for line blanking and synchronising pulse duration, this means that one line, non-interlaced, happens in about 52 microseconds. Next divide the 52 microseconds by 800 pixels and you can see that there's not much time for that pulse to make an impression on the viewer let alone in the pages of this magazine! Safety First Remember that very high voltages are lurking inside your monitor. Around 10,000 volts is used for the display tube EHT supply. Although it's a high impedance supply, a nasty "belt" can cause burns and serious stress to those who do not take exceptional care when working inside the case with the power switched on. Readers well versed in constructing high-powered HF/VHF linear amplifiers will understand some of the dangers of working on high voltage equipment. You have been warned!

General Tips

Your computer monitor is much like a normal television set except it lacks the RF front end. Computer signals are not reconstituted into a composite waveform - they are maintained in a RED driver, a Blue driver, and a GREEN driver and fed to individual tube cathodes. By mixing red, green, and blue together they produce WHITE on the screen display. If just one of these drives is a whisker out of calibration, the screen looks slightly coloured from true white. Sometimes, old monitors start to lose emission on one "gun" in the tube. Hence, a small R, G, or B "tweak" can compensate for this effect. True white, known as "Illuminant D", is about 6500 degrees Kelvin, or the equivalent of "North White" standard fluorescent lighting tubes. Readers will note that the computer screen always seems to be "whiter" than the electrical lighting in the shack. Changing to "North White's" used in industrial offices and workshops minimises this effect.

Food for Thought

Perhaps many readers will consider that working inside a computer is potentially dangerous or over complex. Remember that at least you can make adjustments easily to computers. You can upgrade them, change cards, add memory, replace hard drives - which is far easer and much cheaper than trying to work on - or repair some of these modern "black box" transceivers sold today. If you have the technical ability to pass the Amateur Radio Examinations, and run your station - then you'll find that computers are much easier to configure, align and diagnose problems than that "black box" rig costing 10 times that of the computer!

In the near future, Software Controlled Transceivers (SCT's) will be common place. Now is the time to get used to working on your computer because the same principles are being used on new AR equipment - AND they will be cheaper to manufacture and upgrade just like you do now with your own Ham Shack Computer.

Summary

These days, the thought of having access to a full-blown broadcast standard synchronisation and video test pattern generator are "in your dreams". However, this article has shown that a simple, DOS based computer software package can almost replicate a $25,000 broadcast standard - and it's FREE!

TESTVGA was written by Aden Lindsay, VK6ZKI as a broadcast test simulation program for computers. Our gratitude is extended to Aden for the use of his program for this article.

The program can be downloaded free from the Ham Shack Computers Web Site (1) or for readers without Internet access, a $5 note, together with your name and postal address sent to the writer's address at the head of this article will receive a floppy disk by return mail anywhere in Australia or New Zealand.

Ham Tip No. 22.

Run TESTVGA.EXE directly from a floppy disk. You can easily move between different computers, and also make copies for friends. Always keep a "floppy copy" in your software toolbox just in case.

Postscript

One AR operator, a close friend of the writer, had the cheek to take a copy of TESTVGA.EXE on a floppy into a computer shop and asked the salesman to run the program before considering purchase. You guessed it! the monitor suffered from colour distortion so the intending purchaser decided to try another dealer which turned out fine. Just like cars, you can "test drive" computers well before committing your hard-earned cash. There are lots of "lemons" out there, particularly around the secondhand and re-cycled computer marketplace. Don't get caught out!

Ham Shack Computers, Part 23 - next month describes "EchoLink" used for voice and keyboard communications via the Internet, or to establish your own link or VHF/UHF repeater.

(1) Ham Shack Computers Web: http://www2.tpg.com.au/users/vk6pg

73s de Alan, VK6PG

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HF Predictions

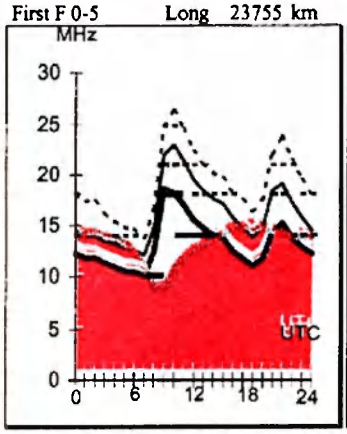
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

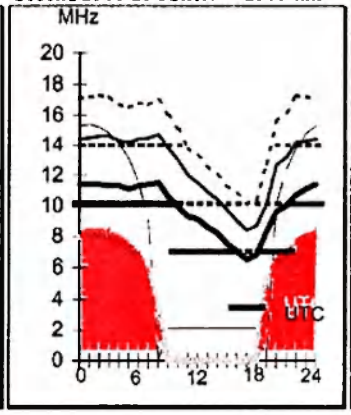
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

Adelaide-London 132
First F 0-5 Long 23755 km



Brisbane-Dunedin 148
Second 2F18-25 2 Short 2561 km



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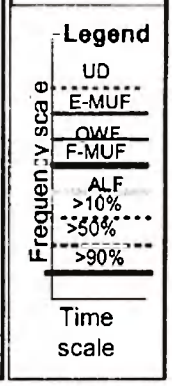
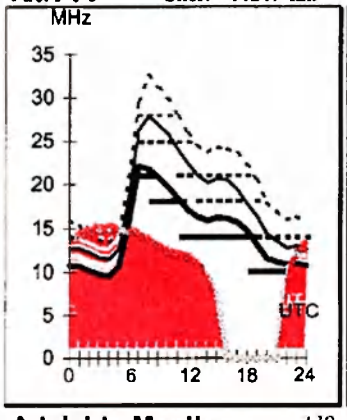
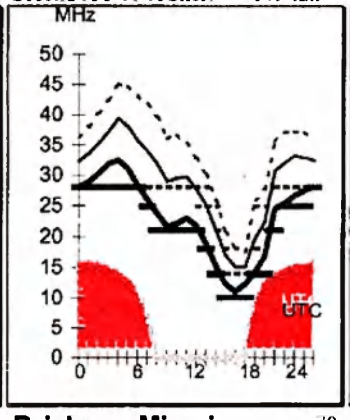


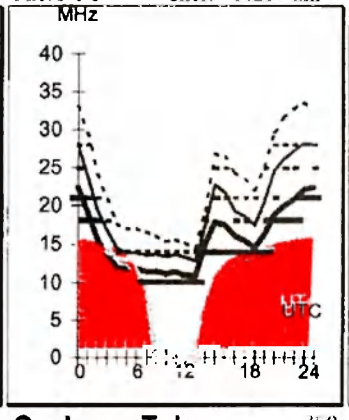
Adelaide-London 312
First F 0-5 Short 16269 km



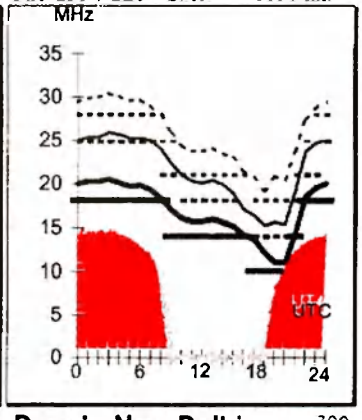
Brisbane-Honolulu 49
Second 3F5-11 3E Short 7569 km



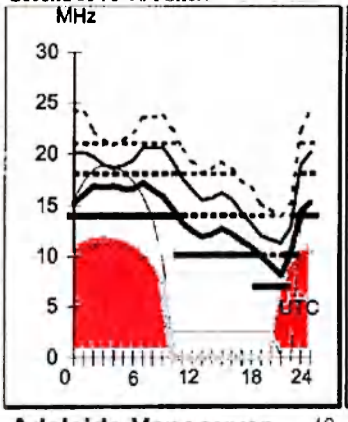
Canberra-New York 68
First F 0-5 Short 16217 km



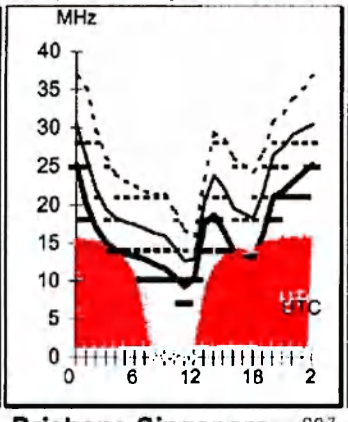
Darwin-Auckland 130
First 2F5-9 2E0 Short 5136 km



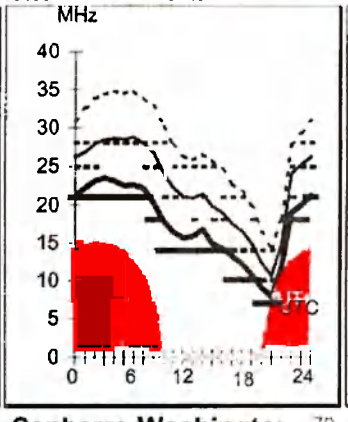
Adelaide-Manila 338
Second 3F10-18 2 Short 5813 km



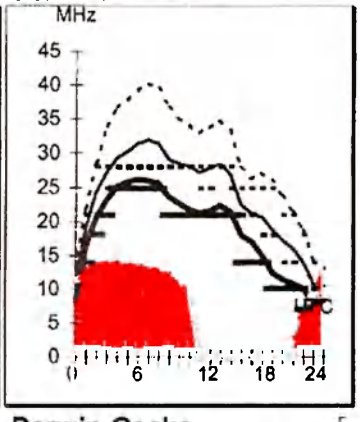
Brisbane-Miami 79
First F 0-5 Short 14761 km



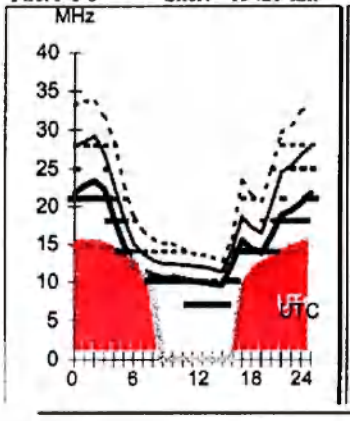
Canberra-Tokyo 352
Second 3F4-9 3E Short 7948 km



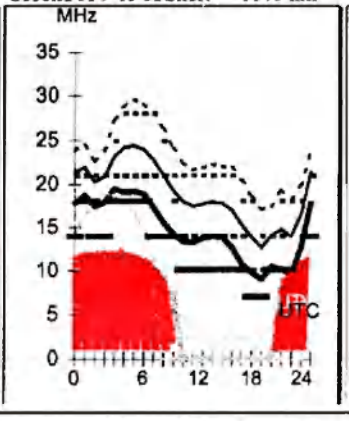
Darwin-New Delhi 309
Second 3F5-12 3E Short 7345 km



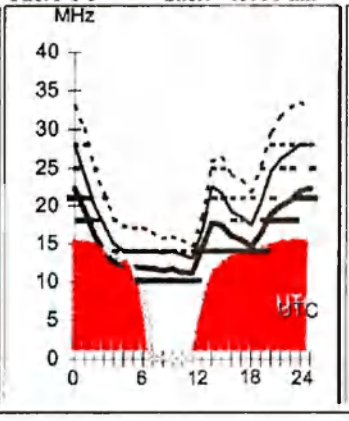
Adelaide-Vancouver 49
First F 0-5 Short 13421 km



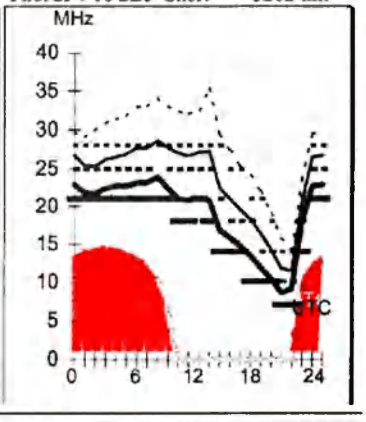
Brisbane-Singapore 293
Second 3F9-15 3E Short 6146 km



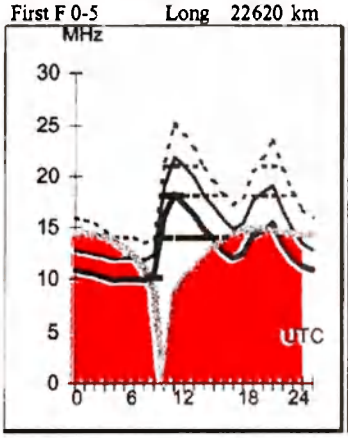
Canberra-Washingtor 70
First F 0-5 Short 15938 km



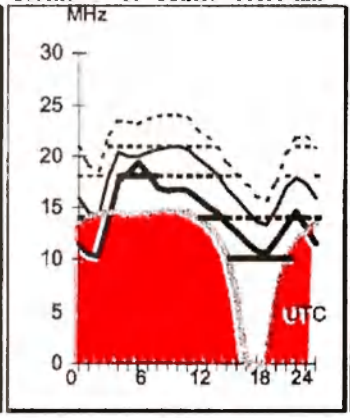
Darwin-Osaka 5
First 2F4-10 2E0 Short 5262 km



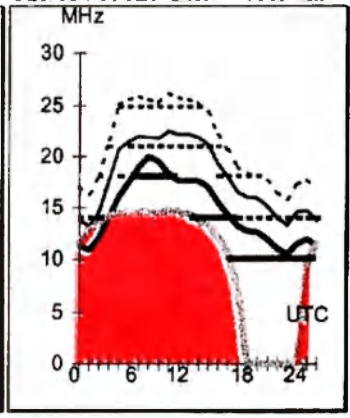
Hobart-London 123
First F 0-5 Long 22620 km



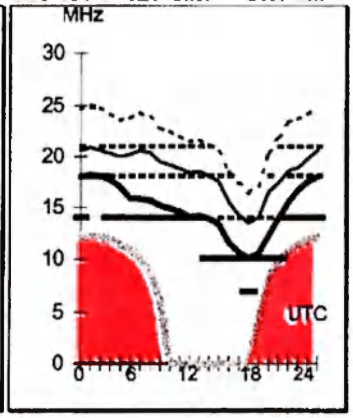
Melbourne-Lusaka 241
Second 4F4-10 4I Short 11153 km



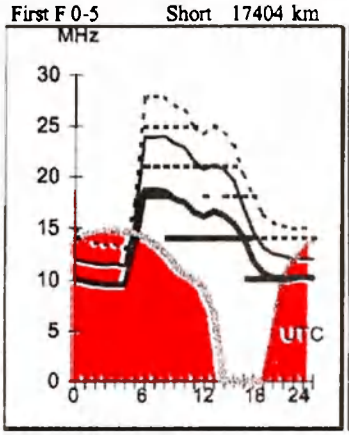
Perth-Johannesburg 248
First 3F4-10 3E0 Short 8315 km



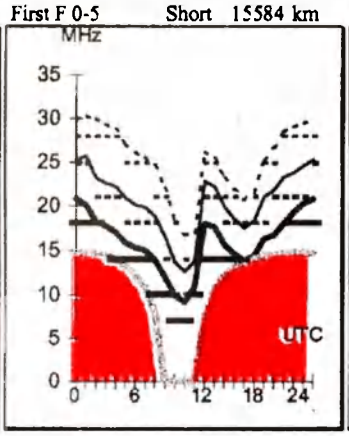
Sydney-Auckland 106
First 1F8-14 1E0 Short 2159 km



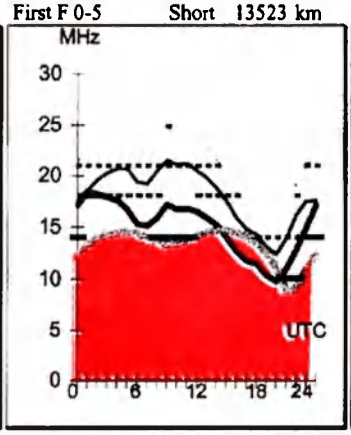
Hobart-London 303
First F 0-5 Short 17404 km



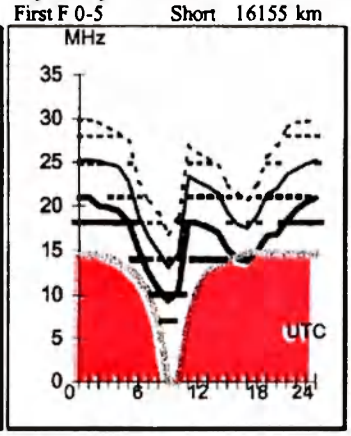
Melbourne-Miami 94
First F 0-5 Short 15584 km



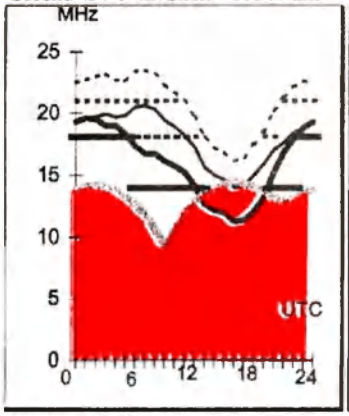
Perth-Rio de Janeiro 203
First F 0-5 Short 13523 km



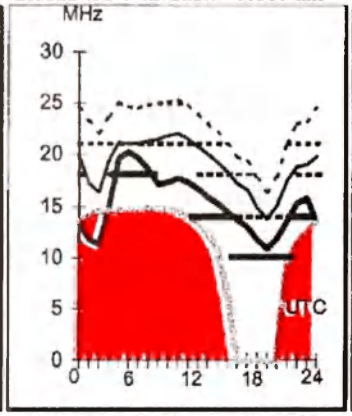
Sydney-Barbados 199
First F 0-5 Short 16155 km



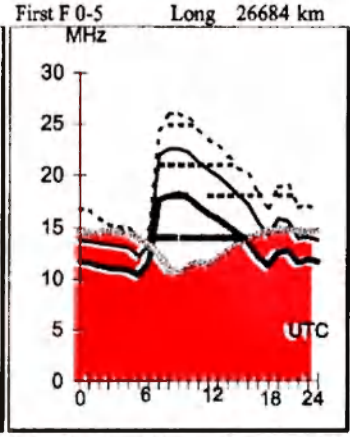
Hobart-Montevideo 161
Second 4F7-9 4E(Short 11044 km



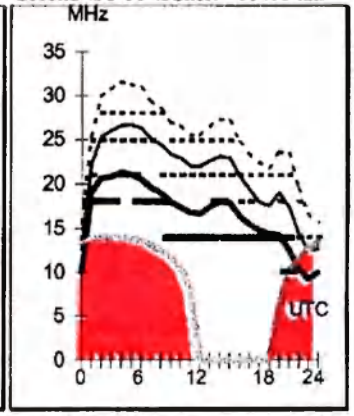
Melbourne-Nairobi 258
Second 4F3-9 4E(Short 11501 km



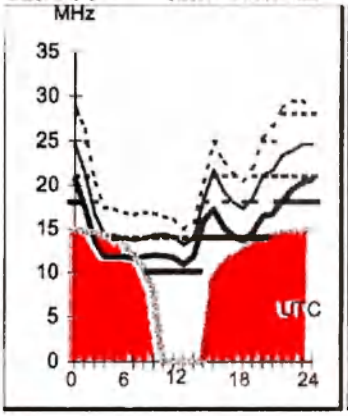
Perth-Rome 123
First F 0-5 Long 26684 km



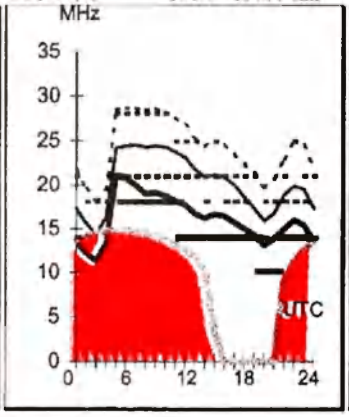
Sydney-New Delhi 302
Second 4F5-11 4I Short 10416 km



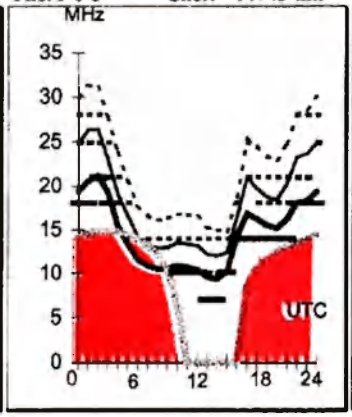
Hobart-New York 80
First F 0-5 Short 16609 km



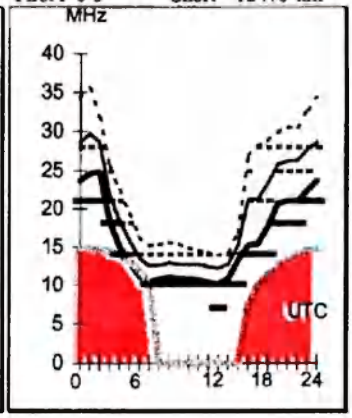
Melbourne-Tel Aviv 267
First F 0-5 Short 13766 km



Perth-San Francisco 66
First F 0-5 Short 14743 km



Sydney-Seattle 47
First F 0-5 Short 12470 km



VHF - UHF.. AN EXPANDING WORLD

David K Minehin VK6KK
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E-mail: vk6kk@ozemail.com.au (note new e-mail address). ***Web page:*** http://members.ozemail.com.au/~tecknolt
All times are in UTC.

Advanced Refractive Effects Prediction System

Leigh VK2LRR circulated this information a few weeks ago regarding AREPS software. It has created great interest so is re-printed (in part) here for those who would like to try the Ducting Report System.

Leigh reports .. AREPS uses Upper Level Atmospheric Soundings Data from various Meteorological stations throughout Australia and other parts of the world, entered into a program called AREPS to produce a "Propagation Summary" of Atmospheric conditions that could effect the Normal propagation of radio waves, generally at approx 100MHz and above.

Location of the Upper Level Atmospheric Soundings Data

You may have seen Weather Station people sending up Weather balloons at some stage? These measure the Atmosphere from the ground up for certain parameters. What we are concerned with is obtaining data from the ground level upwards to 4000 meters, consisting of - Pressure (Hpa), Height (m), Air Temperature (deg C) and Relative Humidity (RH%). These readings can be found at http://weather.uwyo.edu/upperair/sounding.html

What you need to do at this page is to select from the top - South Pacific (Region), Text List (Type of plot), and then the date and time you require. Go to the map and select whatever Station you require. The info will come up in a new screen. Click on file and save as, then save to the file or folder you will use to obtain the data later to enter into the program.

The AREPS or Advanced Refractive Effects Prediction System program

Used and produced by the U.S Military to predict the propagation effects in relation to their voice and radar signals into the gigahertz range. It can be found at http://sunspot.spawar.navy.mil/543/software/ Click on the obtain program link icon, it then takes you to a page where it asks you for some of your details. Go down towards the bottom and there is about 13 separate files all about 1.3 Mb. Down load all of them, after its downloaded you just click on the first Zip file and it will take you through the installation.

Once you have downloaded/installed AREPS and all appears to be OK, go to the upper level soundings page. Select the correct options for your area. The map shows the area you have chosen, click on a station, the data will appear in a separate screen. Many stations may not give you a reading, particularly at 12z. When one has sounding info, follow the process explained (Click on file and save as, then save to the file or folder you will use to obtain the data later to enter into the program) and save the data. Once you have the data saved you can disconnect if you like.

Open up the AREPS program from your start menu. Click on the large Create A New Environment button. Expand the new page to full screen, which is the AREPS Environment program. Click on the large Custom Columns button. Expand that new screen. You should now have Custom Columns Import open. Find near the lower left side "Station Elevation" Right click Station elevation and change to measurement option to Meters. Then go directly across and find Station Type and click Land Fixed.

Go to the top buttons and click Open File.

Search through your files until you find the Sounding data you previously saved. When you find this, open the folder and click the explorer file of the saved data not the associated folder. Click open.

The file data then displays in the Custom Columns Import screen. Highlight everything immediately above the actual sounding data upwards (to top of screen) and delete. Move all the data up to the top of the screen. Click down until you find a Height reading (2nd column) first in the 4000m zone. From the left, highlight everything below that reading (not including the first 4000m reading) and delete it, after noting the stations height.

Enter the Station Elevation in the Profile Options section below the data screen. Make sure the drop down list just above that displays" M-unit profile from PTH" Click on the Parse Data button. A data sheet is arranged. In the columns mentioned next, right click on that corresponding label to give that column an information title. Column A - Pressure Hpa, Column B - Height M, Column C - Air Temp TA Deg C, Column E - Humidity RH %, Forget about the rest of the columns. Click do task. It should come up in the Legend and say Profile Is OK. Click the upper tab saying View Refractive Summary. And there you should have it!!!

Click across to see the graphs properly. You can then save the data by clicking upper save button.

Once you have saved the calculated profile, you can go back to the first AREPS page. Click the large Propagation Condition Summary button. Click the Environmental file you wish to open and press open

Up will come the Propagation Condition Summary. Expand the page. To the left you will see a summary explaining whether there will be Extended, Reduced or Normal conditions and at what heights etc.

To the right you can see the graphs.

If anyone has any questions or are stuck on an operation, just send an email and I will try and help. I hope the AREPS system can help all Amateurs, I have found it quite accurate, but like anything it's only as accurate as the inputted data applied to it. ...Leigh Rainbird VK2LRR

144 MHz and above

John Martin, VK3KWA, reports ... The 70 cm national Digital Modes record of 586.4 km (VK3FMD to VK7MO/7) was superseded by a contact made half an hour later on the same day: VK3AXH/3 to VK7MO/7, 02/11/2002, 649.1 km. The 2 metre national Mobile record has been broken after 16 years: VK3KAI/m to VK6AS, 20/12/2002, 2274.4 km. There is also a new national 10 GHz Digital Modes record: VK3TLW/3 to VK3WRE/3, 28/12/2002, 114.2 km. Updated record lists will be uploaded to the WIA web pages shortly ... John VK3KWA

Ron VK3AFW reports .. Bill, VK6AS, worked 33 stations on 20/12/2002 on 2 m and had notched up 16 QSO's by the time I worked him on 21/12/2002 at 1051. His signal had been building and when we worked he was 5x8. Some 40 minutes later he was down to 5x4. Nil this morning, and Colin, VK5DK, reported no sign of the Esperance beacon in Mt Gambier.

Ian VK1BG was audible here on 2 m after 9:00 this morning (21/12/2002) for a good half hour at 5x2 with some regular fading ... Ron, VK3AFW

Microwave News:

New 5.7 GHz ATV National Record

Ben VK5RD reports ... On the morning of Tuesday the 5th of November, 2003, VK5BQ transmitted his maiden 5 GHz ATV signal to Maitland, VK5AO, located at Banksia Park the distance being approx 80 km. Considering that the receiving set up at VK5AO consisted of only a 5 GHz chaparral feed at 30 feet to a converter and satellite receiver the results were most encouraging with pictures varying from between P1 and P5 with the occasional loss of signal completely. Since the initial test the experiment has been repeated a number of times with great success.

Spurred on by these results it was decided to make an attempt on the record in late November. Before an attempt was made however equipment at both ends of the link needed to be tested to ensure reliability and satisfactory operation. To this end accompanied by Graham VK5JD I travelled to Stansbury where tests transmissions were exchanged with VK5BQ over a distance of some 3km.

The first attempt at the record was on Monday 25/11/2002. Alas Murphy moved in, the weather turned hostile becoming worse by the minute as we drove to the site from which we intended to try for the record. Upon reaching the site the wx went from bad to very bad. It bucketed down making any attempt impossible.

On Thursday the 28th undaunted by previous events, we made a second, successful, attempt to establish a new 5.7 GHz two way national ATV record, between Barry VK5BQ and myself Ben VK5RD at 0210Z. The distance involved was 111 km from a telecom site some 600 metres above sea level located approx 5 km ESE of Williamstown toVK5BQ's QTH 20 metres above sea level located 3 km south of the township of Stansbury on Yorke Peninsula. Signals both ways were P5 most of the time with the occasional fade with the sound being noise free 100% of the time. From what we observed if a site could be found having similar height the distance could well have extended beyond 150-180 km

Transmitting and receiving equipment used at both ends of the link were similar except for the size of dishes and feed types used. The transmitters consisted of an FM ATV 1150 MHz composite video and audio transmitter to a 5 GHz multiplier, which drove an RF microwave amplifier to 5watts output. The sound sub carrier used was 6.5 MHz. The receiver consisted of a 5 GHz GASFet converter to an analogue satellite receiver and monitor. The IF was in the region of 1 GHz.

VK5BQ's antennae was a home made 1.2 m mesh dish, utilizing a chaparral feed exhibiting a gain of approx 35 dbi @ 5.8 GHz. VK5RD antennae was a 600 mm solid dish utilizing a tapered waveguide dipole and reflector feed, with a gain of approx 29 dbi @ 5.8 GHz. For those who may be interested both dishes were prime focus types with an f/d ratio of about 0.375.

My received signal was relayed by VK5BQ back to Adelaide on 1250 MHz FM TV for interested viewers making a round trip of approx 185 km. This now only leaves the 3 GHz band unconquered and breaking the 1250 and 2.4 GHz records, which are only some 6 to 10 km, further than the site we used for the 5 GHz record. Maybe next year!

Barry and I would like to thank Graham VK5JD for his support in carting the gear around, locating a suitable site and for the filming of the event. We would also like to thank Mark VK5EME for supplying many of the parts and kits from which our stations were constructed. Also thanks to Steve VK5SFA for the loan of his portable generator and 12-volt monitor ... Ben VK5RD

2.4 & 5.7 GHz unlicensed data links

In December 2002, I reported on the 72 mile (118 km) link established in the US using 801.11 2.4 GHz WAN equipment. This has stirred up a fair bit of interest!

One group in Australia (in Adelaide) have already established a number of 2.4 GHz links, for more information go to http://www.air-stream.org/. The VK5 packet group (SAPUG) are looking at working with "Airstream" as they seem to have set to work on a number of things we have only been talking about. The potential of gaining some new "Amateurs" is real while providing a crossover with another interest group.

The Future of 420 - 450 MHz: Part two

This segment in the December 2002 issue drew a reasonable amount of comment. The dropping of ATV from the 70 cm segment was viewed as a backward step but it is agreed that it was probably about time that VSB (6 MHz BW) was implemented more universally rather DSB (+12 MHz BW). Let's face it, if we loose part of the band, there will be no choice!

Peter Cussins, VK3BFG reports ... we should plan and argue on the basis of at least one VSB channel (7 MHz) in the segment. ATV is one of the few amateur activities left where people actually have to build a substantial amount of their own equipment and is also hallmarked by the challenge of optimised

performance required in all aspects of transmission and reception.

As an example of homebrew activity, the Moorabbin Radio Club has an ATV Group operating and members have built and tested antennas for the reception of VK3RTV. The next step for them will be to build transmitters and antennas for the input frequency of 1250 MHz.

Note the accent on building and experimenting!!!

VK3RTV operates in Melbourne with an output on 444.25 MHz VSB. At the request of ACA it has moved from 579.25 to 576.25 and then subsequently to its current output frequency. Due to the geography of Melbourne with its extremely wide spread suburbs, VK3RTV is pivotal to ATV activity in Australia's second largest city.

With the advent of continuous tuners in modern television sets, amateur activity has been brought into the lounge rooms of non-amateur (SWL's). We all agree that amateur radio needs all the PR it can muster. This service is raising interest and awareness of amateur activities and ATV operators in Melbourne are fielding enquiries as a result. .. Peter VK3BFG

From ZL, Jamie ZL2NN comments ... Your comment in "VHF-UHF An Expanding World" in the Dec 2002 issue of AR has prompted me to briefly bring you up to date on the ZL situation regarding the 432 MHz band. The ZL amateurs lost the 420-430 MHz part of the band some 30 years ago to a 'country phone' system proposed by our Telco at that time. The main amateurs disadvantaged at that time were the ATV users but they were happy to receive channel 39, 614-622 MHz as a replacement for ATV repeater outputs.

In 2002, we lost 440 to 449.750 MHz. Note that the ATV users are still catered for with a VSB ATV channel at 431.250/ 436.750 MHz. ... Jamie ZL2NN.

Weak Signal Pioneer dies

Roger, VK2ZRH reports ... Grote Reber, ex-W9GFZ, is reported to have died on Friday last, 20 December 2002, at Ouse in Tasmania. He would have turned 91 on Sunday 22 December.

Reber is credited with having established the science of radio astronomy in the 1930s, a subject he pursued all his working life. Reber was inspired to investigate the radio signals from outer space as a young engineer and radio amateur, having learned of the work of AT&T engineer Karl Jansky. Jansky set out to investigate noise sources interfering with long distance telephone circuits and found HF noise emanating from space.

In 1937, Grote Reber built a parabolic dish of 9m diameter and built receivers to detect the weak signals from the cosmos. In 1939 he published the first "radio map" of the sky at VHF.

Subsequently, he produced sky noise maps for a variety of frequency bands. In the 1960s he became interested in recording sky noise at frequencies below the medium wave broadcast band. Realising he needed to view the sky through a "hole" in the ionosphere, he moved to Tasmania to continue his privately funded work. At that geomagnetic latitude the "southern ionospheric anomaly" - a region of very low ionisation - allows reception of sky noise. He constructed a huge wire array antenna and a TRF receiver, with which he recorded sky noise data in the 100s of kHz range.

Reber received a number of prestigious awards over his long and fruitful life. His papers are held in the US's National Radio Astronomy Observatory at Greenbank, West Virginia. In the early 1980s I was privileged to interview him during a day spent on his property in central Tasmania ... Roger Harrison VK2ZRH

In closing

Happy New Year! I'll leave you with this thought... "Everyone is a damn fool for at least 5 minutes every day. Wisdom consists in not exceeding the limit!"

73s David VK5KK/P3

ar

Over to you

Ron Bertrand VK2DQ Review

I recently completed and passed an AOCP theory course with Ron Bertrand, and must say that Ron's course and teaching methods are first class. Sure, some of the CD material is done on the fly as stated in the review, but this is what makes the course so enjoyable.

I personally detest it when an instructor teaches from a textbook verbatim. Ron teaches from knowledge, experience, in an informal relaxed manner and the course material is not as heavy going as some texts I have seen. Even the texts provided by the WIA and Swainstons are harder to follow than Ron's material.

Further, how many teachers are contactable once the class is over if a student has a query? Not many, I will wager.

Ron and his team of online facilitators are always contactable by telephone, email or via the online discussion group. Answers are prompt and succinct with suggestions offered from many if posted in the discussion group.

Surely a man who has been teaching (N) AOCP theory for 20 years with The Gladesville ARC and now with the Gold Coast ARC as well as online, must be doing something right, particularly with a student pass rate as high as his.

Personally I think the individuals who wrote the review in AR are suffering from the either jealousy or the tall poppy syndrome. I challenge any other organisation to match Ron' efforts and those of his team of online facilitators, and better them. Let alone do it for free as they do.

It is often discussed that Amateur Radio is a dying hobby, and what can we do to improve its image. I believe Ron has hit on a winner. He took an old hobby to the people, and made it publicly accessible "FOR FREE".

Please, we should be encouraging the efforts of people such as Ron and his team not knocking them down.

We continually have to ask each other *to coin a phrase.* "What have YOU done for Amateur Radio today?"

Adam Jaroszuk VK4LAJ
vk4laj@qsl.net

Dinosaurs Dreaming

An old dream has become reality for me: I've become an active licenced radio amateur. Let me tell you, though, about the veritable obstacle course I had to run, thrown up by . . . . . the WIA.

How does one become a licenced amateur these days? I did a Google search on the Internet and soon found the WIA websites. I thought I had found my answers. If fact I had found my first hurdle.

The advice on VK2's website was for me to go to "a local radio club near me". This club would be running radio courses and should have addresses of examiners. Living in Berry, NSW that wasn't so easy, there is no Shoalhaven Radio Club (I later found there used to be one but it died).

The closest radio clubs mentioned on the website were the Illawarra (one hour's drive north) and the Mid-South Coast one (1 hour's drive south). VK2's hotlink to the Illawarra website was dead. It lead nowhere. The telephone number given for the Mid-South Coast club didn't answer for a few days. Then I got a fairly upset female who said "they" were no longer involved. I did manage to extract a different phone number.

Eventually I managed to get on to some committee members of both the Illawarra and Mid-South Coast clubs. They were most friendly and helpful but had no idea whatsoever about courses or exams, couldn't give me any hints. *Lesson #1: don't believe the website.*

Meanwhile I had stumbled across Ron Bertrand's on-line Radio and Electronics School, a highly organised mob that soon had me well prepared for my first exams. Now to find out where and how I could do those exams.

Plan B consisted of phoning the VK2 office. After some misses (the office isn't often attended) I eventually got through. The person at the switchboard was very helpful. I learnt that there were simply no examiners south of Sydney, my only option was to come to Wigram Street, Parramatta, where exams were held every six weeks.

So, after some three weeks of frustration I could now plan ahead. In fact I was so elated I applied for WIA membership.

In May 2002 I did my first exams: Regs. and Novice Theory. The application form said that it could take "up to 30 days" to get the result. In my case it took 46 days before I heard I had passed. *Lesson #2: Don't believe the exam application form.*

Meanwhile I had started pursuing my morse and AOCP theory and booked for the exams scheduled for late July. Then came another setback: a few weeks before the exam VK2 left a message on my answering machine to tell me the exam date had been deferred by one week, due to "conflicting other uses of the building". *Lesson #3: exams have a lower priority than club activities.*

As it turned out the AOCP exam was uneventful. Not so the morse exam. The invigilator was clearly unfamiliar with the equipment and it took a while before I was comfortably settled, ready to start copying. At that very moment someone walked into the office and wanted to buy some morse training tapes. Immediately the invigilator dropped everything in order to attend to this cash sale. Not so easy on a Sunday because everything was locked away. First came the search for the key to the cash register, then the cash register had to be fired up, the tapes had to be found, the whole charade took about ten minutes, by which time my concentration had completely gone. *Lesson #3: during exams a $12.- casual cash transaction is more important than the $57.- exam.*

The same invigilator also administered the morse sending test. He had great problems first getting the tape into the recorder and then to get the thing to record. Eventually I had keyed the exam test. Having become suspicious by then, I suggested we quickly listen to make sure my efforts had actually been recorded. Sure enough the tape was silent.... the invigilator had forgotten to plug in the microphone. I had to do the whole rigmarole again. *Lesson #4: The WIA Exam Service doesn't care about invigilator training.*

Eventually I became the proud owner of my certificates and an Intermediate Licence. Proudly I emailed the VK2 office with my licence and callsign details and asked them to update their records. I also asked them whether, being now a licenced amateur, this meant I would be upgraded from Associate to Ordinary member. 6 Weeks later I still hadn't received any response, in spite of a reminder email I had sent. *Lesson #5: VK2WIA is not interested in new voting members.*

So here I am, an active amateur keenly working VHF, HF, IRLP and Packet. I have learnt some important lessons in the meantime. Amateur radio is a very worthwhile hobby, well worth keeping alive. More so because in times of real emergency HF communications might be the only ones still working.

Whether the WIA is worth keeping alive is another matter. Articles in recent AR Magazine issues contain pious phrases about how to attract new members, making exams easier to pass, etc. My advice: judge the WIA by its deeds, not by its words. In reality the WIA seems to have become a group of dinosaurs dreaming. They just do not wish their dreams of the good old days to be disturbed.

Amateur radio can survive but it needs an effective, pro-active organisation relevant to the needs and wishes of 21st century radio amateurs. Whether the WIA could ever be such an organisation I very much doubt.

Let us hope some more relevant organisation might spring up from somewhere before it is too late (some amateurs might even be working towards this). Meanwhile: dream on WIA .... dream on!

Fred Backer VK2JFB
email: fbacker@shoal.net.au

Views expressed in the letters and opinion columns are those of the authors and do not necessarily prepresent the policy of the WIA.

Some of the letters may be shortened to allow more letters to be published

Hamads

WANTED ACT

• **Service Manual for Yaesu FT-209RH** or instructions how to dismantle frame, and replace lithium memory battery. Peter VK1CPK QTHR Phone 02 6231 1790 FAX 02 6296 5712.

FOR SALE NSW

• Radiotelegraph and Radiotelephone Codes, Prowords and Abbreviations 3rd Edition (236pagas), 610 gm, 1.5 lbs, now available. Probably the World's best compilation of this info now available. Q,X,Z Codes, 142 Phonetics, 24 Morse, 8 Needle codes. Myer, Phillips, 10, 11, 12, 13 and other codes. Much other info, abbreviations, procedures and methods. AU$25 + P&P. (in Australia $7.50) Internet: http://www.sarc.org.au then hit "Code Book ...." John Alcorn VK2JWA, QTHR, Phone +61 02 6621 5217 e-mail vk2jwa@sarc.org.au

• **Kenwood TL-922 linear amplifier** $1700. Full details at www.users.bigpond.com/markweb/. Mark Webster QTHR, Phone/FAX 02 9489 4661 or 02 4997 3173.

• **Kenwood TS-520S transceiver** s/n-740625, fair condition. **MC-35S mic**, manual. Requires new finals $200. Adrian VK2DZF QTHR Phone 02 4739 3747.

WANTED NSW

• **Osker Block SWR-200 meter, Yaesu YP-150 Dummy load wattmeter**. Adrian VK2DZF QTHR, Phone 02 4739 3747.

• **Yaesu FT-1000D**, in good condition and reasonably priced. Please contact Geoff VK2CNN. Phone 02 9789 3086 or email vk2cnn@qsl.net.

• **Drake SSR-1** general coverage receiver or similar. Reply Peter VK2DBI QTHR Phone 02 6367 5095.

• **Kenwood TS-950SDX** must be in good condition. E-mail vk2uw@iprimus.com.au or Phone 0413 114 953.

• **SP-950 external speaker** to suit Kenwood TS-950SD or SDX. E-mail vk2uw@iprimus.com.au or Phone 0413 114 953

• **Circuit diagram for LABTECH 3502 20 MHz dual beam oscilloscope**, good money for the right one! Thanks. Nev, VK2QF. Please email vk2qf@winsoft.net.au or Phone 0418 611 119

• **FT-200 with power supply** in good working order. Ben VK2AJE Phone 02 4457 3220.

FOR SALE VIC

• **Icom IC-HM7 dynamic mic** with built-in pre-amp as new in box $35. VK3GMM Phone/fax 03 5985 2671

• **Nally Tower 37.7m** CDE Ham IV rotor system and triband junior antenna, buyer to arrange dismantling of antenna $1000. **Yaesu FT-101Z** tcvr $350. **Daiwa 448 Powermeter** $100 or best offer. Norm VK3JLY 03 9578 3053.

• **Alinco DX-70TH** HF + 6 m tcvr, as new $975. **Packet set** 486 PC, modem, **Yaesu**

• CPU-2500R 2 m FM tcvr $150. **BC-221** freq. meter $60. **DX-200** gen coverage

• Rx 0.15-30 m $60. **Palomar 3-30 m amp** SS $10. **Power supply, 500-300V dc** 250 mA $10. **Emtron EP-200 SWR/P meter** $60. Alan VK3AMT QTHR Phone 03 9789 9106.

• **Bakelite radio STC141** restored EC $200 **Heil HC5** mike insert unused $35 **Heil HMP** mike preamp for Icom $40 **AWA 25M** on 52.525 $30. **Books** ARRL "Sat. Experimenters Handbook" & Heathkit – "Guide to AR products", $20 ea. More details http://users.netcon.net.au/~lcval1/ Damien VK3RX Phone 03 5427 3121 vk3rx@wia.org.au

WANTED VIC

• **BWD B00B oscilloscope circuit** wanted or handbook copy to enable reconditioning before donation to some penurious amateur or cause. Photocopy costs met willingly. Reg VK3CAZ QTHR Phone 03 5341 7585

• **RF deck for National FRR-59A receiver.** Please help restore this classic. Its missing half must be somewhere! Morris Odell VK3DOC QTHR Phone 03 9824 8988, E-mail morriso@vifp.monash.edu.au

• **Lafayette HE-30 manual** and/or circuit. **Crammond CTR-25 manual** and/or circuit. Kevin VK3CKL QTHR Phone 03 9792 9503.

• Help for **Wireless Set No 11 project.** Both the high and low power, power supply boxes and/or plugs to suit these. Clem VK3CYD Phone 03 5126 2064 clem@dcsi.net.au

FOR SALE QLD

• **Printed Circuit Board for JAS-1 PSK Modem**. New ex designer James Miller G3RUH 160 mm x 100 mm double-sided, holes plated through, legended, including full instructions. Suitable for terrestrial and satellite 1200 bps PSK. Email for specs $30 firm, post free in Australia. Geoff VK4GWC QTHR Phone 07 5445 9986. Email geoffcom@powerup.com.au

• **Icom 2 metre transceiver IC-2SAT** SN02397 hand held manual, original box, plus external battery holder $140. Bernie VK4OZ QTHR phone 07 5532 4078

• **Yaesu FT-101E** original with manual, hand mic, plugs $250. **Yaesu digital VFO FV-707DM** with manual $75. Paul VK4DJ 07 4775 7998, 0401 860 769

WANTED QLD

• **WWII 3BZ Tx and 3BZ Rx**, also ex-army **type 128** manpack 1940s/1950s with 6 volt vibrator power supply as well as hand generator for this set. Ray VK4FH, PO Box 5263, Daisy Hill 4128, Phone 07 3299 3819, fax 07 3299 3821.

• **Yaesu SPdx400/SP400 External Speaker** or similar. **FVdx400 external VFO, FLdx2000/FL2000B Linear Amplifier. YD488 Base Microphone.** Wanted to complete 1960s Ham Radio Station. Will consider all offers in any condition, and my thanks in advance. Phone Sandy VK4II, ph 07 3343 1961

FOR SALE SA

• **Tentec RX-350**, latest model, 6 months old only. Cost $3500, sell $1500 due to dementia - requires move to a home with no antennas. Phone 08 8255 1618.

• **Vibroplex Vibrokeyer Deluxe**, SN 389009 $150; **Vibroplex Double Key Deluxe**, SN 100061 $300; **NYE Master Key**, Model 330-001 $100; **Ten-Tec Electronic Keyer**, Model KR-5A $100; Matching pair of **German miniature keys**: 1 single action, 1 double action, brass handmade - rare $200; **Linear amplifier, 3-30MHz**, 3CX 3000 A7, 3 phase. Harro VK5HK Phone 08 8323 9622, fax 08 8323 9659

About hamads....

- Hamads may be submitted by *email* or on the *form on the reverse of your current Amateur Radio address flysheet*. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
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Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

• **Shack clearance** of unwanted antennas, radio magazines, RF accessories, and other gear. Send SASE to Paul VK5MAP, PO Box 76, Peterborough SA 5455 for list. VK5MAP Paul QTHR.

WANTED SA

• Info about **old triband beam** believed to be a "Wilson". Need assembly and tuning dimensions. Each pair of 15/10 m traps are housed in a single can. Eddie VK5ZE, phone 08 8265 7585 QTHR

• **Kenwood MC-60A desk microphone.** Must be in perfect condition with eight pin plug. Photocopies of **pages 75-80 inclusive for Kenwood TS-440S** service manual. VK5MAP Paul QTHR, phone 08 8551 2398

FOR SALE TAS

• **Yaesu FT-920 HF-80MHz** brand new, with **Yaesu VO-100 monitor scope, Powertech MP3090** DC regulated power supply. **Microwave MM82** advanced Morse trainer Morse/voice send/receive, plus SWR/power meter, earphones, Morse key, microphones; also new G5RV antenna with 40 ft telescopic guyed tower. All offers considered. Will split if necessary. Phone Peter VK7CV Phone 03 6330 1997, e-mail grumpygramp@bigpond.com.

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 6360

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The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

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Secretary	Peter Kloppenburg	VK1CPK
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VK2 Division New South Wales
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(PO Box 432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

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Fax 03 9885 9298
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(GPO Box 1234 Adelaide SA 5001)
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email: *peter.reichelt@bigpond.com*

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Phone 03 6234 3553 (BH)
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also through *http://www.wia.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Mike Jenner	VK7FB
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.

Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

Lighthouse adventure

Bayside District Amateur Radio Society Inc. participated in the International Lighthouse/Lightship contact weekend on 17th-18th August 2002.

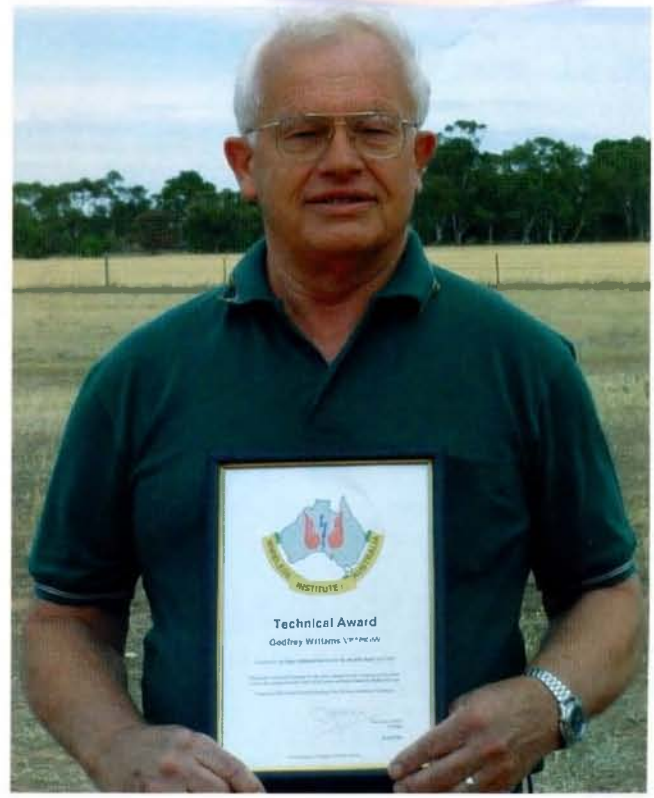
Our station VK4BAR was set up at Cleveland Point with the historic wooden unmanned light in the background. We were one of only four Queensland stations in the event. Our station operated from within the marquee belonging to our President Paddy VK4JPD. The marquee was erected by Paddy, Eddie VK4TJE, Victor VK4WST and Brian VK4BVH, shown in that order, from the left, on the photo. We erected a multi-band trap dipole antenna between the ladder of the laser beacon and a large tree to the southwest of it. The transceiver used was the TS450s at 100 watts. We powered the station with a solar panel and deep cycle battery loaned to us by Al Solar of Capalaba.

During the weekend our station was operated by all of the above plus Ken VK4KF.We were also visited by other members and the general public. The station was kept open during the night hours by Eddie and Brian, (spot the BBQ to the left of Paddy), during which time inquisitive visitors wanted to know what was taking place. All up we made 86 contacts throughout the world; including two marine mobiles, a yacht off Mackay and a cargo vessel off Townsviiie.

We're all anticipating the next Lighthouse Event in August 2003

Technical Winner

Godfrey Williams VK5BGW displays the Technical Award Certificate presented to him for his article *An Upper Sideband Receiver for the 20 metre band* published in Amateur Radio, April 2000



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The magazine for AUSTRALIAN Amateurs

March 2003
Volume 71 No 3

Amateur Radio

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WIRELESS INSTITUTE OF AUSTRALIA

AUSTRALIAN SUMMER WILDFIRE:
radio amateurs in action
by Jim Linton VK3PC

An Experimental Patch Antenna for 70 cm
Part 2
Greg Chenco VK3BLG

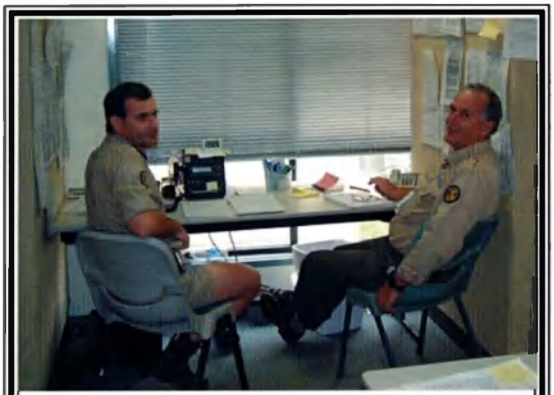
A "Kalitron" Gate Dip Oscillator/Crystal Checker
Drew Diamond VK3XU

WICEN *fires up*

IOTA OC-251
Lady Julia Percy Island
September 27-30, 2002

ISSN 0002-6859

Radio Amateurs in the firing line



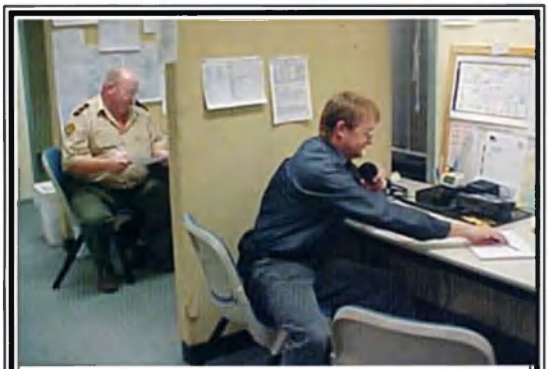
Mark Dods VK3XMU and Mark Dods (Snr) VK3ZR at the Corryong Incident Control Centre

In constant demand, Carol Tremellen at the WICEN (Vic) Administration Centre.

RECOM spokesman John Patterson VK3ATQ in a rare quiet moment.

Maggie Iaquinto VK3CFI at the 'battle board' which pinpointed the fire and the resources fighting it.

WIA Federal WICEN Coordinator and WICEN (Vic) member John Weir VK3ZRV in action at Mt Beauty.



On night shift, Greg Morse VK3FGM and Phil Pavey VK3YB

Ken de Silva VK3FKD logging traffic at a heli-airbase.

Background photo by CFA Volunteer Firefighter Graeme Robertson

Amateur Radio

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Our Cover this month

In the recent spate of bushfires in many areas in Australia, WICEN's contribution has been significant. The centre picture shows VK7 WICEN members Gavin VK7HGO and Robert VK7RB operating at the Bluff Road Control, Clarement fire station during a recent fire near Hobart.

The background fire is from a shot taken in Eastern Victoria by Graeme Robertson, CFA volunteer firefighter and reproduced by permission of the CFA.

More details are in Jim Linton VK3PC's report on the Victorian bushfires. Many other contributors have also reported their experiences. See especially the Division News.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
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Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

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Editorial Comment

Colwyn Low VK5UE

Amateurs serving the community

The bushfire disaster in southeast Australia is still with us but hopefully by the time you read this it could be over. The big blue firebreak at Bass Strait may not have been needed.

In this issue we bring you details of Amateur involvement in the response to the emergency. While the article applies specifically to Victoria similar response from Amateurs was required in other states.

This all illustrates the need to continually be prepared and that WICEN is a necessary part of the State Disaster response plans. So please make an effort to join WICEN or at least help in some of the WICEN community support activities to gain experience, which could be useful in an emergency affecting you.

One point which particularly struck home to me was the use of digital modes to ensure accuracy of message handling and to improve reliability on circuits which would have been impossible to operate using SSB. I had experience using packet at the 2002 Classic Adelaide Rally with the WICEN team. It worked extremely well. In fact the WICEN Team won the award for the Best Team supporting the rally operation.

The contest season is upon us, we have been out in the heat for the Summer VHF/UHF Field Day and the John Moyle Field day will be held on March 15/16th. The VK/trans Tasman Contest, our local DX sponsored Contest will be held at the end of May. This is when all the World comes specifically looking for VK contacts. So please put in some time to make an entry.

Unfortunately there is no "How's DX" column in this issue. Ross Christie VK3WAC had a hard drive failure and lost both data and software used in production of the column. We hope he will be back with a DX column in April. Further no "VHF- UHF.. and Expanding World" was submitted for this issue

The WIA Federal Convention is being held on April 4th to 6th in Adelaide. So there is just time to raise your concerns and accolades with you Divisional Council and Federal Councillor before they finalise their views for presentation to the Convention. This will be the main forum to determine where the WIA goes in the next 12 months. No Morse, 300kHz on 40 m, primary allocation on 70 cm, moves towards a Foundation licence or not, can we have an Australia wide WIA with state divisions or do we have to stick with State Divisions and a Federal WIA? It is your WIA so speak now so you do not have to grumble about not being heard afterwards.

Amateur Radio magazine is revising how it operates so there may be a few changes in the way we receive and acknowledge material submitted to the magazine. The Editor does not do some of this very well at present.

Finally I am pleased to see *Radio and Communications* back on the Newsstands.

So enjoy your hobby. Let others know what Amateur Radio is about. Which activities you enjoy and which they might find enjoyable.

73 Colwyn

John Moyle Field Day

March 15 & 16

Have a day in the fresh air.

Get out the portable gear and see if it still works, you never know when you might need it in a hurry.

Australian summer wildfire: Radio Amateurs in action

The extreme bushfires in southeast Australia in January and February 2003 saw radio amateurs continuing a tradition of providing emergency communications, and winning high praise for their efforts. *Jim Linton VK3PC* reports.

Summer fires have seen radio amateurs in southeast Australia providing various levels of involvement to assist emergency and relief organisations, and local communities.

While acknowledging such a spread of involvement, this article is confined to what happened in Victoria, where two groups were heavily involved – WICEN (Vic) and the Red Cross Emergency Communications (RECOM).

Officially called the Bogong fire, the furious forest blaze in northeast Victoria burned uncontrolled for four weeks engulfing more than one million hectares of public and private land. Conditions were extreme, brought on by five years of low rain, the worst Australian drought in 100 years, strong winds, high temperatures, and single-digit relative humidity.

The WICEN (Vic) deployment in Region 4, the northeast, ended on 11 February with the departure of the last operator. The fire spread further into the eastern Victoria Gippsland Region 5, under the command of Chris Morley VK3KME. Some of those who had served in Region 4 had a second stint in Region 5. The fire was calmed by rainfall on 22 February.

Police and Department of Sustainability and Environment praise WICEN (Vic)

Victoria Police Superintendent Murray Adams, State Emergency Response Officer said, "The response by WICEN volunteers has been magnificent."

Supt Adams said, "No sooner had I spoken to John Kerr (State Co-ordinator) than WICEN personnel were in the field, assisting the fire fight by staffing radios for the Department of Sustainability and Environment (DSE).

"Their commitment and enthusiasm to assist in the long term is to be commended. While they were only one of 25 organisations involved in the response, their unselfish input has assisted the State tremendously.

"In my nine years as the State Emergency Response Officer, this is by far the biggest, and most sustained effort provided by WICEN as a result of a request for help in a major emergency."

DSE State Fire Co-ordinator, Peter Billing described the WICEN (Vic) volunteers as being skilful, adaptable, and the "human link" vital to its radio communications network throughout Victoria.

Continued on page 4

WICEN (Vic) State Coordinator John Kerr VK3BAF and Victoria Police State Emergency Response Officer, Supt Murray Adams who described the involvement of WICEN as "magnificent".

Australian summer wildfire: Jim Linton VK3PC report continued

Continued from page 3

The Department, as the lead fire agency in the Alpine area of Victoria, "appreciates the limitless efforts of the Wireless Institute Civil Emergency Network volunteers," Mr Billing said.

"They have been involved from the beginning and were able to start working with the radios after minimal training to become familiar with DSE's networks and protocols.

"We have deployed them across the state to assist our Incident Management Teams to communicate with people at the fire front," he explained.

Mr Billing said, "They have been the human link between the radios. Without their skills and knowledge, important messages about the movement of people and equipment wouldn't get through."

More than 60 years of tradition

It is a tradition for radio amateurs to provide emergency communications for the benefit of the community. This has occurred since the 1939 Black Friday fire disaster. Other major occasions include Cyclone Tracy 1974, Ash Wednesday 1983, and the Newcastle Earthquake 1989.

However, in the absence of a major disaster, plus increased communication resources for emergency services, the ubiquitous mobile phone, and other factors, there were widely held doubts that our hobby would ever again provide a vital emergency service.

The Senate Standing Committee description of WICEN was truly put to the test. The enormity of the Bogong fire saw fire fighting services stretched to their limit in terms of both resources to deal with the fire outbreak, and being able to maintain communications from multiple control points for a prolonged engagement.

The Department of Sustainability and Environment (formerly NRE) recognised early during the fire emergency that it could draw on the voluntary resources of WICEN (Vic). Long-established relationships between DSE and WICEN helped in the process.

DSE advised Superintendent Murray Adams, State Emergency Response Officer, that it needed radio operators, and he activated WICEN (Vic) on 19 January, under Victoria's Emergency Management Plan.

WICEN Region 4 Division 4 Co-ordinator, Peter Weeks VK3YZP said, "It was a team effort, I had been backed up by many WICEN people and we could not have done it without them."

Peter VK3YZP who has been described by his colleagues as the "Commander" of the WICEN deployment, made particular mention of Leyland Sawyer VK2GBZ, Carol and Graeme Tremellen VK3GPT, State Coordinator John Kerr VK3BAF, and HF Net Operators Fred Storey VK3JM, John Bell VK3FJB and Peter Repschlager VK3YG.

In both the north-east and Gippsland at a total 12 locations, WICEN (Vic) at last count had a total of 72 involved, made up from 63 radio operators and nine co-ordinators and resources personnel.

The Senate Standing Committee on Industry, Science, Technology, Transport, Communications and Infrastructure 1994 said in part:

'WICEN is a volunteer group of radio amateurs with communications and information transfer skills and equipment. This organisation can be called upon by response and recovery agencies and the general community in times of emergency. WICEN's major role is the co-ordination of the response of the general amateur radio service in times of need."

The volunteers worked 12 or eight hour day and/or night shifts as the varying situations required. While accommodation was in abundance in the northeast, this was not so in Gippsland where some slept in tents.

Their primary role was to operate the trunk radio system for DSE at both Incident Control Centres and five airwing bases. There were also telephones to answer and fax machines to be maintained.

They had to quickly adapt to the trunking radio, unfamiliar operating protocol and plenty of jargon. The long shifts and usually a five day assignment was not something that everyone could commit to due to their personal situations. The experiences of some volunteers appear later in this article.

Additionally WICEN (Vic) set up a statewide HF network at the request of the Victoria Police, which ran twice daily skeds on 40 m and 80 m, in case it was needed.

In an administration role, Carol Tremellen with support of husband and former WICEN (Vic) State Co-ordinator Graeme VK3GPT, manned the telephones and email system from their home in Healesville.

Peter VK3YZP was involved professionally with maintaining radios and repeater networks at Corryong Incident Control Centre (ICC) for DSE during the first week of the fires.

His local knowledge of the fire situation enabled timely advice to be provided to WICEN (Vic) volunteers in terms of what they would face.

And despite this high level of involvement during the early stage of the emergency, Peter had to return home for the impending arrival of his first child – a son. His WICEN 'family' keenly awaited news of the birth.

WICEN (Vic) administration was superb

Well away from the fires but key to WICEN's deployment was Carol Tremellen. The alarm clock would sound at 7am each day for four weeks and Carol was still on the job at midnight most nights.

Her role was to run the WICEN (Vic) Administration Centre which among many things kept in constant liaison with Peter Weeks VK3YZP the "Commander" of the activation, and State Co-ordinator John Kerr VK3BAF.

Hundreds of telephone call and emails were handled. Many of these were official WICEN communications with the Victoria Police and other agencies, but others were from radio amateurs responding to the statewide call for volunteers and included the 95 operators who initially volunteered for service.

Those deployed include two women, who while associated with WICEN (Vic), were not themselves radio amateurs. They performed excellently using their knowledge and skills to great effect.

Amid all of the activity Carol Tremellen took on the task of "Welfare Officer" which included talking with wives of volunteers who just wanted to have a chat about things. Two of the volunteers in the field needed to be recalled from duty after relatives died.

In another instance Greg Morse VK3FGM assigned to the Ovens ICC made a hurried return to his Bendigo home after a firebug set alight its back fence and then backdoor on two separate occasions, making it a very stressful time for his wife and children.

Carol said, "A highlight was the birth on 31 January of Peter and Di Weeks' first child - Lance John, who arrived late and weighing 11 pounds.

"While concentrating on their assigned tasks, the WICEN (Vic) members anxiously awaited news of the birth and when the news came through were delighted for Peter and Di."

Graeme Tremellen VK3GPT took on a supportive role to Carol, which he modestly described as "house boy" making cups of tea and doing the shopping, but of course his vast experience as a former WICEN (Vic) State Co-ordinator came into play.

A marathon effort by Carol Tremellen running the WICEN (Vic) Administrative Centre

Volunteer recollections

One of the volunteers was Maggie Iaquinto VK3CFI, who with Phil Pavey VK3YB flew on a small chartered commuter aircraft along with other emergency service personnel from Melbourne to Corryong in the northeast.

Her first encounter with the forest fire was flying through a thick band of smoke, some of which entered the aircraft's cabin. Fears were allayed when it was learnt that the pilot had done this on four previous journeys.

Maggie Iaquinto VK3CFI and 'battleboard'

On reaching Corryong the WICEN (Vic) team leader Phil VK3YB drew together Maggie, Greg Morse VK3FGM and Ken DeSilva VK3FKD to set up the rosters and arrange an orientation (show and tell) briefing with an existing team.

It was a whole new world of logging procedure, taking messages received on the radio, phone or fax directly to their addressee, and the informal family-like style of verbal communication with the DSE commanders.

One procedure was situation reports, or SITREPS, that were gathered every four hours, photocopied, and then distributed. Then there were also regular weather reports.

Maggie said, "The pressure was on to correctly record and log the messages and pass them to the correct person.

"It was made clear that the log book could be required by the Coroner, who in Victoria also has a responsibility to inquire into major fires."

There was a kind of bonding that occurred among the people at Corryong and elsewhere – with the fire fighters, caterers, and support groups who came from all parts of Victoria.

A running theme in the accounts of many of the radio amateurs involved, which included Denis Babore VK3BGS and Keith Turner VK3CWT, both at the Ovens ICC, is that they quickly adapted and used their amateur radio skills to best advantage.

Alan Weeks VK3ML, who with Gordon Cornell, VK3FGC, were also at Ovens, reported that their task was to assist with communications in the broadest sense.

Alan VK3ML said, "From the outset we decided that we were there to help in whatever way would prove most useful to those responsible for the fire fighting operation.

"We had to familiarise ourselves with the way things were being done. To sit beside someone else who was operating the radio. Learn how to fill in an unfamiliar log. Not only that but to try to keep as complete a record as possible, in the log, of other people's conversations over the air."

Continued on page 6

Australian summer wildfire: Linton VK3PC report continued

Continued from page 5

Alan later found himself on a second assignment in Orbost with Air Operations assisting with a Helibase, working with the Air Operations Officer in Orbost and providing a communications link with that office from the Marlo air strip.

Adam Scammell VK3YDF who was at Swift's Creek described the shifts as "very long and at times intense". However this was balanced against the good food, accommodation, the strong teamwork, and appreciation expressed by local residents who also pitched in to help.

He said two operators were responsible for three radios. The first was a command channel used for most of the traffic. The second radio was for trunking, which worked much like a telephone.

"You type in a number, which could be three or 10 digits long, to call a particular person. It indicated if the dialled radio was busy or in range," said Adam VK3YDF.

The third was a simplex fire ground channel for fire fighters at the actual fire. The sector commander was able to chat to each of his men, dozer operators, or whoever.

Mark Dods VK3XMU, who was deployed to the Ovens Airbase (and was included in its move to Wangaratta) and later the Corryong ICC commented: "Whilst the log sheets and some of the DSE procedures were unfamiliar, some other things were not.

"Thanks to WICEN training and exercises, I was familiar with accurately handling traffic for a third party, the content of which I did not necessarily understand, and also with keeping a complete and accurate log in a busy environment.

"Neither of these skills are likely to be acquired by a radio amateur operating his station at home. Anyone who wants to assist in emergency situations is encouraged to join and train with WICEN."

A long-time WICEN (Vic) member, Graeme (Scotty) Scott VK2KE, is ideally suited to reflect on the differences between the latest WICEN deployment, and those of the past.

Scotty, whose involvement can be traced back to the 1962 fires in Melbourne's Dandenong Ranges, said that during the Ash Wednesday 1983 disaster, WICEN's involvement was fairly chaotic.

Scotty VK2KE said, "We were not highly organised then, and while the state burned it was a matter of being mostly told to sit, wait and see if we were needed."

Adam Scammell VK3YDF on the microphone with DSE Deputy Operations Manager Mal Gibson at Swifts Creek

Long time WICEN (Vic) member, Graeme "Scotty" Scott VK2KE with 40-years experience as a radio amateur providing emergency communications.

In the end, with the massive loss of communications, WICEN (Vic) was effectively deployed across the state to provide communications for other agencies, and liaison between agencies.

"In those days we tended to be radio amateurs using amateur gear backing up others, who either did not have communication systems, or theirs were overloaded," he said.

"That exact role did not exist this time, because we were using professional government owned radio systems, and effectively were co-opted radio operators handling messages.

"We had to know who was out there, what they were doing and what can be done for them," said Scotty who with Leyland Sawyer VK2GBZ was assigned to the Ovens ICC.

They found themselves interacting with a range of people from DSE, Country Fire Authority, Department of Primary Industry, weather experts, and representatives of utility companies.

Scotty VK2KE said, "I found myself requesting that a power company disconnect two high power lines that were directly above fire-fighters in the Buckland Valley.

"It gave me quite a heady feeling that I was getting high voltage power lines cut off for ground crew safety."

Other radio traffic included the fuelling and servicing of bulldozers. At all times, he said, safety was paramount, and the bulldozers always had two men, one to drive and an off-sider to keep watch. They always had an escape route if the fire turned their way.

Red Cross provides vital communications link during recent Victorian bushfires

Australian Red Cross, Victoria's RECOM (Red Cross Communications) service was put to the test during the recent Victorian bushfires and its unique capability saw it pass with flying colours.

By Jim Linton VK3PC

The unit was established in Victoria just three years ago and consists of 19 radio amateurs who provide communications support for the Victorian Red Cross emergency services during times of disaster.

The RECOM members were activated on January 17th this year and over the following two weeks provided support for registration points in Beechworth, Bright, Holloways, Mitta Mitta, Eskdale and Omeo.

Red Cross staff and volunteers at registration points record the names and contact details of those who are evacuated from their homes, with information being entered onto NRIS (National Registration and Inquiry Service) and made available to family and friends concerned with their safety.

Australian Red Cross, Victoria Executive Director Andrew Hilton said that the RECOM team provided a unique service that was highly valued by disaster management agencies.

"In the event that phone lines are down and mobile networks are unavailable, reliable and secure methods of data transmission are a vital part of the emergency management process," said Mr Hilton.

According to RECOM spokesperson John Patterson VK3ATQ, two operators were stationed at each of the registration points over the 16-day activation period and in that time handled a total of 1500 registrations.

The field stations transmit 100% error-corrected data to a network which has seven fixed HF stations strategically located across Victoria at Mallacoota, Sale, Korumburra, Upper Beaconsfield, Wangaratta, Hamilton and Ballarat.

The network stations are totally independent of mains power and operate on a roster basis to provide continuous communications day and night, relaying data to the Red Cross State Inquiry Centre (SIC) in Melbourne, where the RECOM emergency operations centre is located.

Data is received from fixed or field stations via HF radio and via telephone modem 24-hours a day. Multiple computers/modems/phone lines, auto-booting configuration and the use of the SIC uninterruptible power system backed by a 40 kVA diesel power plant ensure the smooth and unsupervised operation of the system.

RECOM spokesman John VK3ATQ said the key to the success of the operation was software that enabled data to be transmitted in a secure way.

"The network was maintained over the critical two-week period continuously under very difficult HF conditions. Due to the personal nature of the data, privacy is obviously paramount," he said.

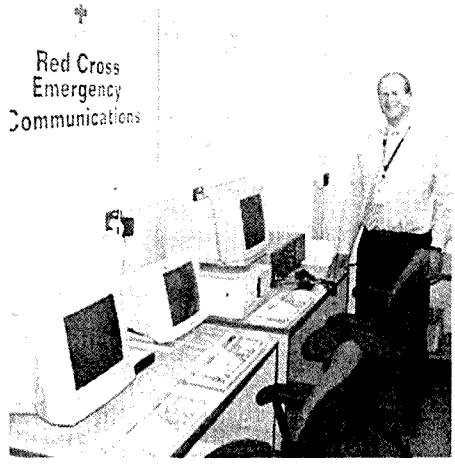
Windows-based software featuring automatic network mapping (with GPS inputs), comprehensive logging of all message/file handling, encryption options, network time synchronisation and the ability to interface with many different types of modem (telephone, TNC, Iridium, GSM) was written by RECOM member Donald Patterson VK3BDP. It is used, together with a more robust variant of the Pactor 2 protocol, to secure 100% error-free data transfer.

The software is designed to work seamlessly with NRIS and can transfer data when a voice link is not audible, the advantage over SSB being approximately 23dB. The mode of operation of the TNC is automatically and continuously varied to optimise throughput for any given conditions.

All stations are time referenced to within a second, and base stations usually run 100 watts. RECOM mobile data stations can even operate on the move to or from a Red Cross registration point. Data can be input through either keyboard or files.

During the bushfire emergency RECOM operators trained several local people in the use of the NRIS software thereby enabling more efficient deployment of resources whilst empowering local people to participate in the emergency management process.

Bruce Kidgell VK3BMK of Red Cross Emergency Communications (RECOM) at Beechworth.



Head of the Red Cross emergency communications, David Redhouse in the emergency communications centre which received the data traffic relayed by RECOM field stations through network base stations.

The success of the RECOM program has been such that the Red Cross is expanding the program, firstly to the Northern Territory and then to Tasmania.

RECOM members are required to train for an hour each week, and must be dedicated exclusively to the service - membership of WICEN is recommended but not obligatory.

When not activated for major events RECOM regularly provides communications support to Red Cross

Continued on page 9

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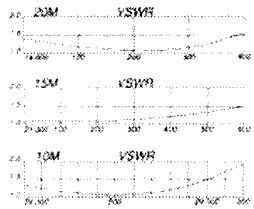

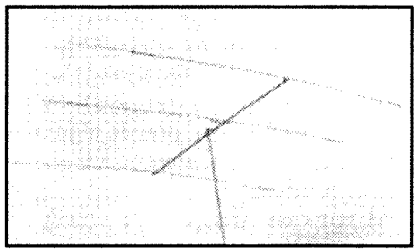

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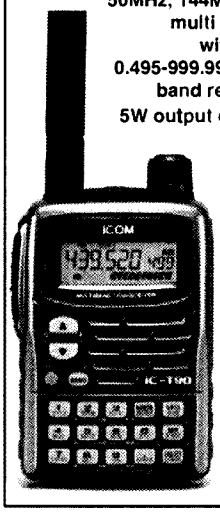

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VHF: Tx: 144-148 Rx: 118-174 *

UHF: Rx/Tx: 440-450

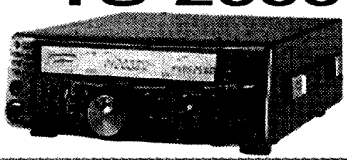
* Guaranteed 144-148

Output power:

VHF 50 W, 20 W, 10 W, 5 W selectable

UHF 35 W, 20 W, 10 W, 5 W selectable

TS-2000



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100 watts on HF, 6 metres and 2 metres, 50 watts on 70cm

TS-50

Permanent Base or Vehicle Mount

Very stable operation with 100 Memory channels

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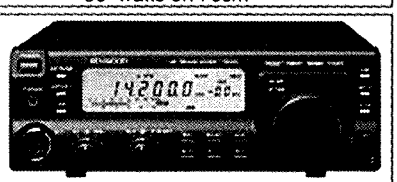

IC-R5

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Small body – Big specs

Big Features

Wideband Receive

0.150-1309.995 MHz

You'll miss nothing

1250 Alpha-numeric channels

Dynamic Memory for easy naming and recocognition

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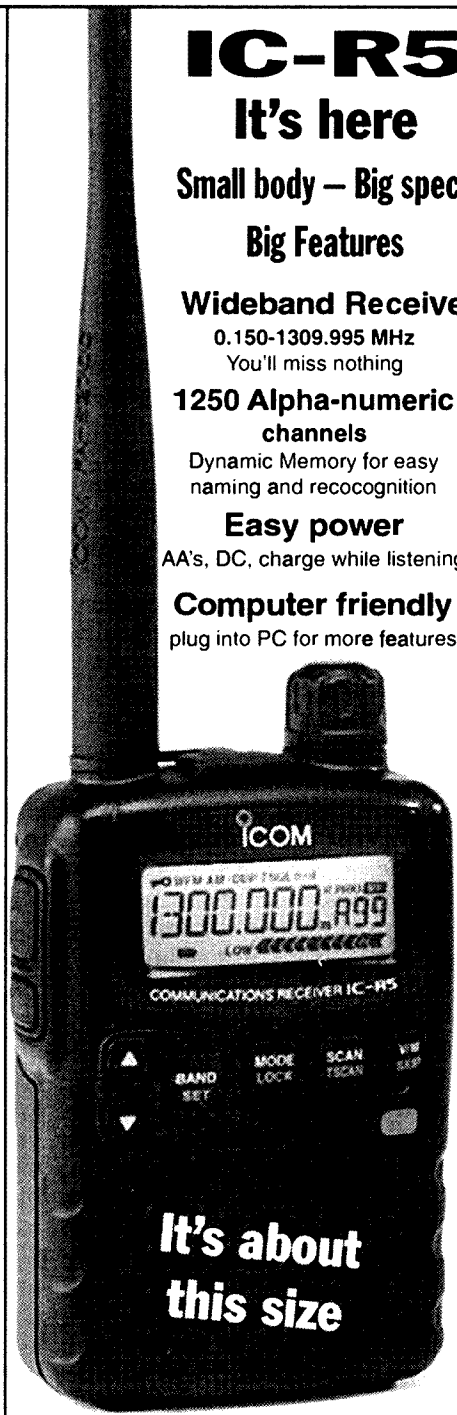

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WIA Comment

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The Amateur in today's Society

When I first became WIA Federal President I wrote an article on my thoughts on the future of amateur radio. I suggested that service to the community was for many amateurs one of the key cornerstones of the hobby. I was amazed when a number of people wrote in to suggest that that was a somewhat dated view of the hobby of amateur radio. The last few months have for me reaffirmed that there is still a large role for community spirit throughout the amateur radio community.

The 2003 Bushfire season

All of us are, I am sure, keenly aware of the impact of the recent spate of bushfires throughout Eastern Australia. I know that many amateurs throughout the Eastern states and Tasmania have offered their time and expertise in support of the fire fighting efforts. I am sure that you will all join with me in offering our heartfelt thanks to everyone involved, amateur radio operator, fire fighter, or just helper, in the superhuman efforts to protect life and property during these traumatic times. However not all amateurs were as lucky. In Canberra a number of amateurs were directly struck by the fires. I have not yet heard from other states but we can be sure that many amateurs throughout Australia have also suffered. I am sure that you will also join me in wishing them all our deepest sympathies at this time.

The Future of the 70 cm band

It is ironic that another issue has been keeping me busy over recent months – the increasing demands on spectrum in the 70 cm band for the use of state emergency services. In late 2002 I attended a briefing at ACA where the New South Wales emergency services set out their future communications needs. We have known since events in Western Australia that the emergency services have been looking at the 70 cm band as the logical place for their statewide emergency communications needs. None of us like losing amateur radio spectrum. However, as the current bushfire season and recent world events suggest, the need to support state wide emergency services is becoming ever more critical.

For the last few years the various Divisional Technical Advisory Committees have all been actively working towards a 70 cm band plan that can see amateur operations able to manage in a reduced allocation of spectrum. The current NSW request, along with an anticipated request for emergency service spectrum in Victoria, makes the contingency plans that have been drawn up all the more relevant. At this stage the requests have been aimed at small segments of the band. However I am sure that over the next few years that the pressure will continue to increase to release more of the 420 MHz to 430 MHz portion of the band to emergency service use. Obviously we cannot stand in the way of the needs of the emergency services. I have suggested to the ACA that in exchange for the losses of amateur spectrum that we might be given more secure tenure of some other part of the band. I will keep you informed of developments as they occur. In the meantime I will be making updates and information on what is happening available on the WIA web site.

More on the Foundation licence

In early 2003 the RSGB president Bob Whelan will visit Australia. He has indicated that he will happily talk to groups about the impact of the foundation licence on amateur radio activities in the UK. I know that many of you have severe reservations about lowering the bar to entry into the hobby that is implied by the introduction of the foundation licence. However if you should get the chance to hear what Bob has to say then please do try and meet with him. The story from the UK is one of real success in attracting new blood into the hobby. If we were to achieve the same levels of interest here as has been seen in the UK then we could well expect to see hundreds, if not thousands of new amateurs operating within a year or two of its introduction. With the already noted decline in amateur radio numbers here in Australia it may be that a foundation licence will make the difference between amateur radio surviving into the 21st Century or not. I for one will be talking to anyone that is prepared to listen to try and gain a greater understanding of what such a licence can offer to the hobby here in Australia. Today's society is a very different one from that when the current examination scheme was established. If we fail to adapt to the changing needs of today's society then the only people that we can blame for the demise of amateur radio will be ourselves.

Anyway I will bring this month's note to a close and wish you all 73s. I look forward to hearing from you on any amateur radio matters.

ar

Red Cross communications link *continued*

Continued from page 7

Emergency Services in search and rescue, emergency catering and first aid, providing communications in areas where land-based or mobile communications are not available.

Other points of interest:

- At the height of the wildfire threat to Omeo all power and phone services were unavailable. RECOM was tasked to handle traffic for St Johns Ambulance and formally requested by the Department of Sustainability and Environment to be prepared to act as a backup to the agency
- Not one word of voice communication on radio was uttered for the 16 days/24 hours per day that RECOM operated
- RECOM members involved were: VK3XSW, VK3OG, VK3AIG, VK3ANP, VK3ATQ, VK3AUO, VK3AXH, VK3BMK, VK3BPD, VK3BQS, VK3BVE, VK3BWT, VK3GBJ, VK3KDS, VK7MO.

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Lady Julia Percy Island IOTA OC-251

September 27-30, 2002

By Peter Forbes, VK3QI

I had just sat down to watch the 8.30 pm Sunday movie on television in mid-August 2002, when the phone rang. "Tom VK3ZZ here. How would you like to go to Lady Julia Percy Island with me and a friend?" After I picked myself and the phone up off the floor, 3 seconds later, I was going!

For many years, IOTA chasers had noted that VK3 West group, Lady Julia Percy Island had never been activated. It appeared on most maps of VK3, looked close to the coast and should have been a breeze to activate. That belies the facts.

LJP is an island lying some 11 km off the coast of VK3 near the township of Port Fairy at the western entrance to Bass Strait, one of the most turbulent areas of ocean in the world. It is approximately 2 kilometres long and 1 kilometre wide, flat topped with incised and sheer cliffs 30 to 40 m high around its perimeter. The island is basalt rock with a fertile top soil layer approximately 0.5 metre thick, the weathered remains of the old volcano flows on the mainland. The rock is estimated at 7 million years old. The surface area is 129 hectare, there are no trees, just a few low bushes and a thick layer of grasses and bracken (low ferns).

The island is constantly under the influence of strong winds and plenty of (horizontal) rainfall.

The only means of access is at the northeast end, where an exposed cove has a tiny rock landing spot accessible only when the winds are not blowing from west through north to the east. Alternatively, for a price, you can fly by helicopter, but the nearest helicopter is around an hour's flying time away.

The island is a wildlife reserve, home to the largest population of Australian Fur Seals, estimated at 20,000. It is also a protected breeding area for Great White Sharks, has a very large colony of the burrowing sea bird, the Short-tailed Shearwater (also called the Mutton bird), many other species of birds including the Peregrine Falcon and Tiger snakes which have evolved quite differently from their relatives on the mainland, due to the thousands of years of isolation.

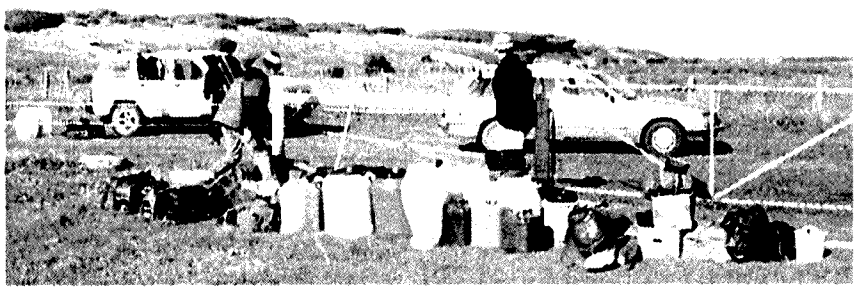
LJP (also known as Deen Maar) is of great significance to the Gunditjmara people in the Aboriginal Dreamtime and is home to some significant Aboriginal cultural sites and artifacts.

Needless to say the island, administered by Parks Victoria, is of great ecological importance and is off limits to all except those who can demonstrate a scientific reason for visiting the island for research or management purposes. Recently, legislation has been introduced to make the water between the island and the mainland part of a Marine Park as well.

Over the years, many hams had tried to obtain permission to visit the island, but requests had not progressed, due to the large amount of "red tape" involved.

So the opportunity to visit LJP really came out of the blue. Paul Stampton, VK3KXG, an amateur ornithologist, had gained permission after many months of negotiation to undertake a logistical study of the possibility of undertaking some scientific research on the migratory Shearwaters of LJP. These birds were due to arrive at nesting sites on LJP after their long trip from the northern hemisphere via Siberia, in the last week of September.

Paul previously lived on French Island (OC-136) and had worked as a park ranger. He had also undertaken a study that culminated in the satellite tracking of the Shearwaters from Victoria and



Equipment for loading into the helicopter

NSW to Antarctica and the publication of a paper on the experiments. As a result of his previous research work, Paul had the contacts necessary to gain the permits required to access LJP.

Naturally as a radio amateur, this was a fantastic opportunity to invite along a small group of amateurs to help with his scientific work and to activate the island for the IOTA Program.

After discussions, it was decided to limit the number of persons to 4 and Jack, VK3WWW, an experienced portable operator, was invited to join the group. Jack had previously expressed interest to me in operating from LJP and we had even discussed some of the logistics issues.

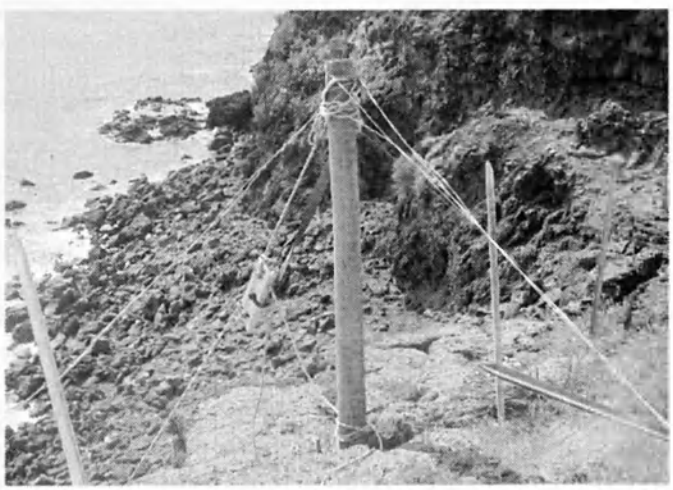
After studying some high resolution aerial photographs and discussing the island with some of the Parks Victoria rangers who had been on the island, it was decided to place the camp site near to the landing site to minimise the amount of equipment movement. Remember that everything had to be moved up the 30 metre cliffs and we were informed that there was a lightweight flying fox capable of carrying a maximum weight of 20 kg, but in an unknown condition. We also knew that a small hut with emergency provisions, some 2 by 2 by 1.5 metre high, had been placed on the island several years ago for emergency shelter in case of very poor weather.

With our four participants decided, we met two weekends before our planned operation date at Tom VK3ZZ's country property. We assembled some of the antennas and discussed the equipment and shelter required. After this initial meeting, we used emails extensively to coordinate our plans. From the outset, weight was going to be an issue, not so much the total weight which a boat could carry, but restricting everything to around 20 kg maximum per item. Our initial total weight was around 800 kg and we needed to prune this down, without compromising safety, accommodation, possible breakdowns in equipment and trying to maintain a schedule of 2 stations for 18 hours per day.

Our initial plan consisted of chartering a boat, the Michael J IV, which made regular sight seeing tours around the island to view the seal colonies, subject to weather conditions of course. The boat would anchor 100 metres offshore and, using a small dinghy, we would transfer the equipment to the landing and then move it up the 30 metre cliffs.

R44 Astra Helicopter after final trip

Mutton Bird next to the generator



Flying fox, seals below on rocks

On the Wednesday night before departure, the boat's captain informed us that he would not be able to access the island until at least the following Monday, due to the forecast high winds, large ocean swell and wind direction from the north/west, meaning no access to the landing spot.

In our initial discussions, I had indicated that I was prepared to fund a helicopter in the event that the boat option did not proceed.

So Paul, VK3KXG, hurriedly called one of the helicopter charter companies at Port Campbell that specialise in flights around the world famous Twelve Apostles rock formations east of LJP.

The pilot was extremely friendly and helpful and our transportation was arranged for Friday morning 27th September, 9 am pick-up at Port Fairy.

Seals at landing site

Landing site

The only catch was that the maximum length of any item carried would be restricted to just over 2 metres. This meant some quick hack-sawing of masts and antennas to fit this length restriction, before departing the 4 or 6 hour drive from Melbourne and Leongatha (east of Melbourne) to Port Fairy, on the Thursday afternoon.

Our basic equipment decided on was:

- IC706 and TX5500 amplifier, MFJ 4245 switch mode Power Supply to 3 element tri-band yagi on a 5 metre mast.
- FT100 and TX5500 amplifier, MFJ 4245 switch mode Power Supply to Hustler 5BTV vertical as a ground plane and /or a tuned feeder 13 metre per side droopy dipole on a 10 metre telescoping mast.
- DX70 and 60AH Sealed Lead Acid battery to a kite supported long wire as a backup.
- The equipment was to be transported in round, airtight plastic drums, which could be easily carried up cliffs or run down a flying fox without too much damage to the equipment.

Operating tent and shelter

Power source was a Honda EU20i generator with an EU10i as backup.

Initially, we had planned to take an additional larger tri-band antenna and a DX1 linear, but weight restrictions forced us to rethink this idea.

Fuel use for the Honda EU20i is stated as 1 litre per hour, so 80 litres of fuel was needed. As it turned out, the brilliant Honda used only 40 litres for 60 hours of operation so we were oversupplied with fuel.

Equipment for shelter consisted of low wind resistance / low profile tents for sleeping and a large touring tent for the operating position. After the first night, the high winds and driving rain meant that the touring tent was restricted to one operating position, as the seams were leaking water in the driving rain. The remaining operating position was moved to the emergency hut (which with a height restriction of 1.5 metres, meant you had to sit down all the time).

Safety

To quote from Parks Victoria's safety plan for LJP:

"Be aware of the extremes in weather conditions - always bring wet weather and warm clothing no matter how hot it is when you set out."

"At least two people should be on the island at any one time for safety purposes"

"Do not walk through shearwater rookeries. Falling in these areas may result in knee or ankle injury."

Essentially, in moving around the island, every footstep you take must be tested before putting your foot down firmly. The island, especially where we were camped, is literally pitted with shearwater burrows. At night, we insisted that each team member wore one of the excellent Super-bright LED headband lights to keep both hands free, in case of a fall.

It took 4 helicopter flights to move the equipment and operators to the island. The 15 minute flight was directly into a 50 knot wind and the 5 minute return journey was downwind. So by 1 pm. we had all the equipment on site and were busy setting up antennas and tents in the 50 knot winds, punctuated by rain squalls every 30 minutes or so. Using the helicopter was a blessing in disguise, as moving all the equipment (some 500 kg) up the cliffs after a boat trip, would have taken us all day and exhausted us.

Things went smoothly, due in no small part to having practised setting up the antennas 2 weeks earlier, and at 4 pm local time (0600Z) we hit the air waves on 20 and 15 metres.

It soon became apparent that we would have mutual interference problems, as the antennas were too close together. After the event, we now know

that we could have had the antennas up to a kilometre apart!

So first thing on Saturday morning, we set about gathering together all the runs of coaxial cable we had brought and managed to get about 200 metres separation of the antennas. This solved the problem to the extent that we could now operate two rigs at the same time. In fact, we were able to work CW and SSB on 20 metres simultaneously, much to the amazement of some European operators who worked us long path on CW and SSB within a few minutes.

The only other problems encountered with equipment were the failure of earth leakage safety protectors to work on the generator (a design aspect of the generators that we subsequently have discussed with Honda).

There was also a residual ignition noise that we ended up solving by placing some clip-on ferrites over the power cords at the generator end.

The Honda EU20i was simply brilliant, sitting out in the open with driving rain and wind, beating its little heart out. The wind was so strong that it blew water up into the air vent in the top of the petrol cap, but the placement of an inverted tin can over the cap soon fixed that. To hear the generator inverter go under load when sending CW was fascinating. You could easily read the Morse code by listening to the engine revs, despite the howling wind and endless squawking of the nesting Shearwaters! All the while, the output voltage remained at a steady 242 volts.

The noise of the generator was not disturbing, in fact the mutton birds would settle down next to their burrows scarcely a metre from the generator. Interestingly, the fuel consumption was around half that expected, despite running the generator in normal mode (not Eco mode) the entire time, with around 600 - 800 watts of power being generated.

The Bands

From the outset, we planned to use the IOTA frequencies exclusively, split frequency operation as the norm and no nets. Our aim was approximately 3000 contacts in the 60 hours operation planned and the emphasis would be on working European stations, who have the largest and keenest number of IOTA chasers, especially long path on 20,17 and 15 metres from 0500Z to 0900Z. We knew from experience that this was the prime time for European DX.

CW Operating position

Our strategy worked. The following contact breakdown occurred.

TOTAL QSOS— 2883.

2 m	PHONE	1	CW	0
10 m	PHONE	158	CW	113
15 m	PHONE	173	CW	31
17 m	PHONE	88	CW	171
20 m	PHONE	1492	CW	302
30 m	PHONE	33	CW	220
40 m	PHONE	2	CW	87
80 m	PHONE	12		

Number Of Countries Worked—75.

QSOs worked by regions of the world:

AFRICA	7
ANTARCTICA	2
ASIA	716
EUROPE	1281
NORTH AMERICA	661
OCEANIA	195
SOUTH AMERICA	21

Total number of hours of radios setup on island.

0600Z Friday to 0000Z Monday
= 66 hours

Total number of hours an actual operator on deck and listening/ operating.

0600Z Friday till 1600Z Friday
= 10 hours

2100Z Friday till 1400Z Saturday
= 17 hours

1900Z Saturday till 1530Z Sunday
= 20.5 hours

1930Z Sunday till 0000Z Monday
= 4.5 hours

TOTAL = 52 hours

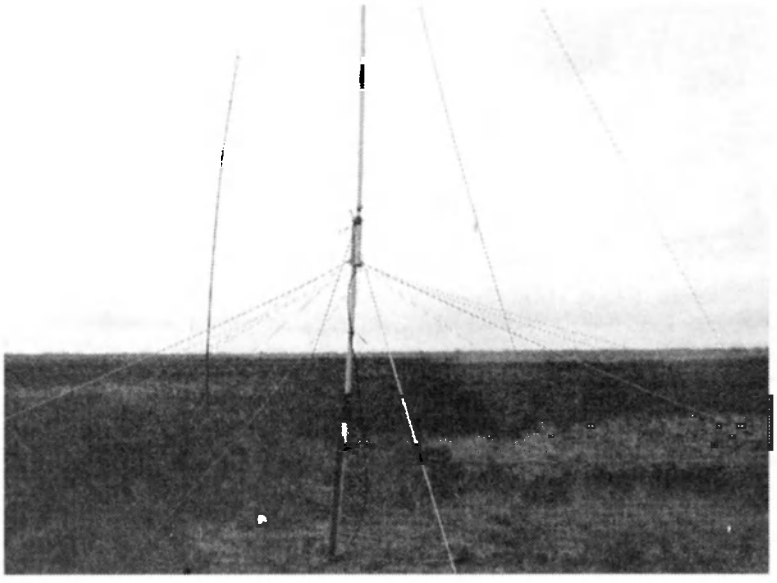
(Remember some of these hours during local daylight were for Scientific observations and exploration)

Our only disappointment was the number of known active IOTA chasers in South America and Africa who did not make it into the log. Checking on the various Internet IRC chat channels after the event, it was obvious that if you had been at all active during our operating period, you would have worked us on at least one of the bands or modes.

Timing

Timing is everything. One of the highlights of the trip was the arrival of the Shearwaters. These birds nest on LJP from late September, making a nest in their burrow and laying just one egg. They then head off south to Antarctic waters to feed on krill during the Southern Hemisphere summer period. Come April, as the weather becomes colder, they leave the island vicinity and fly north to the Arctic for the northern summer. Late August they leave the Arctic, head down over Siberia, across the equator, down the east coast of Australia, round the south east corner of Australia at Gabo Island (OC-196) and arrive at LJP (and other Bass Strait Islands) at the end of September.

During Saturday 28th (our second day of operation) they would have arrived off shore and settled on the water. Exactly at sunset, (as the last ray's disappeared below the horizon at the 50 m flying height) they arrived on the island as a black sea of thousands of birds, all busily heading for the burrow that they had left some 6 months before. To see a bird unerringly land and head



Ground plane with dipole in background

Tom VK3ZZ operating

for its burrow is an astounding and wondrous sight.

On the same night around 1 am, as I shut down the generator and headed for my tent after working a dog pile on 20 m CW into Europe, the sky was lit up with an Auroral display. It covered the southern half of the sky. A fascinating sight and also a warning sign. We would be in for a large Geomagnetic storm within the next 36 hours. Sure enough, from Monday morning after we had shut down at 0000Z (10 am. local) and begun to pack up, the A index shot up to 50 + and stayed that way for the rest of the week. Our XYL friends VE7YL, VK3DYL, VK4SJ and JR3MVF, operating from the South Cook Islands that week, experienced the bands with one of the worst and most prolonged disturbances so far in cycle 23.

So we hit the airwaves at just the right time, with the A index below 10 and the Solar Flux around 150, sufficient to give us good openings into United States and even Long Path to Europe on 10 metres.

Operating Conditions

Unlike many have found, behaviour by European operators was excellent, with a quick rate of contacts being maintained with just a 5 kilohertz spread of stations. Rules were obeyed and when working by numbers, most stations complied. One glitch we had on the first day was a change of operator during a number run and due to a misunderstanding, the numbers reversed during the run. The mistake was taken in good humour, judging by the comments on the DX packet clusters.

We tried out some new folding aluminium tables that have a removable slatted top (like Venetian blinds), have six legs for stability and fold up into a bag some 70 centimetres long and 25 centimetres in diameter. With a weight of just over 4 kg, they performed excellently and are recommended for future use by other IOTA operators. Similarly folding chairs by Coleman that fold up to a similar sized package were used. They are more upright than conventional camping chairs and provide good back support for long periods of SSB and CW operation. Speaking of CW operation, trying to send high speed CW with rain dripping on the logs, the strong wind flapping away on the tent walls and the continuous squawking of the Shearwaters a few metres away, makes for a challenge even with good sound proofed earphones.

Both the FT100 and IC706 rigs performed faultlessly, with the FT100 and its 500 Hz filter being used principally for CW contacts.

The TX5500 amplifiers with their capability of 350 W PEP output worked and matched extremely well to the MFJ 4245 switch-mode power supplies, which are light weight 45 amp/13.8 volt power houses.

It is always difficult to judge the performance of antennas in such conditions, but our experiences suggested that they were good enough to maintain order on the operating frequencies, given that those who wanted to work us were all looking our way.

When the wind subsided on the Sunday, Jack 3WWW, was able to successfully launch his kite antenna with a long wire for 30 m. We had many local (VK east coast) contacts with outstanding results. Keeping a kite up in such conditions, especially at night, is difficult, as sudden wind squalls can easily break the tether lines.

Food was no problem. Fires are not allowed on the island, but a small gas cooker was used to boil water and make up various soups etc. The use of flat foil vacuum packed meals makes food

preparation and storage easy and safe. We carried to the island sufficient water for 5 days supply, so ended up with a surplus.

Packing up

With the impending Ionospheric storm conditions and weather conditions favourable to leave the island by boat, we determined to close down at 0000Z Monday (10 am. local), allowing 5 hours to dismantle everything and move it down the 30 metre cliff by flying fox. Absolutely everything down to the last food scrap we had brought onto the island, had to be removed. It took all of those 5 hours, including 2 hours just to swing things down the flying fox in 20 kg loads. Hanging out over the cliff edge, supported by a safety strap around one's middle and seeing a $2000 generator bumping its way across a rock ledge and then swinging down a rope at 45 degrees, makes you appreciate the importance of good planning.

Before moving the equipment down, we had to gently and carefully disturb the seal colony into moving back off their rocks into the sea. If seals are startled and especially if you get between them and the sea, they are just as likely to panic and jump off the rocks and injure themselves. Fortunately we were able to achieve this with no injuries to the seals (or ourselves).

Things were loaded onto the boat via the small dinghy and after one hour motoring in a 3 metre swell, we were back in Port Fairy, after a most successful weekend.

Sleeping tents

Helpers

No expedition can be successful without the assistance of helpers.

David VK3EW acted as our unofficial pilot. We had access to him via mobile phone and could get him to spot us on various frequencies quickly and accurately. This meant maximizing the chances of operators working us when the bands were open. David also assisted a number of South American / PY operators in working us. A partnership has grown up over the years between PY amateurs and VK3EW and VK3QI to help each other with DXCC and IOTA operations, on what are essentially opposite points of the globe across the South and North Poles.

Russell VK3ZQB a life long resident of Port Fairy assisted us with storage of our vehicles and transportation between the township and airport. He did this willingly and at short notice. His stories about seeing LJP upside down on the horizon (due to temperature inversions) from Port Fairy and using this to predict some of his record breaking VHF/UHF contacts was fascinating.

Ross Keogh VK3MY, from Strictly Ham Pty. Ltd. graciously provided us with 2 MFJ power supplies at cost.

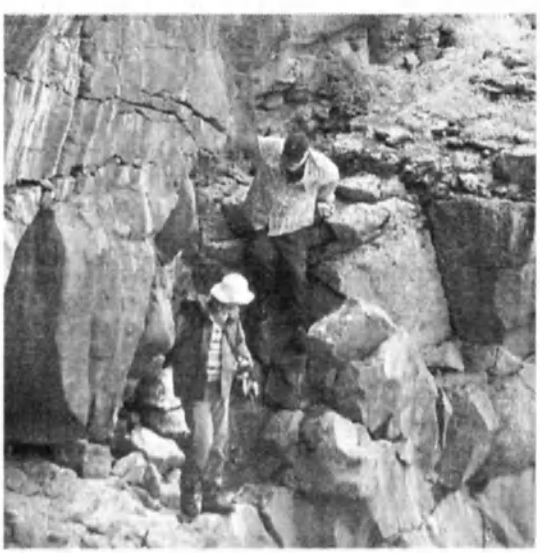
Keith VK3FT, who would have loved to have gone to the island, but family commitments prevented him, loaned us one of the TX5500 amplifiers.

Rob Hill, a friend of Tom's, willingly lent us his EU10i generator as a backup unit.

Barry, from PremiAIR Helicopters was fantastic. The 3 others in the group were first timers in a helicopter and his manner and competence in flying in strong winds and driving rain was a great confidence booster for them.

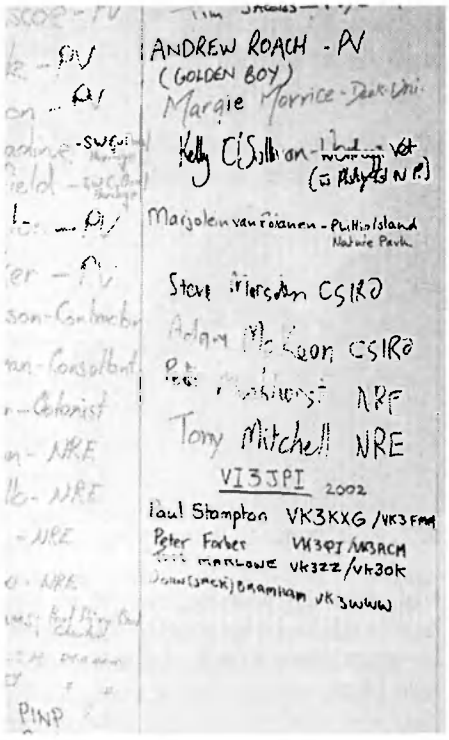
Gary, the operator of the charter boat Michael J IV, was also most helpful with advice beforehand and patience whilst we took the 3 hours to move and load the boat on the return journey. The weather had been so bad immediately prior to our trip that this was his first trip out to the island in over 3 weeks.

The German DX Foundation made a generous donation of US$100 towards the cost of the expedition.



Descending the cliff

View from flying fox of dinghy landing



Shelter Honour Roll

Flying fox from landing

Next Time

Will there be a next time? Whilst on the island we noted that recently John Arnould (ex VP8CGK, Bird Island, South Georgia 1991-1993) had been on the island studying the Fur Seals as part of his University research work. John also spent 3 months with the French Antarctic group on Crozet Island at the beginning of 2002.

So there is always the possibility of suitably qualified people accessing the island and requiring support crew.

With hindsight, we now know that if required, better positioning of multiple antennas could be achieved on the island.

Careful planning and attention to placement of power leads and coaxial cables and the use of clip-on ferrite for RFI prevention and isolation is also warranted, where a suitable earth is difficult to achieve.

Travelling there by helicopter is definitely the preferred method to save on hauling equipment up the cliffs. Departing by boat is relatively easy, provided the weather conditions are just right.

Better earphones would definitely be an advantage and more thought into the interconnectivity of headsets, microphones and keyers between the individual transceivers, would be of benefit. The provision of break out boxes for these modern transceivers that use RJ series plugs and sockets, but still use 3.5 and 6.5 stereo and mono for speakers etc., would make life much easier.

Why the special call-sign, VI3JPI?

Besides being a great call-sign for IOTA operations, LJP was first named by Lieutenant Grant of the HMS Nelson on December 6th 1800. His original diary refers to the island as "Lady Julia's, after Lady Julia Percy."

Allowing for the weeks that it took the Nelson to transit to Sydney, then the 9 months for the news to find its way back to England and through the British Parliament, it was well into 1802 before the name Lady Julia Percy Island began to appear on Admiralty Charts. Hence 2002 was the 200th anniversary of the islands appearance to the world. We know for sure that Captain Matthew Flinders' diary of 20th April 1802, during his circumnavigation of the Australian mainland, refers to "we bore away from the land. A cliffy, flat-topped isle, Lady Percy's Isle was seen". Sometime later the name was changed to the full name of Lady Julia Percy's Island, but extensive research fails to reveal just when this occurred.

QSL Information

Direct with SAE and postage to QSL manager:

Paul Stampton VK3KXG
69-71 Brown Street
Leongatha
Victoria
Australia 3953 Or Via the VK3 Buro

The Operators

Paul Stampton VK3KXG amateur ornithologist, former employee of Parks Victoria and TAFE lecturer in the Diploma of Natural Resource Management. Currently Science Coordinator and teacher at a private school at Leongatha, east of Melbourne.

Jack Bramham VK3WWW, a locksmith with Corporate Locksmiths (ex Telstra Corporation), a keen ARDFer over many years, currently WIA Federal ARDF Coordinator and an experienced Field Day operator. Jack loves to fly kite antennas.

Peter Forbes VK3QI, a Physics and Electronics teacher at Ashwood College, a government school in Melbourne, a keen CW operator (only needs P5 on CW for the lot) and particularly interested in Upper Atmospheric Physics and Ionospheric propagation.

From left: Jack VK3WWW, Tom VK3ZZ, Paul VK3KXG, Peter VK3QI

Tom Marlowe VK3ZZ (also VK3OK), a retired commodities trader and property developer, who currently resides near Leongatha east of Melbourne. A keen rag-chewer on the ham bands and a fanatical bridge player. Never produce a pack of playing cards near him!

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A "Kalitron" Gate Dip Oscillator/Crystal Checker

Drew Diamond, VK3XU,
45 Gatters Road,
Wonga Park, 3115.

In radio measurements, one of the most effective simple tools is the well-known grid, or gate dip oscillator (GDO). In the hands of a proficient user, it is possible to determine the resonant frequency of lumped and distributed tuned circuits and radiators, calculate the value of pF capacitors and μH inductors, and sniff powered circuits and estimate their operating frequency. There are many other uses for the GDO. Indeed, since the late 1940's, almost every radio handbook has published details of how this versatile instrument may be applied to amateur work.

A problem with HF dippers is that it is sometimes difficult to obtain a good clear dip, particularly when working with low-Q circuits down near 1.8 MHz. Our English colleagues have had better results from a push-pull pattern (Refs. 1 and 2). There is some debate about the naming of this oscillator type, but the consensus is that it is called the "kalitron". Following their example, my own experimental Kalitron dippers for the 30 to 450 MHz range worked very satisfactorily, and so it was decided to try a HF version also. Frequency range of my model is from 1.6 to 55 MHz in four overlapping coil ranges; (A): 1.6 to 3.9, (B): 3.7 to 9, (C): 9 to 22, and (D): 22 to 55 MHz. This oscillator also makes a very handy quartz crystal tester, and will excite both fundamental and overtone crystals in the 1.6 to 55 MHz range. If needed to power external circuits, the oscillator can deliver a 1 mW signal, extracted with a two or three-turn link coil.

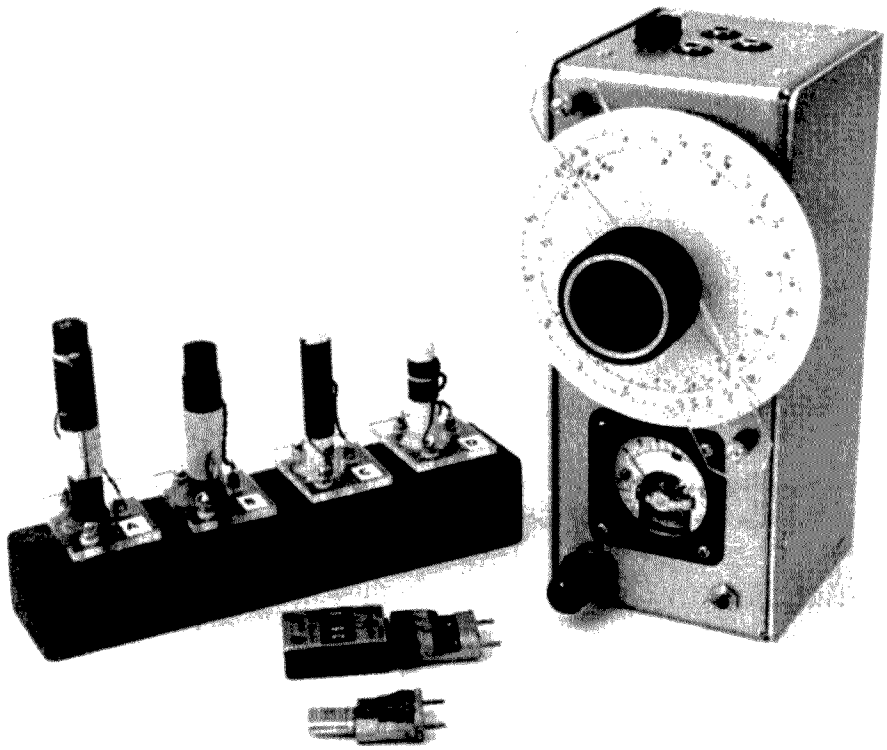

Photo 1. The finished Dipper with Coil Set and Crystal adaptors

Circuit

The desired characteristics of a dipper are; wide frequency range, constancy of gate (or grid) current indication across each coil range, absence of false dips, an easily observed meter deflection when coupled to passive and active circuits, good frequency stability and resolution, and sufficient output signal to power other devices. Two FETs are cross-coupled in push-pull configuration (Fig. 1) with the variable L/C tank between the drains of the devices, which results in reliable oscillation, and good amplitude constancy across each coil range. When the device is oscillating, the amount of rectified gate current is proportional to the 'strength' or amplitude of the signal, and is thus indicated by the 100 μA moving coil meter.

The usual explanation for the "dipping" phenomenon is that energy is "absorbed", or "sucked" from the oscillator when the GDO frequency is swept over that of a passive circuit. Rather, for lumped resonant circuits (coils and capacitors) and distributed resonant circuits (lengths of low-loss transmission line), what I think happens is that; when the field of the oscillator coil is at or near the resonant frequency of the passive circuit, and where sufficient coupling exists between these two circuits, the passive circuit responds by setting up its own field, which returns energy to the oscillator that is out of phase with the original signal, and the amplitude of oscillation is thereby reduced (which accords with Lenz's Law). The only thing that does any "absorbing" is the loss, or resistive component of the passive circuit, because (for the same degree of coupling), the higher the 'Q' of the passive circuit, the deeper the dip. The "absorption" explanation does apply to antenna work, where energy is taken from the oscillator by the radiation resistance.

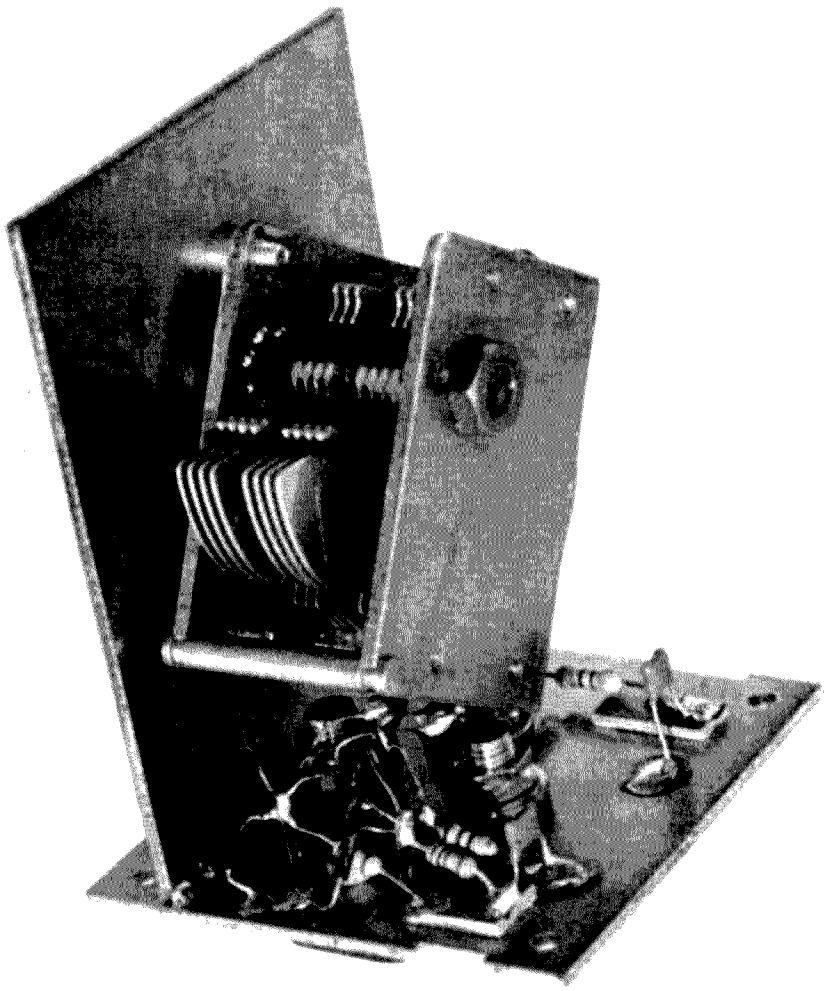

Photo 2. Oscillator Sub Assembly

Construction

The prototype is housed in a home-made aluminium box measuring 70 x 65 x 160 mm. Any similarly sized metal or plastic case should do. The oscillator components and variable capacitor are accommodated upon a sub-assembly made from double-sided printed circuit board, as shown in Photo 2. Note how the variable capacitor has been oriented so that the capacitor's tags may be soldered directly to those of the banana sockets, which receive the plug-in range coils. The two FETs and associated parts are soldered together 'ugly' style with their leads as short as reasonably practicable. The solder tags of the banana sockets make suitable tie points for the drain connections, and the two pins of the style 'D' crystal test socket serve for the gate connections. A suggested layout is depicted in Fig. 2.

The variable capacitor, an ordinary Roblan dual-gang 90 pF is a type that frequently shows up at hamfests. Pictured in Photo 3 are two other common makes that suit this circuit; at right is an MSP 95 + 200 pF cap- very common around the 'fests. Mine has been modified by removing 4 plates from the 200 pF gang, which makes it a 90 pF gang- the slight difference in maximum capacitance does not noticeably alter operation (note that the centre-tap of the coil is not by-passed to chassis). At left is an English Polar 80 + 80 pF capacitor, which would also suit. Check that your capacitor has no faults, such as shorting plates, or foreign particles caught between.

On the two lower frequency ranges, the coils need to be about 200 and 37 µH. To obtain this inductance it was found necessary to wind the coils upon lengths of loop-stick rod material. Due to the better coupling afforded by the rod, their inclusion makes the dipper much more responsive when dipping circuits on the low ranges. Various makes of loop-stick were tried- even bits salvaged from defunct transistor radios. Interestingly, all yielded very similar values of inductance for the same number of turns. Fortunately, the rod type which provided best Q is available from at least one well-known stockist (Parts below). To cut a rod to length; file or grind a shallow groove around the circumference. Place your thumbs each side of the groove, then snap it, as you would break a stick.

A suggested method of fabricating the coils is illustrated in Fig. 1. The base should be acrylic (perspex), ABS or other low-loss material. Three banana plugs are fitted into 1 BA threaded holes- or they may be glued into close-fitting holes. Remember to pre-tin the sockets before fitting them in place. Use one of your drilled coil bases as template when laying out the corresponding banana sockets on the aforesaid sub-assembly. Windings for coils A and B may be started by attaching a little tag of tape- like a flag, about 60 mm from the end of the wire. Lay the tag flat upon the rod where the coil shall go- then wind on turns so that they lie upon the tape. Have some extra tape on hand to secure the end of the winding when the coil is complete. Coils C and D are wound upon lengths of genuine Biro (TM) ball-point pen tube (available from stationer's- coils wound upon this workable material have very good Q). To anchor the start and finish of the coils, drill a #55 or 1 mm hole across the tube diameter at the distances indicated. The 10 mm loop-stick rods for coils A and B, and pen tubes for C and D are epoxy glued into corresponding holes drilled in each base.

A 6 : 1 ball-type reduction drive is recommended for fine control of frequency. The capacitor spindle is connected directly to the drive- so take care with their alignment. My dial is a 90 mm diameter disc of 1.3 mm aluminium sheet, which has received two coats of white undercoat spray paint for the calibrations. A suggested cursor, made from 3 mm clear perspex with a line scribed along its axis, is shown on Photo 1.

Calibration

If desired, operation of the oscillator may be confirmed at the sub-assembly stage (Photo 2) by temporarily hooking up the

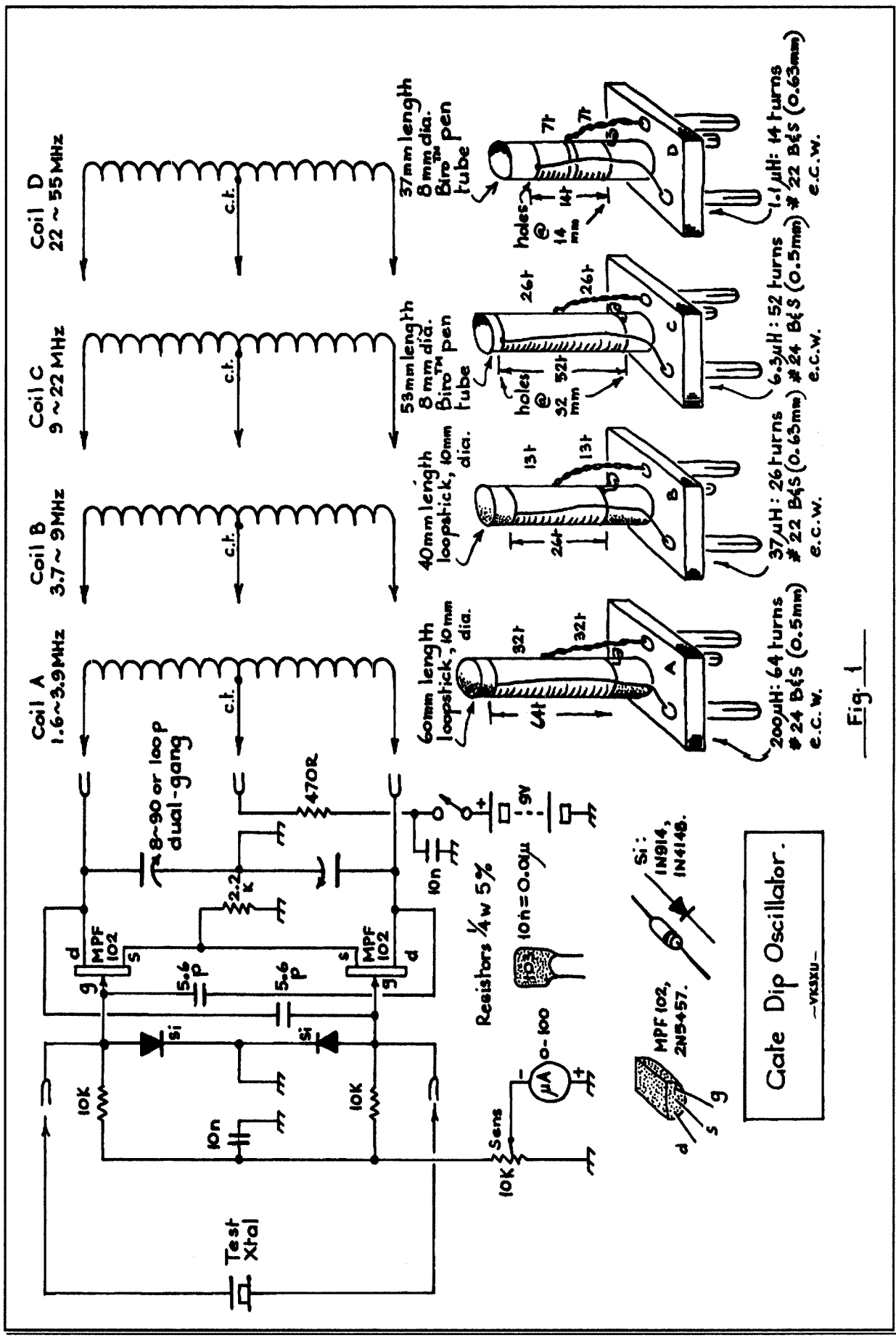

Figure 1. Circuit and Coil details

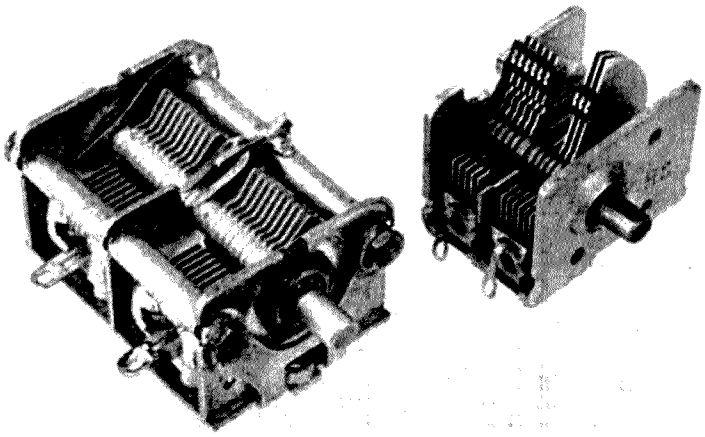

Photo 3. Possible variable capacitors: left, English Polar 80 + 80pF; right, MSP 95 +200pF. The dummy cursor may be visible at the bottom.

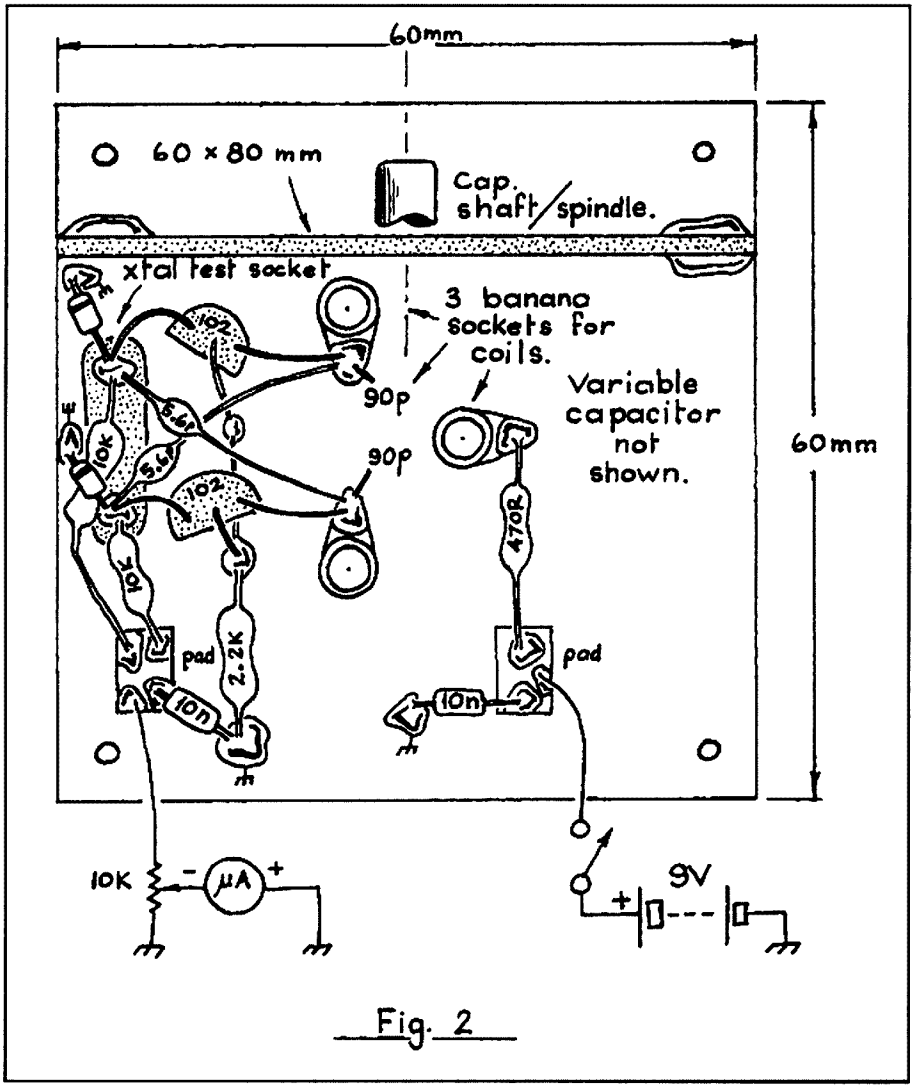

Figure 2. Prototype layout

sens(itivity) pot, meter and battery. Plug in each coil, and with the means available, check their ranges, which should be similar to those obtained for the prototype, and some small overlap between. You should observe at least full-scale meter deflection, with no false dips or drop-outs across each range, but perhaps a slightly lower reading at the low frequency end. When satisfied with the frequency ranges, the coils may be painted with coil-dope or clear nail varnish- which causes a slight decrease in frequency.

With a compass and fine black pencil, scribe two concentric circles upon the dial disc in order to receive calibrations. On final assembly and test, and when the coil ranges have been checked again; apply calibration markings for each coil range. I suggest pencil, as any errors can be easily corrected. Try not to crowd in too many calibrations, but mark the 1.6, 1.7, 1.8, 1.9, 2.0, 2.5, 3.0 and 3.5 MHz points, then the whole MHz to about 30, then every 5 to about 55 MHz. A dummy cursor, which has a slot rod-sawed along the axis to admit the pencil point, is suggested as a useful aid. With that done, remove the dial disc and apply a coat of clear paint lacquer, which will darken and fix your calibrations.

Operation

The most common application is in 'dipping' lumped tuned circuits. For plain (solenoid) coils, place the oscillating dipper's coil near the test coil, either end-on, or parallel. Set the meter reading to about 80 % of full-scale, then sweep the dial through the estimated resonant frequency- you should observe a distinct dip in meter reading. For best accuracy, the distance between the coils should be the greatest that still produces an observable dip. Circuits with a toroidal coil may be measured by placing the dipper's coil near or between the two leads of the coil (which forms a one-turn loop).

To use the dipper as an external oscillator for various tests, place a two or three turn hook-up wire pick-up loop near to, or over the dipper's coil. Available signal level is about 1 mW in 50 ohms, which may be varied by altering the distance between the coil and the loop.

To check a crystal, insert the unit into the test socket, plug in the appropriate range coil, then sweep the dial over the

crystal's marked fundamental or overtone frequency. For good crystals, the meter needle should flick upwards markedly as you approach the crystal frequency, and thus cause the oscillator to 'pull' into VXO control. Shown in Photo 1 are suggested adaptors made from defunct style 'D' cases for testing style 'K' and FT-243 crystals.

When used with "energized" circuits, such as an oscillating tank coil, or an RF amplifier coil, place the oscillating dipper coil initially about 100 mm from the circuit under test and sweep the dial around the estimated frequency. The dipper's meter will flick upwards as it is swept over the frequency of the energized circuit. There are too many other applications for our dipper to be covered here, and so it is hoped to follow up with more information at some later date.

Parts

The ordinary components are available from our usual electronics suppliers, including Altronics, DSE, Electronic World and Jaycar (usual disclaimer). As far as is known, there are no suppliers of new Roblan 90 + 90 pF capacitors, but they are not rare items. Ask your radio mates, or check out the next swap-meet for appropriate parts. Similar for the 100 µA meter (a 50 µA will do), ball-type reduction drive and the crystal socket. MSP 95 + 200 pF variable caps (modify as noted above) and 200 mm lengths of the recommended loop-stick material are available from Electronic World (03 9723 3860- will answer mail orders).

References and Further Reading

1. "The G3WPO FET Dip Oscillator Mk2"; Tony Bailey, G3WPO, Rad Com Apr. '87.
2. Test Equipment for the Radio Amateur, C. Smith, G4FZH, RSGB.
3. "A Gate Dip Oscillator- or GDO"; M. Eunson, VK4SO, ARA, Vol. 8 No. 13.
4. "The Anatomy of a Solid-State Dipper"; F. Lewis, ex W1LKV, QST, Dec. '72.
5. "The Grid Dip Oscillator"; J. Buchanan, K8WPI, CQ, Feb. 2000.
6. "What Can You Do With a Dip Meter?"; QST, May 2002.

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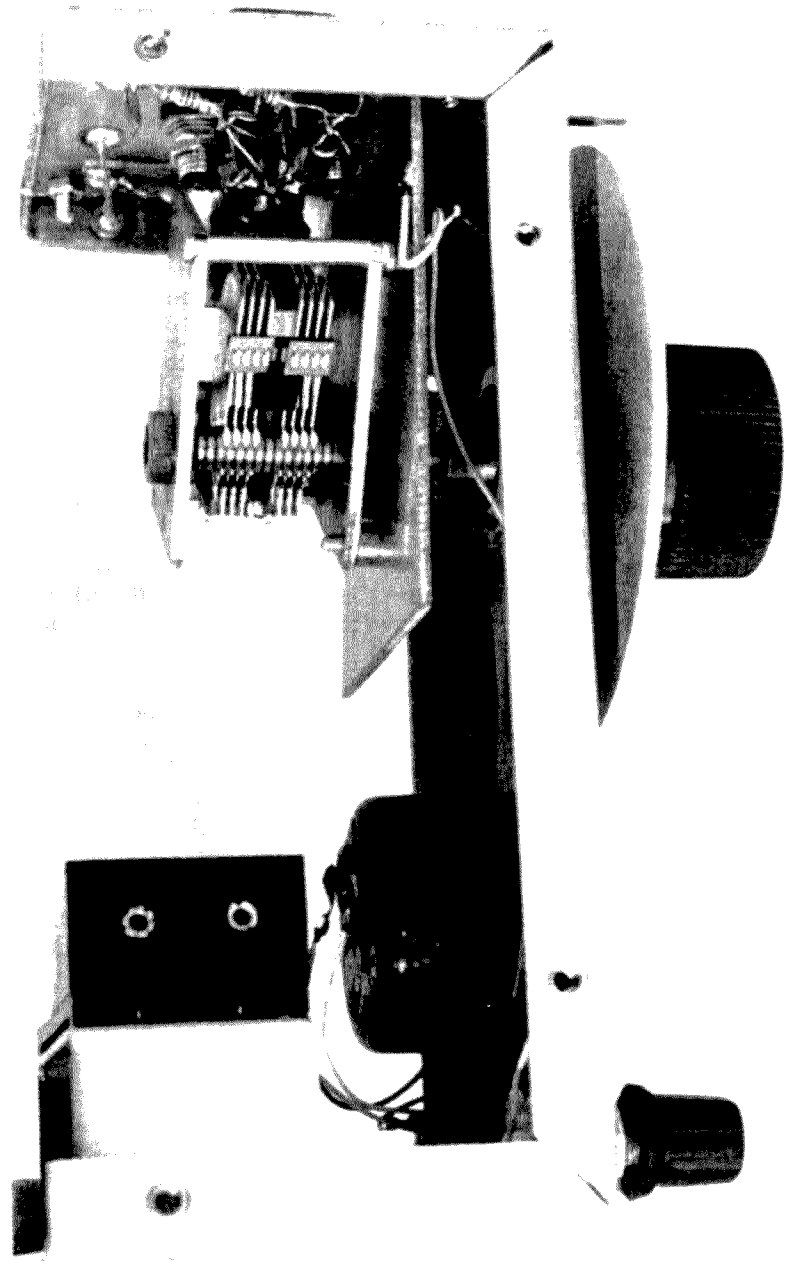

Photo 4. Inside view of the finished dipper

An Experimental Patch Antenna for 70 cm

Part 2

By Greg Chenco VK3BLG

Further to the encouraging results in building a single patch for 70 cm, I decided to design and build an array of patches specifically for the 70 cm uplink for AO40 and AO10 and for use with other satellites such as FO20, FO29 and UO14 for the downlink.

I decided initially to build an array of 4 patches. Photo 1 and Photo 2 show one of the development arrays. Photo 3 shows the feed described in this article.

The first design consideration was to optimise the spacing of the patches to achieve the maximum gain achievable of 6dB. This figure is the maximum gain that can be expected by increasing the number of driven elements in an array by 4. This would result in the array having a gain of around 15 dBic. To achieve this gain, the apertures of each element must not overlap and ideally should just touch. Also all elements need to be fed in phase with equal power division.

The aperture or effective area of an antenna can be calculated from either the gain of the antenna or by measuring the beamwidth of the antenna. The assumed gain of 9dBi was used and this resulted in the minimum spacing of 0.82 wavelength. Using the measured H-Plane Beamwidth of 70 degrees resulted in a minimum spacing of 0.84 wavelength. Therefore to achieve a 6 dB increase in gain over a single element, the minimum spacing should be a minimum of about 0.85 wavelengths. Mutual coupling is not a problem with patch elements at this spacing as the isolation is in the order of –30.0 db.

The next consideration was to design a power division system to provide equal power and phase to each element. As lead length is quite critical at 70 cm and the fact that the final array would be mounted on a single sheet of aluminium, I decided to use micro strip (or strip line) power division as this could be easily constructed on the underside of the ground plane. Micro strip is simply a flat conductor mounted close to a ground plane. It is an unbalanced transmission line where the width of the strip and the spacing of the strip above the ground plane determine the characteristic impedance.

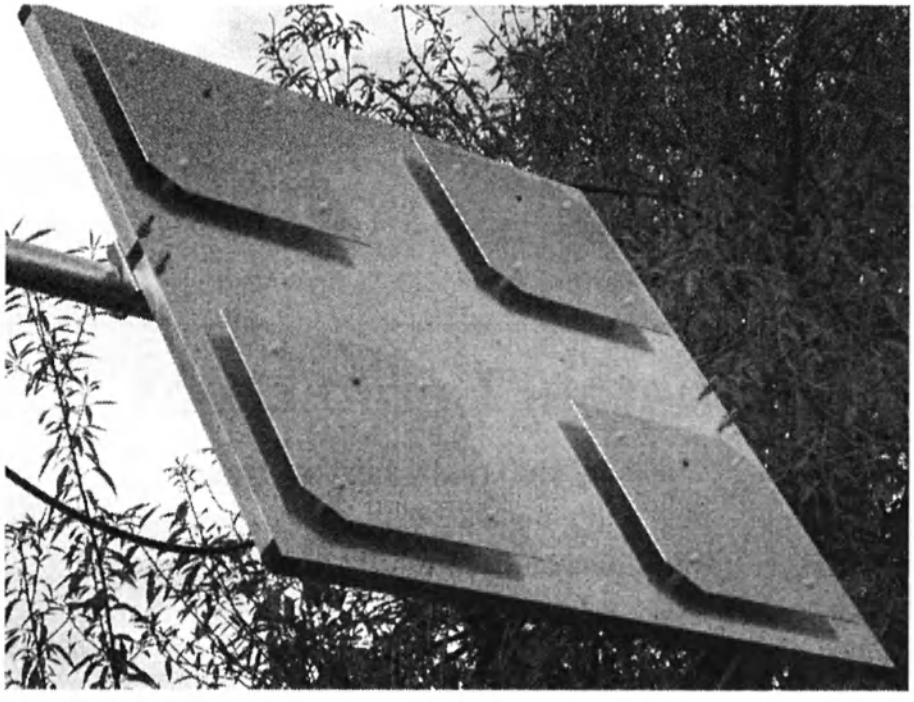

Photo 1

As the elements must be spaced more than 0.5 wavelength apart, quarter wave matching was going to be awkward. However if the elements were spaced 1 wavelength apart centre to centre, cascaded quarter wave transformers could be used or better still, 0.5 wavelength exponential tapered transformers (this arrangement has considerably wide bandwidth compared to a single quarter wave transformer).

So the final initial design was an array of 4 patches mounted in a square formation, with element spacing of 1 wavelength. The screen size was chosen to be 1200X1200 mm, a little larger than necessary, however as standard aluminium sheets are 1200X2400mm this was a convenient size. For rigidity and for mounting, the screen was reinforced with a frame 1200X1200 mm made of 25 mm square aluminium tube. A brace across the middle of the screen was decided on to ensure the aluminium sheet didn't wobble in the middle.

Six 0.5 wavelength exponential transformers are used a follows

Each pair of patches is connected using 2 transformers, transforming 50 ohm to 100 ohm. At the junction of the transformers is therefore 50 ohm (100 ohm in parallel with 100 ohm). The junctions are then connected with the transformers providing the same transformation again except an N type connector is connected at the junction for connection to the 50 ohm feed cable.

The strip line transformers used were designed using a program called "TXLINE" which is a free program available and calculates the

characteristic impedance of a number of different types of transmission line. I did have a fairly accurate formula to calculate the characteristic impedance of a strip line, however I used this as a check on the final dimensions. The program "TXLINE" is quite accurate and accounts for the thickness of the strip used and the "fringing" effect on the characteristic impedance.

Construction

As I was fairly optimistic about the success of this project, I decided to take a bit of time to plan and construct the array.

The first thing was to build the screen and frame. The screen was made of 2 mm thick 1200X1200 aluminium sheet pop riveted (Using stainless steel pop rivets) to the aluminium frame made of 25 mm square aluminium tube. Plastic right angle connectors were used to construct the frame. The brace used was also 25 mm square aluminium tube mounted across the middle of the front of the screen leaving the rear free to mount the strip line transformers. This was pop riveted from the rear. A bead of natural curing Silastic was also used as an adhesive and also a sealer.

The patches were made of 2.0 mm aluminium sheet. The mechanical mounting was identical to the prototype patch using nylon nuts and bolts at the corners and a stainless bolt to earth the centre. The patch height was made 12mm. Electrical connection was made using small countersunk brass bolts, which were inserted through a countersunk hole at the patch feed point, and bolted from the top of the patch. The inner of the phasing cable was soldered on to the head of the bolt. The phasing cable used was RG58U as this was the best available at the time. As the phasing cables are quite short, loss is not a problem. However it would be preferable to use RG223 which is a much better quality cable as the characteristic impedance is much more accurate, which is desirable for a phasing cable.

The outer of the phasing cable was soldered to an "F" type female-to-female connector, which has the short end cut off, the inside removed, forming a sleeve, which the coax can be fed through. The modified "F" type connector can then be used as a feed through for the phasing cable, earthing the outer to the ground plane. A 3/8-inch hole is drilled through the ground plane to mount the modified "F" type connector. This arrangement allows a very short connection to the underside of the patch.

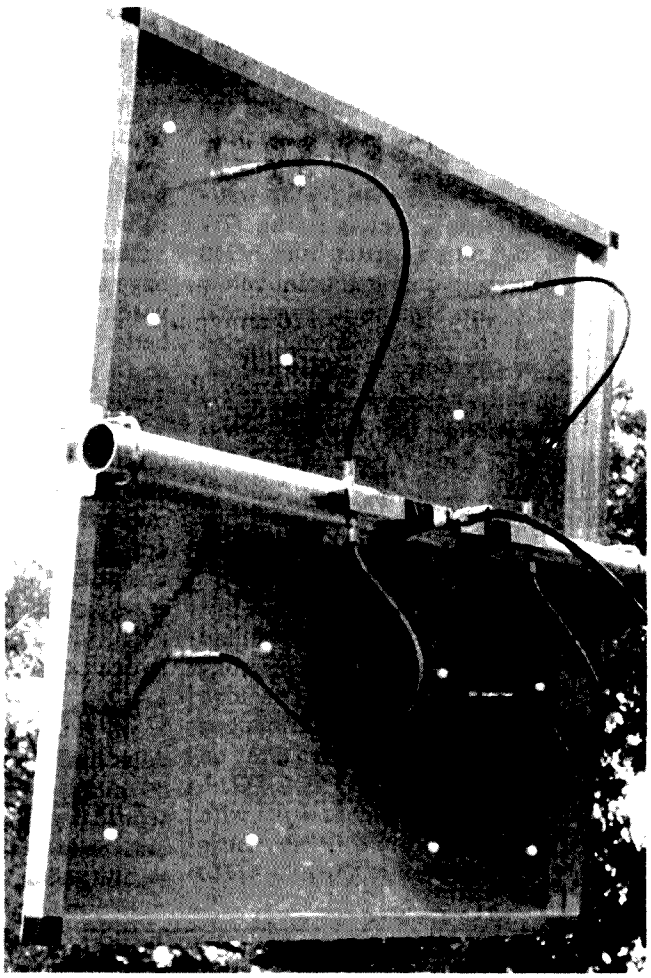

Photo 2

The feed connection to each patch also uses a modified "F" type connector as a sleeve. Using a piece of the centre conductor of Belden 9914 cable fed through the centre of the sleeve and air spaced forms a short coaxial line with an impedance very close to 50 ohm.

This is soldered to one of the brass bolts for connection to the patch. The other end is soldered to the end of the strip line transformer.

The strip line transformers are mounted a distance of 5.0 mm from the ground plane. Small 5.0 mm spacers made from polystyrene foam and glued to the strip line and ground plane using natural curing Silastic. The dielectric constant of polystyrene foam is almost 1 and it has very low loss.

Initially the first patch was tuned to be resonant at 436 MHz. Once the dimensions were established, the other 3 patches were cut to size.

A week later (after a couple of very late nights constructing) the array was complete.

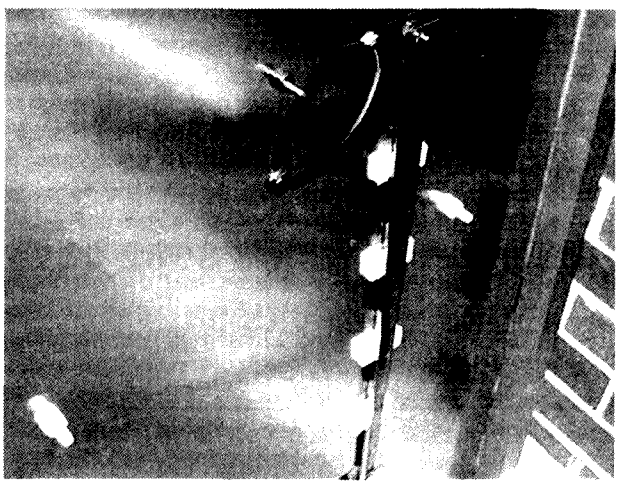

Photo 3

Testing

After spending so much time on this project, I must admit I was a bit apprehensive about connecting the array to the IC471A via the Bird Wattmeter, as this would be the moment of truth. No problem, to my surprise the VSWR at 436 MHz was 1.2: 1 and no reflected power was measured at 440 MHz. The real test would be the AO40 uplink.

A couple of days later, with a

favourable pass of AO40 over Europe, I tried the array out at an elevation angle of around 20 degrees (with nowhere to mount the array, I could only rest the array propped up on a seat on the front veranda).

With about 25 watts output (18 watts at the antenna), transmitting CW resulted in a return carrier from AO40 which was about half an S point below the level of the beacon, a sensational result. Signal reports on sideband varied from 5X6 to 5X9. In a QSO with Dom, I8CVS in Italy, he complained that my signal was stronger than his and he was using quad 22 element yagis on the 1,296 MHz uplink!

Since then, I have had quite a few QSOs on AO40 with reports of an exceptionally strong uplink signal.

With the problem that AO40 had just before December 2001, which resulted in the satellite pointing in the wrong direction near and at apogee, I decided to built one single 2 metre patch antenna and mount this with the 70 cm array on the same boom, to try out FO20, FO29, U014 and AO10. Excellent results with all these although there is very little activity on FO20 and FO29, and AO10 is very unpredictable because it has no spin stabilisation and it is usually pot luck if its antennas are pointing in the right direction (not to mention it must be in sunlight to work as the batteries went open circuit some years ago so all power is derived directly from the solar cells.)

Since the construction of the array I have done further extensive reading on patch antennas, and gained a much better appreciation of how they work and a reasonable understanding of the design process.

I am currently working on single feed, circular polarised patch design that should simplify the construction and make the construction of higher gain arrays more achievable. Initially I am designing a smaller, simpler 4-patch array, which should have the same performance as the prototype array, which can be more easily replicated.

Summary

After having done a reasonable amount of initial work with patch antennas, I would conclude that patch antenna arrays are one of the most versatile and exciting antenna systems I have studied. Although the technology was developed more than 20 years ago, application has been mainly for commercial antenna systems in the microwave spectrum. I have not seen any development of these antennas for use in the UHF area (Except for the antennas on AO40) where I believe there is huge potential. Although I have not seen any reference to patch antennas in any of the well-known amateur radio handbooks, I believe this is one of the few technologies left that has not been fully explored and developed for use at UHF.

There are a significant number of features of these antenna systems which allow the realisation of an antenna system with a level of performance that is difficult to achieve using the more traditional technology of yagi and reflector arrays.

I plan to write another follow up article with a bit more technical detail than is included in this article. This will deal with further developments, a list of features and applications of these antennas that distinguish them from most other antenna systems and an update on the design of single feed, circular polarised patches.

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Technical Abstracts

Gil Sones VK3AUI
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LA8AK Loop Antenna for LF

In the LF column of Dave Pick G3YXM in *Radio and Communications* for September 2002 a loop antenna for LF was described by Jan-Martin Noeding LA8AK. This loop was a multiple turn design with a JFET amplifier.

The loop is shown in Fig 1. The amplifier uses a J310 FET biased to 20 mA for good intermodulation performance. The loop of 28 turns is a square one with 1.5 metre sides with the turns separated by spreaders at the corners. The Q of the loop is about 50.

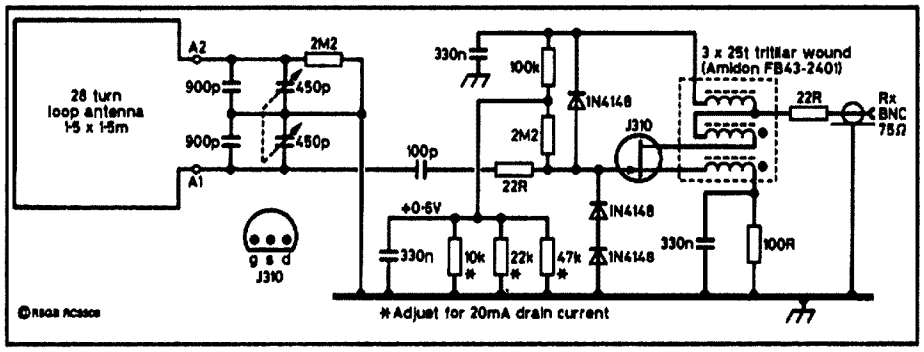

Fig 1. LA8AK Loop Antenna and Preamp.

VHF-UHF Low Loss Diplexer

A low loss VHF - UHF diplexer was described by Pavel Zanek OK1DNZ in *QEX* for Mar/Apr 2002. The diplexer was built into a small tinplate box and used semi rigid coaxial lines and four coils. The design was aligned with an HP 8714B vector network analyser.

The diplexer is shown in Fig 2. The coaxial cable line lengths are given in Table 1. The inductors L1 and L2 are 95 nH air core coils consisting of 5.5 turns of #20 AWG (0.8 mm) enamelled copper wire wound on a 3 mm diameter drill with the turns spaced 1 mm approx. The inductors L3 and L4 are 32 nH air core coils consisting of 2.5 turns of #20 AWG (0.8 mm) enamelled copper wire wound on a 4 mm drill with the turns spaced 2 mm approx. The connectors are N type. The box used was a tinned steel box 74x148x30 mm made out of 0.5 mm thick tinned steel plate. The coaxial lines were 50 ohm hand formable semi rigid cable Sucoform 141 Cu order number 22511635 from Huber and Suhner. Try:- products.hubersuhner.com/index_rfcoaxcable.html .

The diplexer operates as follows:- For a UHF signal CC1 is a quarter wave open circuit stub which places a low impedance at UHF at the VHF port. CC1 appears at VHF as a capacitive reactance and is brought to parallel resonance by L1 at VHF. The low impedance at UHF of CC1 is transformed by CC2 to a high impedance at the junction with CC3, CC4 and L2. CC3 is a quarter wave UHF open circuit stub which places a low UHF impedance at the CC2, CC3, CC4 junction. L2 is resonated at VHF with CC3 so that VHF transmission is not impeded. CC4 is a quarter wave long at UHF and so presents a high impedance at UHF at the common port. The transmission at VHF between the VHF Port and the Common Port is not affected.

Continued on page 28

Continued from page 27

At UHF CC5 is a half wave open circuit stub and so presents a high impedance at UHF to L3. The other end of L3 is connected to the UHF port of the UHF path. L3 presents a high UHF impedance to the UHF path. At VHF L3 resonates with the capacitive VHF reactance presented by CC5 and the series resonance places a low VHF impedance at the UHF port. The low VHF impedance is transformed by CC6, a quarter wave VHF line, to a high VHF impedance at the junction with CC8 and L4. L4 is series resonated at VHF with CC7 which is another half wave open circuit stub. CC7 presents a high UHF impedance to L4. The other end of L4 is connected to the CC6, CC8 junction where it presents a high UHF impedance. UHF transmission is not affected. CC8 is a quarter wave length at VHF and so presents a high VHF impedance to the Common Port. The UHF path is not affected and passes signals between the UHF Port and the Common Port.

Tune up requires reasonable test equipment. A vector scalar network analyser covering 100 to 500 MHz is desirable.

A 50 ohm load is connected to the UHF port. The VHF port is driven with a swept signal and the common VHF/UHF port is connected to the analyser input. CC1 and CC3 are adjusted for maximum attenuation between 432 and 440 MHz. 70 dB should be possible. L1 and L2 are adjusted for minimum SWR at the VHF port between 144 to 146 MHz. This should be about 1.05:1.

Then connect the 50 ohm load to the VHF port and drive the UHF port with the swept signal. L3 and L4 are adjusted for maximum attenuation between 144 and 146 MHz. This should be about 70 dB. The SWR between 432 and 440 MHz should be about 1.26:1.

The cable used has a velocity factor of 0.7. The minimum bending radius is 11 mm. The cable lengths, taking velocity factor into account, on the outer conductor are given in Table 1. Inner live coaxial conductors are insulated by approx 2 mm of the PTFE dielectric. Live connections must be as short as possible. CC1 and CC2 should be initially a little bit longer (130 mm approx) to allow for trimming during adjustment on test. The outer shields must be directly connected to the N connector grounds. After cutting and stripping, the coaxial cable shields must have a circular edge. The coaxial cables are wound 22 mm diameter to fit into the box. Open ends should be kept clear of ground areas.

Results are shown in Figs 3, 4,and 5.

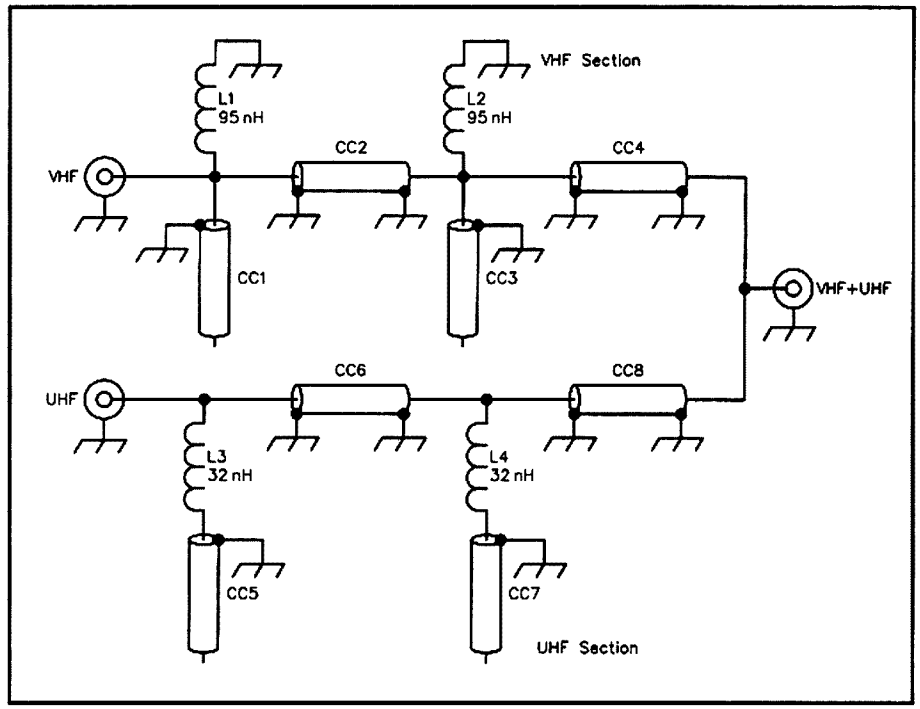

Fig 2. Diplexer Schematic Diagram.

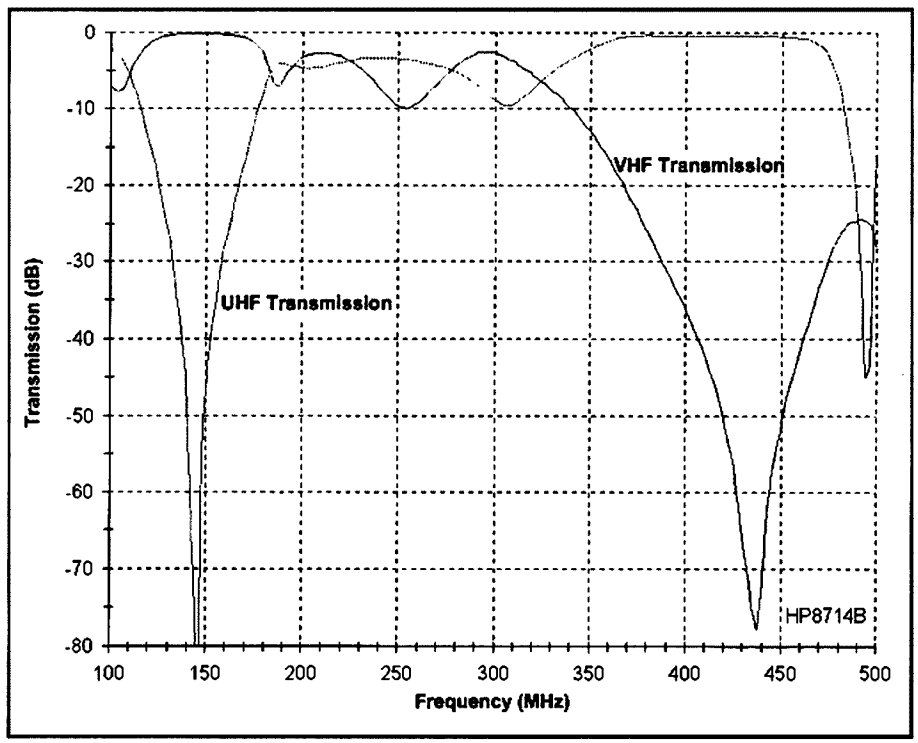

Fig 3. Transmission VHF and UHF Paths.

Table 1. Cable Lengths

Cable	Electrical Length	Physical Length mm
CC1,CC3	0.242wl UHF	113
CC2,CC4	0.250wl UHF	120
CC5,CC7	0.5wl UHF	241
CC6,CC8	0.25wl VHF	362

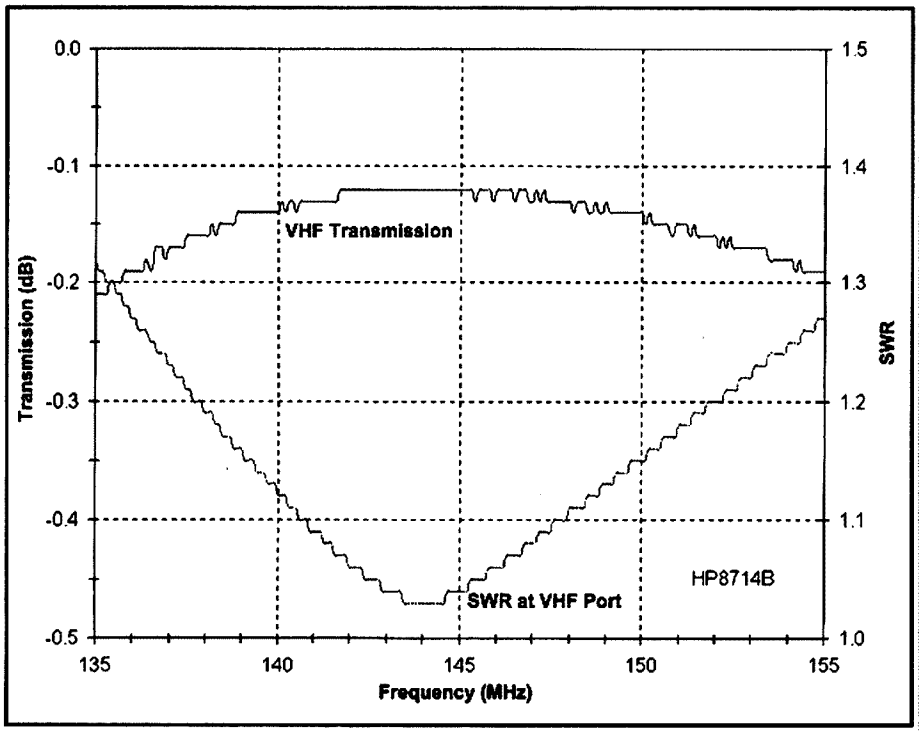

Fig 4. Transmission and SWR VHF Path.

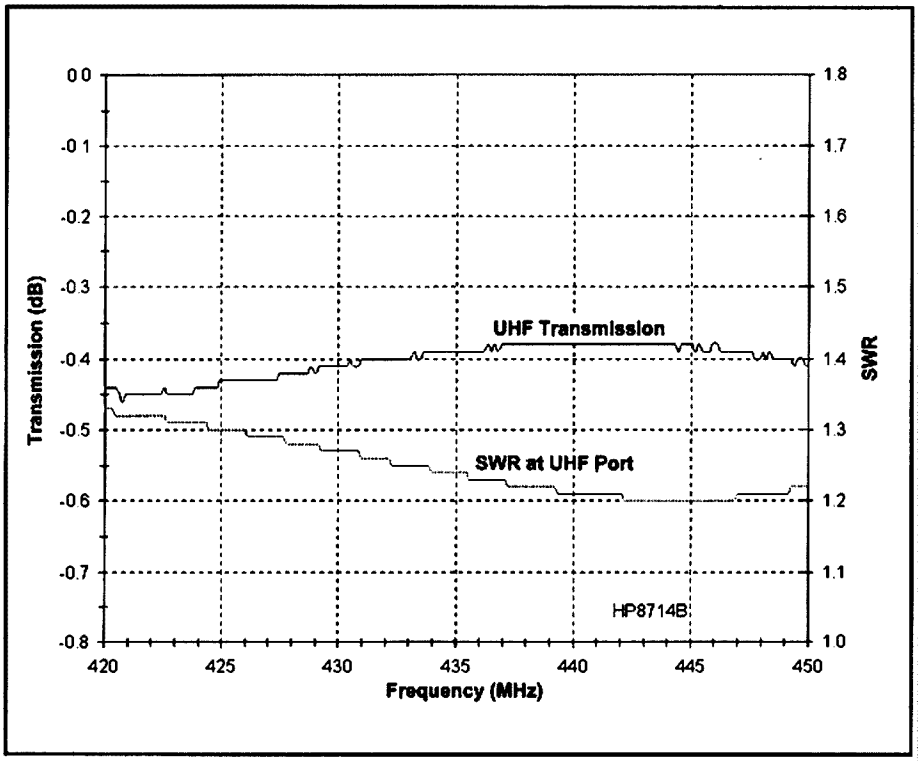

Fig 5. Transmission and SWR UHF Path.

PLAN AHEAD

Urunga Field Day

19, 20 April

EMR implementation update

By Jim Linton VK3PC

The long anticipated Electromagnetic Radiation (EMR) limits for amateur stations could come into force as early as 1 March, 2003, depending on their progress through the government's legislative drafting process.

EMR human exposure limits for all apparatus licensed transmitters were previously due to begin on 1 July, 2002, however the Australian Communications Authority (ACA) delayed the process so it could formally adopt a new radiation exposure standard.

The ACA had based its EMR limits on the lapsed Australian and New Zealand Standard AS2772.1 - and the delay has enabled it to adopt the Australian Radiation Protection and Nuclear Safety Agency's new Radiation Protection Standard Maximum Exposure Levels to Radiofrequency Fields 3kHz to 300GHz.

The WIA, which has been working closely with the ACA on the implementation of the EMR limits, understands that in practice there is little difference between the two standards, at least as far as the Amateur Service is concerned.

A detailed article, "Will your station meet EMR requirements?" appeared in the June 2002 edition of Amateur Radio magazine, and can also be read at www.wiavic.org.au/emr

The average amateur station will easily comply. It is important for all radio amateurs to know the requirements and apply this knowledge in the operation of their stations as responsible users of the radio spectrum.

The ACA has advised the WIA that it is issuing draft Licence Condition Determinations (LCDs) for the Amateur Service for public consultation. Its timetable is to complete consultation late this month, and then issue the LCDs reflecting changes if any resulting from the consultation, on or shortly after 1 March. The timing may vary, depending on whether there are any drafting or other delays.

Once the LCDs are gazetted, all new amateur licences issued must comply with them, while existing licensees will have up to three months to achieve compliance.

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Division News

VK1 News

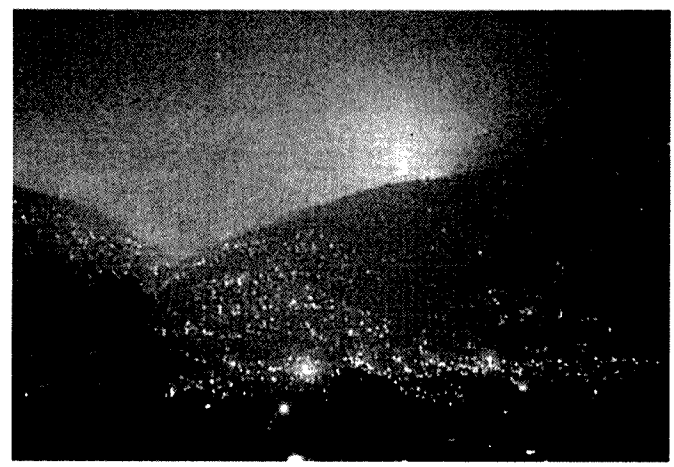
Forward Bias

Peter Kloppenburg VK1CPK

January 2003 was a month we shall never forget. Fire destroyed the homes of two amateurs, Greg Black (VK1GW) and Jack White (VK1ZAD). The houses of two other amateurs, Ray Roche (VK1ZJR) and Deane Walkington (VK1DW), sustained fire/smoke damage, while some amateurs saw their next-door neighbour's home go up in flames.

The Division's repeater station; (VK1RBM) 438.525 MHz at Black Mountain went off the air due to burned coax cables to the antenna at the top of the collimation tower. There is at present no estimate of when the repeater will be back in service because Tidbinbilla tracking station has priority in replacing its own burned cables on the tower.

The Trash & Treasure sale on the nineteenth was partially successful. It was scheduled on that day because there was to be no general meeting that month and the committee felt that something had to be organised for the members. The firestorm on the day before ensured that many amateurs stayed at home to watch the house and the weather for more of the same. There were to be five stalls, each with a variety of trash and treasures, but only one stall showed up - the Division's. The soft drinks that had been sitting in the fridge since Saturday morning were nicely warmed up because of the blackout, and couldn't be sold.



Canberra's hills alight

Because many Canberra amateurs have disposable equipment that needs a good home, there will be a Grab & Run stall(s) where everything is free to take, including those items that were not sold in January. The next T & T and G & R is planned for some time mid-year and we hope that the weather is working with us then.

The next general meeting will be held on Monday, March 25, 2003 in the Scout Hall, Longerenong St., Farrer. Cheers.

VK7 News

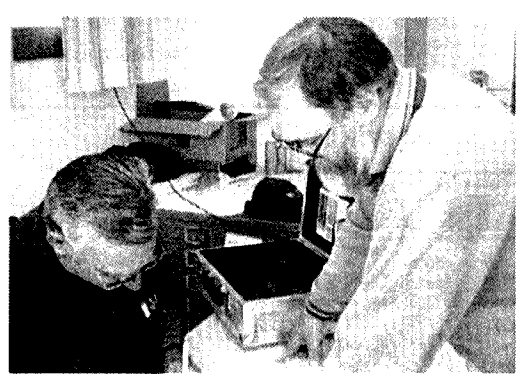
"QRM "

Bushfires have been front page news lately and the Southern end of our island has had some beauties! The SES and Fire Services were totally stretched and our Southern branch WICEN members took over the communications work from the Bluff Road Control at the Claremont Fire Station. Four members, VK7HGO, Robert VK7RB, Will, VK7HIC and Clayton, VK7ZCR spent a total of 66 man-hours at the control during the peak fire periods with Robert also working at the helicopter base at the Claremont Oval. A letter from the Southern Region, Tasmania Fire Service congratulated our members on the professional standard of their work – the reliability took a lot of strain off the emergency services.

Our Southern branch had their annual meeting on Wednesday, 5th February and the incoming team is: -

Office Bearers for Southern Branch 2003

President	Justin Giles-Clarke VK7TW
Vice President	*Open*
Secretary	Dale Barnes VK7DG
Treasurer	Richard Rogers VK7RO
QSL Manager	John Bates VK7RT
Publicity officer	Rod Finlayson VK7TRF



On the same night the north-west branch at their annual meeting elected:

Office Bearers for Northern Branch 2003

President	*Nil*
Vice-president	Steve Jones VK7ZSJ
Secretary	Ron Churcher VK7RN
Treasurer	John Webster VK7KDR
QSL Manager	Ken Hancock VK7KH
Divisional Councillors	Ron Churcher VK7RN, Steve Jones VK7ZSJ

WICEN members Gavin VK7HGO (left) and Robert VK7RB (whiskers) at the Bluff Road Control, Clarement fire station doing the communications for the big fire in Bagdad area near Hobart last week.

VK6 News

Welcome to my first submission for 2003. This year has begun with many newsworthy stories, but lets confine ourselves to amateur radio shall we?

Bushfires in VK 1, 2, 3, 6 and 7

Special thanks must be extended to all operators that helped with communications throughout the disasters. VK6 was not immune to these outbreaks of fire and the community has suffered great losses in Gin Gin, Bakers Hill and the Northern and Southern suburbs of Perth. Although not of the magnitude of fires experienced over East, the loss of one property is one too many.

Amateur of the Year

Clive Wallis, VK6CSW, was voted Amateur of the Year in VK6, 2002. Clive has been involved in radio since before I was born. Every Sunday and Wednesday he can be found on the air, like a beacon on 2 metres, conducting a net for the Repeater Group and Hills Amateur Radio Club. Clive has helped me personally and no doubt many others in the pursuit of the AR hobby. He welcomes people unknown to himself into his QTH. Most people wouldn't open the door to a stranger these days. Clive has performed many technical jobs to ensure the amateur radio operators of VK6 have enjoyed communications throughout the State.

VK6 Website

I have trolled through the Website today learning a lot. Many websites, when first created, contain information that can date quickly. While the Internet is an almost instant form of communications it is disappointing to log on to a site and find the information it contains to be several months old. Our webmaster Christine VK6ZLZ, appears to work constantly to ensure that this does not happen. The addition of a digital camera has allowed social functions to be seen and enjoyed by a vast audience.

Echolink Storms Ahead

Echolink is an internet based system that allows only licensed amateur operators to converse with each other via repeaters or in computer based conferences. This program has nearly 100,000 hams registered worldwide and numbers are increasing at roughly 4000 per week. Some operators, who have been unable to get on the air because of antenna restrictions, are rekindling past friendships with this system.

Unfortunately there is a trap. Some Internet service providers allow unlimited hours to connect, but impose a download limit per month. Read the fine print! While one is using Echolink a huge amount of data is flowing back and forth and you may be billed for it. I am sadly speaking from experience.

That's all for this month.

73 from Chris Thomson

vk6notes@wia.org.au

VK3 Notes

By Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

Notable radio amateurs pass away

The deaths have occurred of two VK3 radio amateurs who, in very different ways and at different times, made enormous contributions to our hobby.

WIA Life Member, Amateur Radio magazine editor, past WIA Victoria and WIA Federal President, Bill Gronow VK3WG was an important link with the pre-WWII and immediate past war period.

Les Jenkins VK3ZBJ, a high achiever in many facets of VHF/UHF/SHF operation, holder of nine distance records, a key member of the WIA Project Australis, and exponent of amateur television.

Obituaries on both have been prepared for AR magazine. WIA Victoria expresses its sadness at their loss, but also acknowledges the legacies they have left for future generations of radio amateurs.

Victorian Government 70cm radio network

As reported previously the lower end of the 70cm band 420-430 MHz is set to be used by government radio networks in Victoria and New South Wales, and is already withdrawn from the Amateur Service in the Perth area.

The Victorian Government is developing a new mobile radio network - the Metropolitan Mobile Radio (MMR) project - intended mainly to provide communications for its essential and emergency services.

Discussions are now being held involving the Australian Communications Authority, representatives of the Victorian Government radio system, the WIA and others.

The timing of spectrum access to support the MMR project is unknown as this stage, but the indications are that it will initially cover the main population area of Victoria and ultimately extend across the whole state.

Bushfires - radio amateurs in action

An enormous effort was made by WICEN (Vic) and members of the Red Cross Emergency Communications (RECOM) during the bushfire emergency in northeast Victoria and Gippsland.

WICEN (Vic) volunteers had a primary role of operating the trunk radio system for the Department of Environment and Sustaintability (DSE), both at Incident Control Centres and five airwing bases.

RECOM, a service arm of the Australian Red Cross, provided data communications from field stations throughout the fire-affected area, using leading edge amateur radio data communication technology and amateur radio frequencies.

The Victoria Police, DSE and the Australian Red Cross have been quick to recognise the selfless contributions made by radio amateurs during the fire emergency.

continues next page

Club News

Adelaide Hills Amateur Radio Society

The January meeting was a very enjoyable barbecue at the QTH of Hans VK5YX and Leslie. No one got lost. The weather was perfect up in the Adelaide Hills after a rather torrid day. The company was good and the films were funny.

The AGM is in February and a members' Buy and Sell in March but after that things will be back to normal with a meeting on the Third Thursday of the month to which everyone is invited. Contact Geoff VK5TY for details if you are in Adelaide on that Thursday at any time.

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John VK5EMI, Graham VK5JGM and Linden VK5SWR. All having fun.

George VK5ALS, JohnVK5JD and Jennifer VK5ANW

Your club news ought to be here!

VK3 News

continued

WIA Victoria monitored the activity through the frequent briefings it received, worked closely with both WICEN (Vic) and RECOM, and provided assistance where needed.

It shares with both groups in acknowledging the excellent co-operation and assistance during the emergency that was provided by the Australian Communications Authority, Regional Office Melbourne. .

New repeater on air

A two-metre repeater serving the Wimmera district of Victoria, VK3RWM is now on air and reports from members of the Horsham Radio Club confirm is has very good coverage.

The WIA Victoria repeater is located at Mt Arapiles, some 33 km southwest of Horsham and near the town of Natimuk. Please note its frequency is 146.850 MHz, which does not appear in recent repeater listings.

Its area of coverage is basically from Nhill to Ararat and the west side of The Grampians.

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AMSAT

Bill Magnusson VK3JT

*Instant*Track problems ...don't forget the FAQ!

Well do I remember loading my first copy of IT onto the old XT computer. It was a program to be reckoned with in those days and it can still hold its own today against many of the newer graphic trackers.

It offers simplicity and accuracy and the latest versions sport automatic kep updating and an array of goodies that would have made us rather envious in the old days. Every now and then questions come up on the AMSAT bulletin board and some are curly ones. Most however can be sorted out by reference to the InstantTrack FAQ which is available at the following web site: http://www.amsat.org/amsat/intro/itfaq.html#036

A lot of work has gone into the FAQ and the IT we have today is the culmination of many hundreds of hours of voluntary work by a team of developers and beta testers around the globe. So if you get into trouble with IT or format your hard drive and lose the configuration, first step read the help file, then consult the FAQ.

Saudisat-1C switched on over VK-ZL

Many reports are to hand from overseas amateurs regarding the operation of Saudisat-1C.

Reports have been excellent with high receive sensitivity and strong stable signals being reported by nearly all operators. Unfortunately the satellite was not turned on for some time in this region.

Inquiries were made and permission was granted to establish some control stations hereabouts and since that time the satellite has seen lots of activity in VK-ZL. For the moment the switch-on technique is being restricted to a few stations until the effect of increased activity on the power budget, as a whole is better understood.

SaudiSat-1C carries onboard a mode J repeater with an uplink frequency of 145.850 MHz and a downlink frequency of 436.800 MHz. Once it has been activated by a control station in your area you need to transmit a 67Hz tone to make it work. It then operates like any of the previous FM satellites. The downlink transmitter runs 250 mW so you will need a tracking antenna system to do well on this one. The antennas are $^1/_4$ waves mounted on opposite sides of the spacecraft.

continues over

W2ETI Moonbounce signal as an antenna test for L-band gear

Some time ago I wrote an account of this service and since that time I have listened on one or two occasions. So far I have been unable to hear the W2ETI signal and of course I put it down to sheer cussedness.

Since then a couple of well meaning folk have engaged their brain and put pencil to paper and come up with some numbers. You can do this yourself to see whether you are within coo-ee of hearing the signal or not.

You can download an eme-link calculator from the seti league web site (www.setileague.org) and it will enable you to calculate the likelihood of your hearing the beacon. As an example, if you are using a 2 metre diameter dish and a 0.4 dB NF preamp (this is a good figure to aim at using modern devices) you should expect around a -15 dB signal to noise ratio. Now this is a bit of a worry, but – if you can press one of the new DSP software packages into service and select a long integration time, you may just detect something.

As a visit to the above site will show, the setup at W2ETI does not run high power, nor does it have a super antenna system. It is in fact purposely kept at a relatively low level to act as a stable calibration signal for radio astronomy systems.

Even though your OSCAR class station may have difficulty hearing W2ETI you may well be able to hear some of the regular amateur EME stations a lot better. The advantage of W2ETI is that it is on-air permanently.

PCsat returns to service ...but get in while the going's good

As predicted this satellite is periodically entering eclipse. When it returns to full sunlight it is capable of supporting full service.

As Bob Bruninga says, "PCsat has amazed us, because with the loss of 16% of its solar arrays on launch, it runs into a negative power budget most of the time, and so it has been deep-cycling its Nicads to near zero volts every orbit, 14 times a day, for over 5000 cycles. Yet when it is in the sun, it comes back to life.

This will cease as soon as one of the cells shorts or reverses, so use her while you can, she won't last long".

AMSAT-VK Change of Mailing Address

Members and other interested parties are advised that if you wish to contact AMSAT-VK by mail, the post box is no longer valid. The new address appears in the header box above.

AO-40 proving popular as more people tool-up for L-band, S-band and higher

Australia is becoming quite well represented on AO-40 with more and more stations firing up their S-mode gear.

DX country, zone and grid-square collecting is becoming well established and as activity increases, many of the 'old reliables' like ZRO tests and Straight Key Nights are returning as in the days of AO-10 and AO-13. At peak times the transponder passband sounds like 20 metres.

Most operators are coming to terms with "LEILA" the gadget that does much to prevent overloading the satellite's AGC system by stations running too much power. It's been very interesting to see how at first the comments about LEILA were mostly negative but of late almost everyone has changed attitude and taken steps to not trigger the dreaded "hooter". It's been a slow process of education to get operators to concentrate on their receive setup rather than just blow harder if they can't hear themselves on the downlink.

The main cause for concern at present is people who still can't hear themselves very well tuning up on the beacon frequencies. This can have a very bad effect on control stations' ability to capture vital telemetry at crucial times. A lot of effort is being expended to educate operators away from this practice.

Recently many reports are coming in of successful K-band operations. Quite a number of contacts have been reported. I'll try to get together some details of a typical K-band receive chain for next month's column.

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The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000 UTC with early check-ins at 0945 UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900 UTC with early check-ins at 0845 UTC.
All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034
Graham's email address is:
vk5agr@amsat.org

Spotlight on Swling

Robin L. Harwood VK7RH
vk7rh@wia.org.au

More evidence of trend from shortwave to Internet

It has now been confirmed that the German external service, ***Deutsche Welle***, (DW) is going to discontinue English broadcasts to both Australasia and North America from the 30th of March.

Their last English broadcast will be at 2100 March 29th on 9765 and 15275. German language programming will continue as will English programs to Africa and Asia.

Ironically DW announced that they are expanding their English language news broadcasts, presumably geared for rebroadcasts over domestic stations on AM or FM. I believe that the ABC PNN network does indeed relay DW along with Radio Netherlands, Radio Canada International and the BBC World Service.

Naturally this decision has angered many, yet it reflects an increasing trend away from shortwave broadcasting in favour of Internet streaming.

The BBC World Service was caught when one of it's American Internet providers closed down after the Copyright fiasco emerged within the US. It had to develop its own webcasting presence along with its domestic analogue and digital networks.

DW may have abandoned English broadcasts to this area but it is going to be one of the first stations to broadcast in the DRM format from June of this year.

Initially broadcasts will be beamed to Asia along with the conventional AM format. It is unclear how quickly commercial quantities of DRM receivers will be available in the marketplace. Trial DRM software is available via the Net at $160 USD. This is somewhat expensive. Most HF broadcasters now specify that new or replacement transmitting equipment orders must be DRM compatible.

As previously mentioned here, all existing digital radio platforms are incompatible. The Americans have IBOC, which is already operational despite no IBOC receivers being available until the middle of this year. DAB, also known as Eureka 147 is operational, in Germany and the UK. Receivers are still very costly and in short supply, particularly in the UK. I believe that currently there are approximately 100,000 sets and the average price is 99 pounds sterling. There are 5 digital networks over the BBC with only a few commercial stations operating.

In Germany, several broadcasters have abandoned DAB because of budgetary constraints and few receivers. Experimental broadcasts in Eureka 147 have taken place in Canada and Australia. DAB and IBOC are not really designed for HF broadcasting.

Changes are also afoot at the VOA and Radio Liberty. Both organisations come under the umbrella of the US Government's International Broadcasting Bureau. Several Eastern European languages have been axed or reduced, with more funding for broadcasting to the Middle East and Indonesia. Two clandestine stations under the IBB, *Radio Sawa* and *Radio Farda* have taken the major portion of the increased output. They are targeting the Arabic and Persian speaking populations. Significantly Indonesian broadcasts have also increased from the VOA.

I suppose you also have noticed that there has been a major increase in Arabic broadcasts with the Iraqi crisis continuing unabated. Israel also conducted test broadcasts to Australia and Asia recently in our local evening hours on a variety of non-standard channels in the 16 and 19 metre bands. This was at the time of the recent Israeli general elections.

The new Kununurra (WA) sender of HCJB Australia has continued to experience propagational difficulties, especially with their broadcasts to the South Pacific on 11755. Their 0700 sign-on has consistently failed to make it to the target area until after 0800.Another European station was also co-channel.

When HCJB from Quito was operating on this channel, signals were extremely strong. HCJB-Australia therefore shifted to 11770 for their South Pacific release. Although the channel is now clearer, propagation in still identical until the darkness path sets in.

Broadcasts to South Asia have been quite good on 15480. This is from 1200. I also suspect that they are using the full 100 kW unlike 11770, which has been using power as low as 13 kW.

March 30th is the date chosen for HF stations to alter their operating frequencies and hours to accommodate the introduction of Summer Time within the Northern Hemisphere. These changes commence as from 0100.

Well that is all for this month. Please send your comments or news to me at vk7rh@wia.org.au.

73

PLAN AHEAD

Harry Angel Memorial Sprint

Friday 25 April, 2003

Ham Shack Computers

Part 23 – EchoLink

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

In recent years, the progress made in computer hardware and software development has been quite remarkable. Many enterprising Amateur Radio (RA's) enthusiasts have written superbly conceived applications for Microsoft Windows and Linux operating systems. Whilst some of these applications have not been the best, others have been outstanding in terms of their ease of installation, operational stability, and productivity.

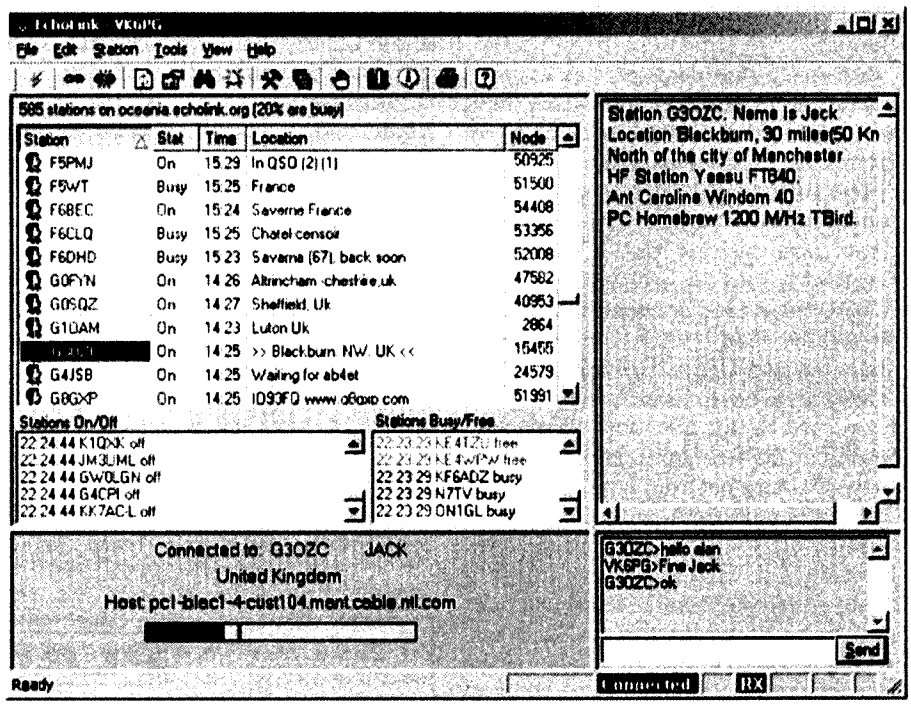
Just trying to keep up with the world of computing these days seems well nigh impossible. However, the Internet shines with a myriad of activities that will benefit most active RA's in their quest for increased enjoyment. The task of chatting to other RA's via the Internet live, and the ability to connect Amateur Radio equipment to your Ham Shack Computer through IRLP have been foremost in recent times.

One of the finest achievements in this field has been the development of EchoLink software which allows RA's to chat with others worldwide, in real time, person-to person, via a linked VHF/UHF system, or through a repeater. Well over 70,000 RA's are now "connected" using EchoLink without being subject to the demeaning rubbish and endless pornography (and subsequent virus attacks) found on IRC, ICQ, Yahoo, HotMail, Messenger and other communications platforms.

What is EchoLink?

EchoLink under Windows allows RA's to connect with others worldwide. Connections can be made one-to-one, via a linked transceiver at one end, or either end of the connection. Other ways include connecting to a remote VHF/UHF repeater, or any of the above combinations in a conference. Voice communication is done with a microphone connected to the sound card, and the computer speakers provide the return audio. The keyboard space bar acts as the push-to-talk (PTT) between 'overs', or if you feel lazy then voice operated (VOX) can be selected!

EchoLink is free to legitimate RA's who must first register your request for an active connection via EchoLink. For first time users, you might have to wait several days before permission is granted. The writer believes that the administrators of EchoLink check your validity from QRZ.com to avoid non-licensed intruders into the system. Once done you can 'login' to EchoLink and see a directory of other RA, links and repeaters who are currently connected to the worldwide system. To call and 'work' a station - just 'click' on the callsign and the connection is made in just a few seconds!



The EchoLink Screen

Displayed above, the EchoLink Screen shows the 'look and feel' of EchoLink. In the example, VK6PG is connected to G3OZC in the UK, and the status is in the receive mode shown by the RX suffix in the lower box on the right. Return sound levels are indicated on the horizontal VU meter.

When 'transmitting' or sending audio from the microphone, a similar display indicates the outgoing sound level. The Windows audio properties can be set for best level and sound quality. Other windows display station information, stations on/off and busy/free and so on. The white window in the bottom RH corner is used to type in text to be sent

whilst the other station is talking to you. A good example being to accurately type in and send your e-mail address to assist the operator at the far end. Imagine chatting - no QRM, QRN and no TVI at 5&9 both ways!

EchoLink Installation

This process could not be easier. Simply download the EchoLink latest release (2) from the Internet, and save to a temporary folder. Disconnect from 'the net' and move to the file and 'click' to execute. The default - C:/Program Files/ EchoLink folder should be chosen. Follow the screen prompts until the software is installed. Reboot the computer and you'll see a new EchoLink icon on the desktop. 'Click' to open and look for the Tools > Setup > Preferences options on the top of the screen.

Work carefully and steadily through all the options until done. Connect to 'the net' and open EchoLink - look for the 'connecting' information displayed at the top of the Command Screen. It should be in the form of an IP address depending upon which EchoLink server is being called. Once connected - Fetching Data... will be seen followed by a successful connect.

Once a successful connection is established, an extensive list of stations, links and repeaters will be seen in the EchoLink Window. Some stations are marked as 'busy' and others may be "on'. Use the Find options to look for specific callsigns of friends or favourite repeaters, and 'click' the callsign to connect.

Work steadily through all the options on the tabbed dialog menus - My Station, Servers, Timing and Audio. Most users will choose the 'Single User' option. This means you will have access to all the facilities of EchoLink - without any AR equipment connected to form a link or repeater. Ambitious operators might ultimately change to connecting their local club repeater or personal gear from home thereby adding to the diversity within the EchoLink community.

Setting Up a Link

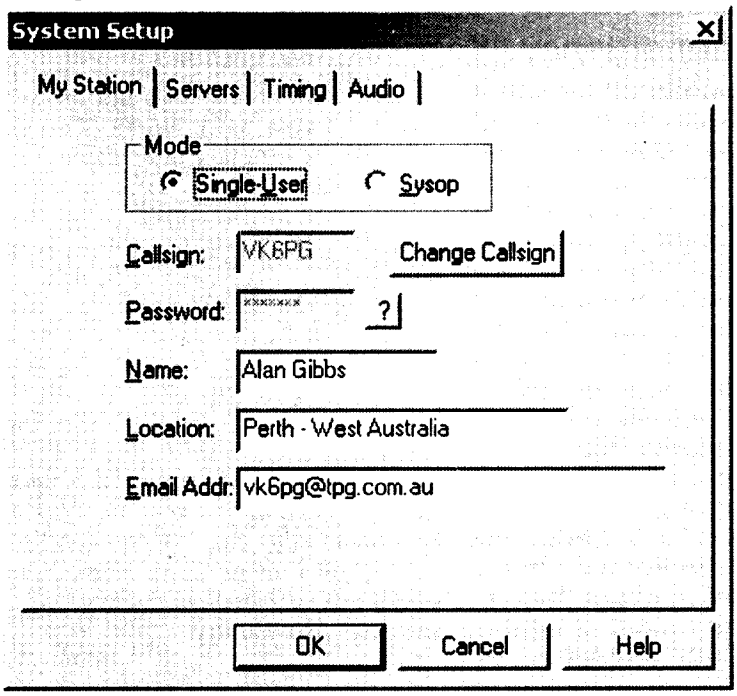
Access to the sound card line input and audio output from a VHF transceiver is all you need. More complex and secure installations may include CTCSS and PTT access making a very professional job. All the required information can be found in the EchoLink Help Menu.

In Operation

Having set up a new EchoLink installation, wait for several days (trying to connect each day) until you see a proper connection. Look through the list of stations for your own callsign. Notice that you've been issued with a NODE number which is unique to yourself. From now on this number will be listed every time another connection is made.

Try connecting to yourself first, and set up the audio input and output levels on the EchoLink VU meters. Disconnect, and choose a free station for a chat to determine that all is well. Friends, links and repeaters of special interest can be 'alarmed' so when they appear on the list, you'll be reminded. Ideal at sked times, band openings, and special interest AR activities.

One very nice feature being that sometimes connecting to a conference or repeater, a list of other stations connected to the same repeater is displayed in the right hand window. This gives you an indication of who's about, and a polite invitation for someone to call you. Add your own personal and station information by selecting Tools > Preferences > Connections and Station Information File (info.txt) and 'click' Choose. Edit the file and exit to save the information for others to see. Connect to yourself again to check the new data is displayed on your own screen.



Summary

EchoLink just has to be the 'most wanted' package of the moment - all thanks to its writer Jonathan Taylor, K1RFD. RA's with little in the way of antennas, seniors living in restricted accommodation, or those on a limited budget can enjoy the advantages of AR via EchoLink. This article shows just how easy it is to get the system going - even for those with limited computer skills. Operators with broadband continuous Internet access may well elect to connect their shack equipment for the benefit of others - a very commendable contribution to the AR movement.

Some readers will argue that this is NOT 'Amateur Radio'. However, the enormous improvements being made in the on-line digital fields must now be accepted as part of our hobby. It's better to embrace any new technologies that add value to our hobby and give pleasure to others worldwide. Why don't you try EchoLink? The whole project takes less than 15 minutes to fully install, and it's FREE so you'll have lost nothing yet gained new friends to compare AR notes when the HF bands are closed to your favourite DX locations.

Ham **Tip No. 23** - When EchoLink is on-line, check your e-mail, surf the Net and write an article for this publication all at once. If your friend pops up on EchoLink, the alarm sounds and you can chat all at the same time!

Ham Shack Computers, Part 24 next month - deals with 'Computer Security' from vendors, unsolicited ads, hackers, nerds, spam, unwanted e-mail and viruses.

(1) Ham Shack Computers Web:
www2.tpg.com.au/users/vk6pg

(2) EchoLink software:
www.echolink.org

73s de Alan, VK6PG (Node: 53831)

ar

Beyond Our Shores

David A. Pilley VK2AYD
davpil@ midcoast.co.au

Contesting on the rise

The ARRL reports a record number of total entries for ARRL sponsored operating events during the year 2002. Their Contest Committee reports a total of 18,817 logs were received, (up 1.7% on 2001). This would have been far greater had the World Radiosport Team Championship (WRTC-2002) not been held in Finland in July as several hundred of the world's top contest operators were at the convention and not operating from their home stations.

(ARRL N/L Vol2 03)

35 years up for Maritime mobile service network

The Maritime Mobile Service Network (MMSN) marked its 35th anniversary on January 3.

The net now operates on 14.300 MHz. According to Bobby Graves, KB5HAV, the net's original purpose was to assist those serving in the US military during the Vietnam War. In its early years, the MMSN saw a lot of phone patch traffic.

"Our primary purpose now is that of handling legal third-party traffic from maritime mobiles, both pleasure and commercial, and overseas deployed military personnel," said Graves, the net's schedule coordinator and Webmaster.

The net also helps missionaries in foreign countries. The MMSN has grown from its original nine founding members to nearly 60 net control stations and relief operators. It is recognized by the US Coast Guard and has been instrumental in handling hundreds of incidents involving vessels in distress.

During severe weather, the net also acts as a weather beacon for ships and relays warnings and bulletins from the National Weather Service and National Hurricane Center. "The Maritime Mobile Service Network has a legacy of serving people and will continue to do so," Graves said.

(AARL N/L Vol22 02)

High speed multimedia hamming

High-speed multimedia hamming via the "Hinternet" (Ham + Internet) could be the next big thing for Amateur Radio. That's the hope of the ARRL High Speed Multimedia (HSMM) Working Group, which is adapting the highly popular IEEE 802.11b Part 15 wireless Internet protocol to Part 97 amateur operating.

"We expect it to be nothing less than revolutionary!" says John Champa, K8OCL, who chairs the ARRL HSMM Working Group—a subset of the League's Technology Task Force. Champa's team is calling the specific techniques, software and hardware involved "the ARRL 802.11b protocol" to distinguish it from the unlicensed, commercial protocol. Systems employ direct-sequence spread spectrum techniques and operate in the 2.4 GHz range. "Hinternet" , Champa says, is a user-friendly way to refer to the development of high-speed Radio Local Area Networks (RLANs) capable of simultaneously carrying audio, video and data signals.

The Working Group's new "High-Speed Digital Networks and Multimedia" page <http://www.arrl.org/hsmm/> recently premiered on the ARRL Web site. Visitors to the site are very welcome.

(ARRL N/L Vol2 03)

Hams help out during telephone emergency

Hams responded to fill a communication gap December 23 after the aptly-named town of Broken Arrow, Oklahoma, USA, experienced a city-wide telephone outage that left telephone customers unable to call outside their local exchange.

Broken Arrow implemented its Telecommunications Failure Plan as a result. A request went out for amateurs to assist at the local emergency operations center (EOC) and at three area hospitals.

Several hams in and around the town of 75,000 residents responded to the call. Four Broken Arrow Amateur Radio Club members staffed positions at the Broken Arrow EOC and at three hospital emergency rooms.

The city officials were again very impressed and appreciative with the amateur community's commitment to service and response to the emergency. It is times like these that such partnerships between local government and the local hams become invaluable.

The operation lasted about five hours. In addition to passing traffic between the EOC and the hospitals, lines of communication were opened with the Oklahoma State Department of Civil Emergency Management in Oklahoma City via the EOC's HF amateur station.

The telephone system troubles were traced to the loss of a digital protocol needed for call routing.

North Korea asks P5/4I4FN to QRT

The only Amateur Radio station active from North Korea has been ordered off the air.

Ed Giorgadze, 4L4FN, had been operating for a year as P5/4L4FN from Pyongyang. The ARRL subsequently accredited SSB and RTTY operation of P5/4L4FN for DXCC. QSL Manager Bruce Paige, KK5DO, said that on Friday, November 22, Giorgadze was called into a meeting with the "Radio Regulation Board" without any explanation, and he was politely asked to quit all transmissions and pack all his radio equipment. "He spent all day on the roof disassembling his antennas and packing boxes." Paige said North Korean government officials later came and sealed the boxes. When Giorgadze leaves North Korea on December 10 for two weeks vacation, "he is to take everything out of the country," Paige indicated.

Giorgadze had tried for more than two years to obtain permission to operate Amateur Radio in North Korea and finally was given the okay in 2001 to bring an ICOM IC-706MkIIG into the country.

In the intervening months, he's been slowly upgrading his antenna system. He's made more than 16,000 contacts during his stint in North Korea, and earlier this year attained the first DXCC ever from that country.

(ARRL N/L)

"Logbook Of The World" Limited testing a hit

The long-anticipated "Logbook of the World" (LoTW)—the ARRL's secure electronic contact-confirmation system—took a major leap toward public release in January with several weeks of limited—or "alpha"—testing.

Dozens of Amateur Radio operators checked out a preliminary version of the LoTW software, which is still under development. Once ready, LoTW will enable participants to qualify for awards such as DXCC or WAS without having to first collect hard-copy QSL cards.

ARRL hopes that logging software vendors will choose to add value to their products by integrating LoTW client-side functions. "But the software we provide to individual amateurs will be sufficient for basic use of LoTW," he added. ARRL will not be releasing the LoTW server code, however.

Linked via e-mail, the LoTW testers spent two weeks registering their call signs, uploading logs and attempting to push the system to extremes. One tester was amazed at its robust nature after he uploaded a complete station log of about 320,000 QSOs. "I sent this blob expecting it to croak the server, but it didn't!" he said.

LoTW won't spell the end of QSL cards. Instead it will provide an avenue for increased speed and accuracy for hams chasing awards, as well as remove some chances for human error that can occur in the traditional process.

"This is really a system to offer credits for awards," said Mills, ARRL's Membership Services manager. Mills said LoTW will minimize opportunities to "game the system" or otherwise cheat—something that's not always possible to detect even with paper QSLs. He emphasized that the League has no plans to do away with accepting traditional QSL cards as it's been doing all along. "We're not replacing the whole paper QSL scheme with LoTW" he said.

Unlike electronic QSLing systems now in use, LoTW is not set up to exchange QSL "cards" via the Internet. The main idea is that ARRL will maintain a secure log database that will be constantly updated by DXers, contesters, DXpeditions and thousands of amateurs. Registering and uploading electronic logs is free; the user will incur a charge when applying accumulated contact credits toward an award.

LoTW beta testing for the general Amateur Radio public is expected to begin soon. The ARRL has not announced an inauguration date for Logbook of the World.

(ARRL N/L 24Jan)

40 metre band

Did you know that the 40-metre amateur band is on the agenda for the World Radio Conference WRC-03 being held by the International Telecommunication Union (ITU) in the year 2003? The International Amateur Radio Union (IARU), of which the WIA is a member society, has the objective of a 300 kHz-wide world-wide band exclusive for radio amateurs in the vicinity of 7 MHz. Extensive preparations are underway. You can read about this work at: http://www.iaru.org/7-MHz-Spectrum.pdf - a 26-page booklet in colour, a 600 kB pdf file.

ZS to USA QRP Record

Over the last 5 months, an extremely low power beacon transmitter has been operating from the QTH of ZS1J at Plettenberg Bay, South Africa. The measured power output of the 7029 kHz transmission is 100 micro-watts and reception reports from all over South Africa, up to 1100 kilometres have been received by the beacon operator, Roger Davis.

In late January, on one of their early morning daily skeds, Bill, WA8LXJ, was asked by John, ZS2J,to see if he could receive this beacon as Bill has an extremely efficient antenna system and is consistantly heard in South Africa on 40 metres at 20 dB over S9. Bill requested an accurate frequency readout of the transmission which was given to him as 7029.0155 kHz. The reason for the request was due to Bill having the facility to narrow his receiver bandwidth down to an incredible 10 Hz. to be able to pluck out even the weakest signal from the noise.

On Tuesday the 29th of January, Bill, WA8LXJ, made a positive identification of the beacon's call sign and gave it a Readability 2, Signal strength 1 and tone T9. Craig also made a tape recording of the signal received and played it back to amazed South African amateurs on the daily, split frequency net, held on 7095 and 7177 on the morning of the 29th January.

Visit the ZS1J beacon web site at zs1j@qsl.net

And a note about the previous BOS item—

QRPPp ZS USA Path Feb 1 2003

Doing some mathmatics on the QRPp contact from South Africa to the USA, using only 0.0001 of a watt on 40 metres, I have come up with the following rough calculations which confirm it is possible under certain conditions.

Firstly, we must assume reciprocal path conditions prevail at the time. USA to ZS and ZS to USA

Secondly, we must assume that each "S" point represents 5 dB on the receiver. (Is there a standard accepted by all manufacturers, it used to be 6 dB)

Bill, WA8LXJ's kilowatt output is received in South Africa at 20 dB over S9. This represents 9 "S" points at 5dB each, plus the 20 dB over S9, which equals 65 dB above the receiver AGC action.

Should Bill reduce his power to 0.0001 of a watt, it would represent a 70 dB drop in power. This would mean that his signal is now 5 dB below receiver AGC action.

By narrowing the receiver passband from 2.5 kHz to 10 Hz, would give a gain of 12 dB above noise on the signal. This would mean that the received signal would now be 7 dB above the receiver AGC start level and could possibly show an S meter reading of just above S 1, the exact report given by Bill on the tests.

Roger ZS1

ar

ALARA

Christine Taylor VK5CTY
vk5cty@vk5tty or geencee@picknowl.com.au

The Terrible Bushfires

Congratulations and thanks to all those amateurs who have helped out in the fight against some of the worst bushfires the country has suffered.

Without knowing who everyone is, we know there are many amateurs using their skills to help combat the fires. We are proud to have a skill that can be used in an emergency.

Thank Goodness the worst of it is over at the time of writing.

Nothing new under the sun? Absolutely!

She calls herself C, he calls himself N (that is if he is a man!) they 'talk' to each other every day and fall in love though they never meet.

Does that sound familiar? Do you 'talk' to someone you have never met, every day? Could you fall in love at long distance? You surely discover many, many interests in common and have lots of news to share each day.

No, this is not a story of internet chat rooms or email, it is the basis of a novel written over a century ago, called "Wired". It was subtitled " A romance of dots and dashes". The heroine and hero were telegraph operators and the book was printed in 1879.

The writer never did meet the person she 'talked' to so regularly but she never married anyone else, either. Nor did she ever write another novel.

A bit of fun for the start of the year.

Nets and the weather

As usual the first part of the ALARA Net each Monday (at 3.58MHz approx) is devoted to a report on the local weather.

Last week, although June VK4SJ was not on air we heard about her weather, as well. Shirley VK5JSH had participated on the 222 (14.222MHz) net during the afternoon when June had told them she had had between 5 and 6 INCHES of rain, over 150 mm, in the last couple of days.

The southern part of Australia is struggling with one of the most severe droughts in 30 or 40 years and Southern Queensland has as much rain an a couple of days as Adelaide has in half a year. It is an amazing country.

Please join either the 222 Net at 0530Zulu or the ALARA net at 1030Zulu daylight saving months or 1000Zulu normal time months. We would love to have you. You would find the range of topics discussed interesting and you would become much more aware of how similar we are and how different as well. There is always someone to share you particular interest.

We know there are a number of OMs who listen. Please join us after the first round or so, we are happy to have you.

The Luncheons

These will be held as usual. Please contact Bron VK3DYF or Gwen VK3DYL to check on the venue if you are in Melbourne on the second Friday of the month as the usual venue is undergoing renovations. The regulars still meet, however, so you do not need to miss out! Unfortunately a recent trip to Melbourne was poorly timed on my part!

In Adelaide the "Pancake Kitchen" in Southern Cross Arcade is still as before. Everyone is welcome. The numbers have been down during the holidays though it was good to have Tina with us in January. A teacher's lot is not a happy one when it means you miss out on such an exciting activity as an ALARA luncheon.

In VK6 they meet on the third Friday instead of the second one. In case they have also had to change their venue it is probably best to ring Poppy VK5YF and check.

Two Dates For Your Contest Diary

Clara and Family HF contest March 2003

The date for this contest has been moved so it is now on a weekend. We hope more people, YLs and OMs, will participate.

It is an unusual contest in that if you have a CLARA member in your family you score more points for those who contact you. What a great idea.

There are multipiers for the 14 different Canadian call areas and we as DX YLs give our contacts extra points. Too.

CW 14.033, 21.033, 7.033, and 3.688 are the recommended call frequencies.

For phone try 28.300, 21.225, 14.120, 14.285, 7.200, 3.750, 3.900 are recommended.

The weekend of March 22nd and 23rd 2003. Starting and ending at 1700Zulu.

Just call "CQCLARA"

Have fun.

Thelma Souper Memorial Contest

This one is on the weekend of 5th and 6th April from 0700Zulu to 1000Zulu in the evenings. All contacts to be on 80 metres, so the VKs should be able to return the compliment for those ZLs who were in the ALARA Contest. CW or phone is permitted

There is a special station to look for, ZL6YL, and the number of WARO members, including the club callsign, act as multipliers for all the other contacts. Sound good?

WISHING YOU ALL A GOOD YEAR FOR 2003

ar

Contests

Ian Godsil VK3VP

Contest Calendar March - May 2003

Mar	1/2	ARRL International DX Contest	(SSB)	(Feb 03)
Mar	1/2	Ukraine RTTY Contest		
Mar	8/9	RSGB Commonwealth Contest	(CW)	(Feb 03)
Mar	15/16	John Moyle Field Day	(CW/SSB)	(Feb 03)
Mar	15/16	Russian DX Contest	(CW/SSB)	
Mar	29/30	CQ WW WPX Contest	(SSB)	(Feb 03)
Apr	5/6	SP DX Contest	(CW/SSB)	
Apr	11/13	Japan International DX Contest	(CW)	(Feb 03)
Apr	19	Holyland DX Contest	(CW/SSB)	
Apr	19	TARA PSK31 Rumble		
Apr	19/20	YU DX Contest	(CW/SSB)	
Apr	25	Harry Angel Memorial Sprint	(CW/SSB)	(Feb 03)
Apr	26/27	Helvetia Contest	(CW/SSB)	
May	3	IPA Contest	(CW)	
May	3/4	10-10 Intl. Spring QSO Party		
May	3/4	ARI International DX Contest	(All)	
May	4	IPA Contest	(SSB)	
May	10/11	Volta RTTY DX Contest		
May	10/11	CQ-M International DX Contest	(CW/SSB/SSTV)	
May	16/17	Anatolian WW RTTY Contest		
May	17/18	King of Spain Contest	(CW)	
May	24/25	CQ WW WPX Contest	(CW)	(Feb 03)
May	24	VK/trans-Tasman Contest	(SSB)	(Apr 03)
May	31	QRP Day		

Results CQ WW DX CW Contest 2001

(VKs only Call\Band \Score)

Single Operator High Power		
VK8AV	All	583,347
VK8TX	All	29,458
VK2QF	All	20,100
VK6VZ	28	339,694
VK4DX	All	761,634
VK2DPD	All	252,623
VK4XY	28	260,508
VK4TT	28	108,966
VK3FEI	21	572
VK6LW	14	588,252
VK2IA	7	46,297
Single Operator QRP		
VK6AA/2	21	378

Rules Harry Angel Memorial Sprint

1100z - 1246z Friday 25 April, 2003

This is the fifth year of a Contest to remember VK's oldest licensed operator, Harry Angel. Please note the time length of the Contest - 106 minutes, Harry's age when he died in 1998. It is open to all appropriately qualified HF operators.

Object is to make as many contacts as possible on band 80 metres, using modes CW and SSB.

Categories: Single Operator (CW, Phone, Mixed) and SWL.

Frequencies: CW: 3500 - 3700 kHz, Phone: 3535 - 3700 kHz. Contacts in DX window not permitted.

Exchange RS(T) and serial number starting at 001.

Score two points per CW QSO and one point per Phone QSO.

Stations may be worked once only per mode.

Logs must show time UTC, callsign worked (both callsigns for SWLs), mode, RS(T), serial numbers sent and received for each QSO.

Send **summary** sheet showing name and date of Contest, name and callsign of entrant, category entered, address, equipment used, points claimed and a signed declaration that the rules and spirit of the Contest were observed.

Send logs to Harry Angel Sprint, 363 Nepean Highway, Chelsea, 3196, by Friday, 23 May, 2003. Logs may be sent by **email** to: vk3js@vkham.com

Japan International DX Contest 2003

LF CW: 2200z 10 Jan - 2200z 12 Jan
HF CW: 2300z 11 Apr - 2300z 13 Apr
PHONE: 2300z 7 Nov - 2300z 9 Nov

Object is to work as many JA stations + JD1 islands as possible.

Bands: LF CW 160/80/40; HF CW 20/15/10; Phone 80 - 10 (no WARC).

Categories: Single operator single/multi-band high power (more than 100 W o/p); single operator single/multi-band low power (less than 100 W o/p); multi-operator; maritime mobile.

General: Operate for maximum of 30 hours only and show rest periods in log; single op must perform all tasks himself; multi-op must remain on band for at least 10 minutes and during this time multi-op may transmit on another band only if new station is multiplier; ops may use spotting networks.

Exchange: RST plus CQ Zone number. JAs will send RST plus Prefecture number (01 - 50). Score on 160m four points; 80m two points; 40/20/15m one point; 10m two points.

Multiplier is total JA prefectures + JD1 islands worked (possible 50 per band).

Final Score: multiply total points by total multipliers.

Logs (one per callsign) must show times in UTC; oxchanges; multiplier first time worked; duplicate QSOs shown as no points; rest periods clearly marked; use separate sheet for each band.

Send Logs and summary sheet to: JIDX Contest, c/o Five-Nine Magazine, PO Box 59, Kamata, Tokyo 144, Japan, by 28 Feb, 31 May or 31 Dec. Logs may be submitted on 3.5 inch disk in ASCII with summary sheet, or by e-mail. For instructions send e-mail to <jidx-info@ne.nal.go.jp> with command #get jidxlog.eng or #get jidxlog.jpn

Rules Commonwealth Contest

The Commonwealth Contest promotes contacts between stations in the Commonwealth and Mandated Territories. A more relaxed contest environment which gives the opportunity to work some choice DX.

Date: 8 -9 March, 2003

Time: Saturday 1000 - Sunday 1000 UTC

Bands: 3.5, 7, 14, 21, 28 MHz.

Mode: CW.

Exchange: RST plus serial number.

1. Eligible entrants:

   UK entrants must be members of the RSGB and may not use special GB, GX etc) callsigns nor be /MM or /AM.

   Overseas - Licensed radio amateurs within the Commonwealth or British Mandated Territories. Apart from section (c), all entries must be single operator and may not receive any assistance whatsoever during the contest, including the use of spotting nets, packet cluster or other assistance in finding new contacts or bonuses.

2. Sections:

   (a) Open, no limit on operating time.

   (b) Restricted, operation is limited to 12 operating hours.

   Off periods must be clearly marked and be a minimum of 60 minutes in length.

   (c) Headquarters stations, one only per Commonwealth Call Area and may be multi-operator.

3. Frequencies:

   Entrants should operate in the lower 30 kHz of each band.

4. Scoring:

   Contacts may be made with any station using a Commonwealth Call Area prefix, except those within the entrant's own call area. Note that for this contest, the entire UK counts as one call area, and therefore UK stations may not work each other.

   Each contact scores 5 points with a bonus of 20 points for each of the first three contacts with each Commonwealth Call Area on each band.

5. Headquarters stations:

   A number of Commonwealth Society HQ stations will be active during the contest and will send 'HQ' after their serial number, to identify themselves.

   Every HQ station counts as an additional call area and entrants may contact any HQ station (including in their own country) for points and bonuses.

6. Logs:

   Each entry must be accompanied by a summary sheet indicating the section entered and the scores claimed on each band.

   (a) Paper Logs: Separate logs and lists of bonuses claimed are required for each band.

   (b) Computer Logs: In any format approved by the Society, showing clearly the points and bonuses claimed for each contact.

   In both cases entrants are requested to include a duplicate check list with their entry.

7. Closing date for logs:

   Logs must be postmarked no later than 7 April, 2003.

8. Awards:

   (a) Open: The Senior Rose Bowl to the overall leader.

   The Col Thomas Rose Bowl to the highest-placed UK station.

   (b) Restricted: The Junior Rose Bowl to the section leader.

   The Ross Carey Rose Bowl to the highest placed UK station.

   (c) A Commonwealth Medal will be awarded to the entrant who in the opinion of the HF Contests Committee has most improved their score or contributed to the contest over the years.

Rules CQ World-Wide WPX Contest 2003

SSB: March 29-30, 2003 CW: May 24-25, 2003

Starts: 0000 GMT Saturday Ends: 2359 GMT Sunday

I. Contest Period:

Only 36 hours of the 48 hour contest period permitted for Single Operator stations. Off periods must be a minimum of 60 minutes in length and clearly marked in the log. Listening time counts as operating time. Multi-Operator stations may operate the full 48 hours.

II. Objective:

Object of the contest is for amateurs around the world to contact as many amateurs in other parts of the world as possible during the contest period.

III. Bands:

The 1.8, 3.5, 7, 14, 21 and 28 MHz bands may be used. No WARC bands allowed.

IV. Types of Competition (for all categories):

All entrants must operate within the limits of their chosen category when performing any activity that could impact on their submitted score. Transmitters and receivers must be located within a 500 metre diameter circle or within the property limits of the station licencee, whichever is greater. All antennas must be physically connected by wires to the transmitters and receivers used by the entrant. Only the entrant's callsign can be used to aid the entrant's score. A different callsign must be used for each entry.

1. **Single Operator (Single Band and All Band)**
   (a) Single operator stations are those at which one person performs all of the operating, logging, and spotting functions. Only one transmitted signal is allowed at any time. Maximum power allowed is 400 watts total output power for VKs.
   (b) Low Power: Same as 1(a) except that output power shall not exceed 100 watts. Stations in this category will compete with other low power stations only.
   (c) QRP/p: Same as 1(a) except that output power shall not exceed 5 watts. Stations in this category will compete with other QRP/p stations only.
   (d) Assisted/with Packet: Same as 1(a) except the passive use (no self-spotting) of DX spotting nets or other forms of DX alerting are permitted. Stations in this category will compete with other Assisted stations only.
   (e) Tribander/Single Element (TS): Tribander (any type) with a single feedline from the transmitter to the antenna and single element (TS) category. During the contest, an entrant shall use only one (1) tribander for 10, 15, 20 metres and single-element antennas on 40, 80, and 160.
   (f) Band Restricted (BR): An eligible entrant must hold a licence restricting operation to less than the six (6) contest bands (160, 80, 40, 20, 15, 10) on both modes.
   (g) Rookie (R): An entrant in this category shall have been licensed as a radio amateur three (3) years or less.
2. **Multi Operator (All-band operation only)**
   (a) *Single-Transmitter:* Only one transmitter and one band permitted during the same time period (defined as 10 minutes).
   Exception: One - and only one - other band may be used during any 10-minute period if - and only if - the station worked is a new multiplier. Use separate serial numbers for the multiplier station. Logs found in violation of the 10-minute rule will be automatically reclassified as multi-multi. Maximum power allowed is 400 watts total output power. Your log MUST show the correct serial number sent for each contact.
   (b) *Multi-Transmitter*: No limit to transmitters, but only one signal and running station allowed per band. Note: All transmitters and receivers must be located within a 500 metre diameter area or within property limits of the station licencee, whichever is greater. All operation must take place from the same operating site. Maximum power allowed is 400 watts total output power.
3. **Use of Packet:**
   Passive use of packet or internet DX spotting nets is permitted only for Single Operator Assisted/with Packet, Multi-Operator Single Transmitter and Multi-Operator Multi- Transmitter stations only. No self-spotting by a station or one of its operators is permitted. Stations engaging in self-spotting will be disqualified.

V. Exchange:

RS(T) report plus a progressive contact three-digit serial number starting with 001 for the first contact. (Continue to four digits if past 999 and five if past 9999).

Multi-operator multi-transmitter stations use separate serial numbers for each band. Your log MUST show the correct serial number sent for each contact.

VI. Points:

(a) Contacts between stations on different continents are worth three (3) points on 28, 21 and 14 MHz and six (6) points on 7, 3.5 and 1.8 MHz.
(b) Contacts between stations on the same continent, but different countries, are worth one (1) point on 28, 21 and 14 MHz and two (2) points on 7, 3.5 and 1.8 MHz.
(c) Contacts between stations in the same country are worth 1 point regardless of band.

VII. Multiplier:

The multiplier is the number of "valid" prefixes worked. A PREFIX is counted only once regardless of the number of times the same prefix is worked.

(a) A PREFIX is the letter/numeral combination which forms the first part of the amateur call. Examples: N8, W8, WD8, HG1, HG19, KC2, OE2, OE25, etc.
Any difference in the numbering, lettering, or order of same shall

constitute a separate prefix. A station operating from a DXCC country different from that indicated by its callsign is required to sign portable. The portable prefix must be an authorized prefix of the country/call area of operation. In cases of portable operation, the portable designator will then become the prefix.

Example: N8BJQ operating from Wake Island would sign N8BJQ/KH9 or N8BJQ/NH9. KH6XXX operating from Ohio must use an authorized prefix for the U.S. 8th district (W8, K8, etc.).

Portable designators without numbers will be assigned a zero (Ø) after the second letter of the portable designator to form the prefix. Example: PA/N8BJQ would become PAØ.

All calls without numbers will be assigned a zero (Ø) after the first two letters to form the prefix. Example: XEFTJW would count as XEØ.

Maritime mobile, mobile, /A, /E, /J, /P, or interim licence class identifiers do not count as prefixes. You may not make up your own prefix.

(b) Special event, commemorative, and other unique prefix stations are encouraged to participate. Prefixes must be assigned by the licensing authority of the country of operation.

VIII. Scoring:

1. Single Operator:
   (a) All Band score = total QSO points from all bands multiplied by the number of different prefixes worked (prefixes are counted only once).
   (b) Single band score = total QSO points on the band multiplied by the number of different prefixes worked.
2. Multi Operator: Scoring is the same as Single Operator, All Band.
3. A station may be worked once one each band for QSO point credit. Prefix credit can be taken only once.

IX. QRP/p Section:

Single Operator only. Output power must not exceed 5 watts. You must denote QRP/p on the summary sheet and state the actual maximum output power used for all claimed contacts. Results will be listed in a separate QRP/p section and certificates will be awarded to each top-scoring QRP/p station in the order indicated in Section XI.

X. Low Power Section:

Single Operator only. Output power must not exceed 100 watts. You must indicate low power on the summary sheet and state the actual maximum output power used for all claimed contacts. Results will be listed in a separate low power section and certificates will be awarded to each top-scoring low power station in the order indicated in Section XI.

XI. Awards:

Certificates will be awarded to the highest scoring station in each category listed under Section IV.

1. In every participating country.
2. In each call area of the United States, Canada, Australia, and Asiatic Russia.

All scores will be published. To be eligible for an award, a single operator station must show a minimum of 12 hours of operation and multi-operator stations must show a minimum of 24 hours of operation.

A single band log will be eligible for a single band award only. If a log contains more than one band, it will be judged as an all band entry unless specified otherwise.

In countries or sections where entries justify, second- and third-place awards will be made.

XIII. Club Competition:

A trophy will be awarded each year to the club that has the highest aggregate scores from logs submitted by members. The club must be a local group and not a national organization. Participation is limited to members operating within a local geographical area. (Exception: DXpeditions specially organized for operation in the contest and manned by members).

Indicate your club affiliation on the summary sheet or in the CABRILLO file. To be eligible for an award, a minimum of three logs must be received from a club.

XIV. Log Instructions:

(a) All times must be in GMT. All breaks must be clearly marked (not required for CABRILLO logs). Single operator and multi-single logs must be submitted in chronological order. Multi-multi logs must be submitted chronologically by band.

(b) All sent and received exchanges are to be logged.

(c) Prefix multipliers should be entered only the FIRST TIME they are worked.

(d) Logs must be checked for duplicate contacts, correct QSO points, and prefix multipliers. Duplicate contacts must be clearly marked. Computerized logs must be checked for typing accuracy. Original logs may be requested if further cross-checking is required.

(e) An alpha/numeric check list of claimed PREFIX multipliers must be submitted with your log.

(f) Each entry must be accompanied by a Summary Sheet listing all scoring information, the category of competition, and the entrant's name and mailing address in BLOCK LETTERS. Also submit a signed declaration that all contest rules and regulations for amateur radio in the country of operation have been observed.

(g) Official log and summary sheets are available from CQ. Fax your request to CQ. You may make your own forms as long as all required information is present.

(h) Electronic submission of logs is encouraged for all participants, and is required for all top scoring entrants and all who use a computer to log or prepare the logs. The CABRILLO format is preferred. Please insure that you fill out all of the header information including your club affiliation. If you submit a CABRILLO log, no additional summary sheet is required. For instructions on filling out the CABRILLO header, see the WPX Contest web site. Failure to fill out the header correctly could result in your entry being placed in the wrong category.

If you cannot submit a CABRILLO log, you may submit the ASCII output from most of the popular logging programs such as TR, CT, NA, Writelog and SuperDuper. You

may also submit the *.BIN,*.DAT *.QDF files from CT, TR or NA. If the log is not in CABRILLO format, a separate summary sheet is required. Please name your files with your call and the file type.

Example: N8BJQ submits a CABRILLO file. It should be named N8BJQ.CBR. If N8BJQ chose to submit a non CABRILLO file such as TR's .dat file, he should name the log file N8BJQ.DAT and the summary file should be N8BJQ.SUM. See the WPX web site for more information on email log formats. Logs sent on disk should be on 3.5" disks.

(i) E-mail is the preferred method of log submission.

SSB logs should be sent to: wpxssb@kkn.net

and CW logs should be sent to: wpxcw@kkn.net

Non-CABRILLO internet or disk submissions require a summary sheet as well as the log file. All logs received via e-mail will be confirmed via e-mail. A listing of logs received can be found on the CQ WPX website at: http://home.woh.rr.com/wpx/ and will be updated frequently.

XV. Disqualification:

Violation of amateur radio regulations in the country of the contestant, or the rules of the contest, unsportsmanlike conduct, taking credit for excessive duplicate contacts, unverifiable QSOs or multipliers will be deemed sufficient cause for disqualification. An entrant whose log is deemed by the WPX Contest Committee to contain a large number of discrepancies may be disqualified as a participant operator for a period of one year. If within a five-year period the operator is disqualified a second time, he will be ineligible for any CQ contest awards for three years.

The use of non-amateur means such as telephones, FAX, telegrams, packet, e-mail, etc., to solicit contacts or multipliers during the contest is unsportsmanlike and the entry is subject to disqualification. Self-spotting is grounds for disqualification.

Declaration: Submission of an entry in the CQ WPX Contest implies that you have read and understood the rules of the contest and agree to be bound by them, as well as all rules of your country which pertain to amateur radio. Actions and decisions of the WPX Contest Committee are official and final.

XVI. Deadline:

All entries must be postmarked NO LATER than May 1, 2003, for the SSB section and July 1, 2003, for the CW section. E-mail logs are also subject to these deadlines. Indicate SSB or CW on your envelope. One extension of up to 30 days, for legitimate reasons, may be granted if requested from the contest director. Logs postmarked after the deadline, or extension deadline, if granted, may be listed in the results, but will be ineligible for any awards. Check the WPX website for instructions on mailing WPX logs.

All logs go to:

CQ Magazine,
WPX Contest,
25 Newbridge Road,
HICKSVILLE, NY 11801, USA

Silent Key

Patrick Charles Ryan VK3BIT

28.02.1917-11.10.2002.

Charlie was born in Footscray and then spent most of his childhood in Shepparton. The family moved to O'Heas St in Coburg before the war and here Charlie joined the Coburg Cycling Club. He told me that he used to ride up the Sydney Road to Kilmore three times a week for training.

Enlisting in the army, he was sent to a signals regiment and saw active service in the Islands, where he attained the rank of Sergeant. Maintaining an interest in the R.S.L. he was the Coburg Marshal for the ANZAC Parade each year until 2001 when he became too ill to carry it on.

After returning home he worked for Kraft for some time before joining the Telephone Construction Company as technical officer in charge of installation and maintenance of internal office telephones. He remained with this firm until he retired.

During this period we became good friends and he took me to work in the city for several years. During this time he obtained his Amateur Licence, VK3BIT. He was very well known on the local nets and on the DX bands, where he made numerous friends in USA and Canada keeping some contacts daily, depending on conditions, for many years. Some of his DX contacts visited him, some several times.

After he retired we enjoyed contacts on the 757 net at 0830 daily with Alan VK3JLT, Ian VK3KIS, Reg VK3LS, Don VK3NP, Jack VK3BKN and Len VK3BYE. The last couple of years he was intermittent in attendance due to bouts in hospital. His other passion was GOLF and he was ready to talk that at the drop of a hat.

He was a good friend to me and will be sadly missed by our gang, Claire, his wife, two sons and two daughters as well as the grandchildren.

73 Chas from Allen VK3SM.

Over to you

Re the tribute to Silent Key VK3AGV by VK2SIG in September AR

I found this very interesting reading but the claim attributed to the late Alan Vagg that "An aunt was the last female telegraphist of the Post Office Telegraph Service, retiring in the 1920s" cannot be correct.

In March 1949 the Brisbane Telegraph newspaper (now defunct I believe) printed a photograph of Miss Lily Wiseman pounding the brass in the Brisbane C.T.O. I also recall a middle-aged lady operating Morse in the Hobart Chief Telegraph Office about the middle of 1943.

Post-war of course, there were many female teleprinter and Murray Multiplex operators employed by the P.M.G's Department.

Ray Jonas VK7RQ

Victorian Amateur wins the first Wadda Cup

Vince Henderson, VK7VH
2002 Wadda Cup Contest Manager.

The Central Highlands Amateur Radio Club of Tasmania (CHARCT) held the inaugural 80 m dash for the Wadda Cup on Thursday, 28 November 2002. The winner was Keiran Blyth, VK3BTV. Keiran achieved the highest score during the 30 minutes that the contest was held. The Wadda Cup result shows that the contest was closely fought. Keiran's margin was just 2 contact points.

When Keiran was advised of the official result, he said, "Winning the Wadda Cup Contest was even sweeter, considering this is the first time that it has been held". One of the conditions of winning the contest is that the following year, the winner will be the contest manager and operate the CHART club call sign, VK7CHT. Keiran said " it will be strange operating as VK7CHT portable VK3, but I am looking forward to the challenge of making the 2003 contest a successful event".

CHART President Bob Geeves, VK7KZ, said " I am very pleased that the contest proved to be a popular event and I would like to say thank you to all those that participated in the Wadda Cup". Bob also said, " I was particularly pleased with the number of VK7's that made the effort to give out numbers during the contest".

In an effort to keep the 80 m dash for the Wadda Cup interesting, the contest manager for each event will have the option to fine tune the contest rules. Anyone who has any suggestions about the format of the contest and possible changes can be assured that the contest manager will take any suggestion on board and include a change that may be popular or encourage participation.

Changes for the 2003 Wadda Cup include:

- The time and date for the 2003 Wadda Cup has been changed to Saturday, 21 June 2003, commencing at 1030 UTC (2030 EST). The contest duration will be 60 minutes. The contest date will enable better participation from VK5, VK6 and VK8. The time extension, from 30 minutes to 60 minutes, should encourage more amateurs that are familiar with sprint type contests whilst still being easy enough for first time contesters.
- The score roll call will remain. All stations that entered the 2002 contest thought that the on air roll call, held immediately after the contest to find out the provisional winner, was a great idea.
- VK7CHT will announce the contest start on 3.585 MHz, thereafter; VK7CHT will abide by the contact and move rule as per the 2002 event. This will make it a little harder for participants to earn the extra bonus points for contacting VK7CHT.
- A new section will be included to encourage entry from SWLs. A special certificate will be given to the highest SWL score.
- Full 2003 contest rules will appear in a coming issue of *Amateur Radio* Magazine. Details may also be found on the CHART web site www.vk2ce.com/vk7cht

On a personal note, I would like to pass on my thanks to all amateurs that participated in the 2002 Wadda Cup and to those that sent their logs to me for score checking. The contest grew out of an on air discussion on how we could generate 80 m on air activity. The event was meant to be a fun affair and I think that everyone will agree that it turned out to be just that. I certainly enjoyed being the contest manager for the first Wadda Cup, a job made easy because of the encouragement of many amateurs.

I urge all Australian amateurs to have a go at the 2003 event. Good luck and happy contesting.

73's

Vince Henderson, VK7VH

ar

The 2002 80 m dash for the Wadda Cup results

Call sign	Score		
VK3BTV	20 ***	***	Wadda Cup winner
VK7EK/P	18 **	**	2nd place certificate
VK3MGZ	18 **	*	Inaugural event participant certificate

Call sign	Score	Call sign	Score
VK3FIM	18 **	VK3JSS	14 *
VK7LJ	18 **	VK2CE	14 *
VK7EE	18 **	VK7NDO	13 *
VK7MRY	18 **	VK7LS	10 *
VK7KBE	16 *	VK2LCD	8 *
VK3KMB	15 *	VK5DP	7 *
VK3FH	15 *	VK3COL	5 *

Horizontal Loop For 80 Mx DX

In *QST* for August 2002 John S Belrose VE2CV investigated an 80 metre horizontal loop for DX work using W7EL's EZNEC Pro NEC-4D simulation. He carried out simulations of a loop design by W Bolt DJ4VM and a horizontally polarised loop operating in W8JK mode proposed by Paul Carr N4PC. The difference between these designs is that the feed to the sides of the loop is in phase in the DJ4VM design and the feedline is transposed to give out of phase feed in the manner of an W8JK antenna. The antenna article was also discussed in the Technical Topics Column of Pat Hawker G3VA in Radio and Communications for October 2002.

The two antennas are shown in Fig 6. The loop modelled was a full wave loop, 20 metres on each side, at a height of 15 metres above average ground at 3.75 MHz. The wire used was No 12 copper.

The DJ4VM design will have radiation vertically which will give good local NVIS coverage. It also will work over several bands. The antenna is shown in Fig 8(B).

The W8JK fed design from N4PC is shown in Fig 6(A). This design has a null overhead and the main lobes are at lower angles which should help when looking for DX. The computed radiation pattern is shown in Fig 7.

As well as the overhead null the antenna exhibits some directionality which could also be useful. The system impedance was also computed and is shown in Table 2. The pattern of the antenna is shown in Fig 7.

The antenna can be matched on 80 metres with an L match which uses the antenna feed impedance together with two capacitors to match the antenna to 50 ohms. A 130 pF series capacitor in the antenna feed (a 200pF variable), together with a 2139 pF capacitor across the 50 ohm feed, allows the use of coax feed via a 1:1 current balun. The current balun could be a simple coil of coax. See Fig 8 for the L match. See Fig 9 for a switched feed arrangement allowing coaxial cable feed on 80 metres and open wire feed to an ATU on other bands.

Table 2. System Impedance.

Frequency (MHz)	Impedance (ohms)
75.75	6.8 + j343
2.2	135 - j37
10.14	67 - j12

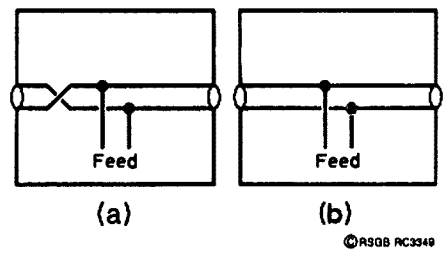


Fig 6(A). Top view of simulated quad loop, N4PC, with transposed phasing lines (W8JK feed). (B) Top view of DJ4VM loop.

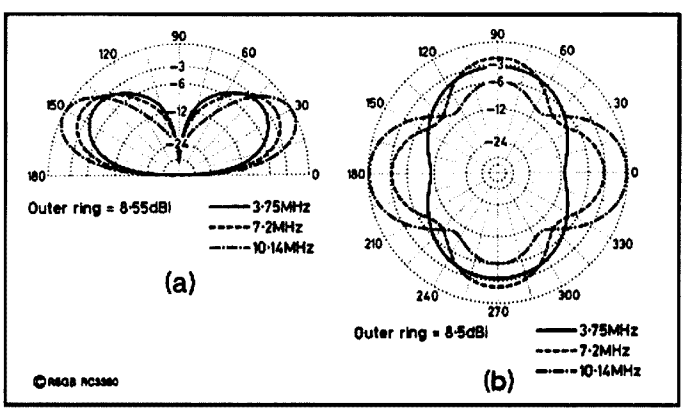


Fig 7. Principal Plane elevation (A) and azimuthal (B) patterns of the antenna at a height of 15 m over average ground.

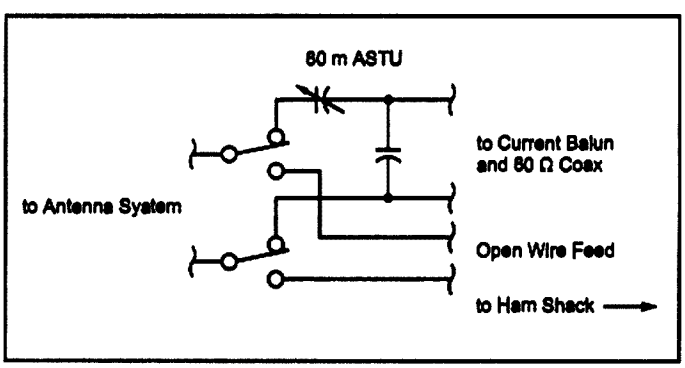


Fig 9. Switching Feed lines between 80 m L match and open wire feed for other bands.

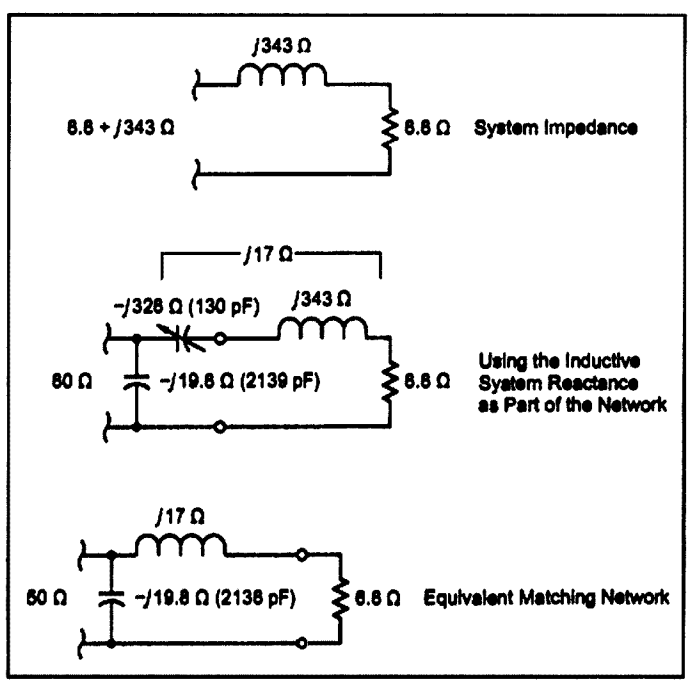


Fig 8. Step Up L Match Design for 80 metres.

HF Predictions

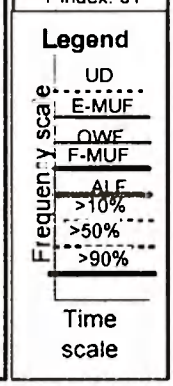
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

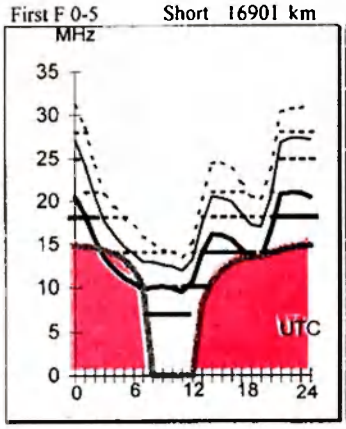
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

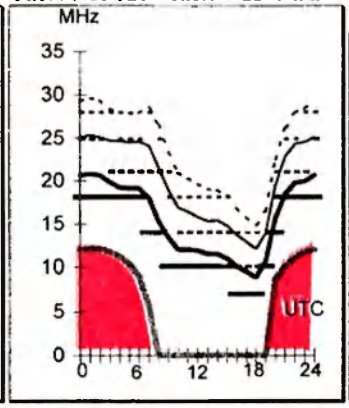
March 2003
T index: 81



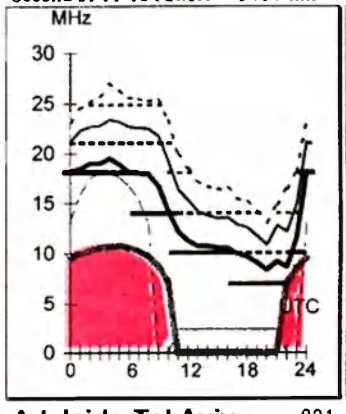
Adelaide-Ottawa 58
First F 0-5 Short 16901 km



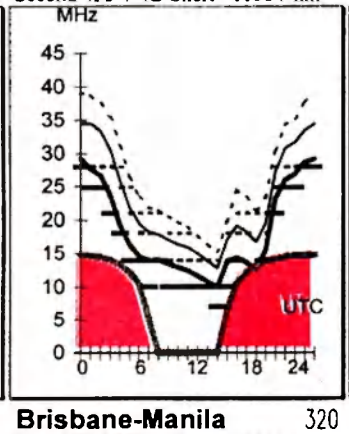
Brisbane-Auckland 123
First F7-10 1E0 Short 2291 km



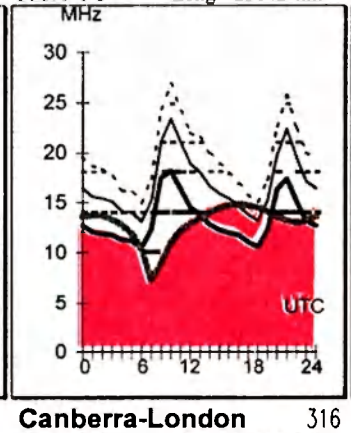
Adelaide-Singapore 311
Second 3F11-16 Short 5414 km



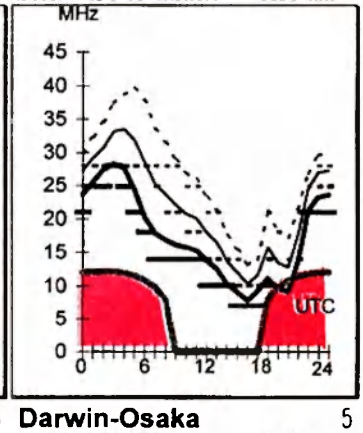
Brisbane-Los Angele 59
Second 4F3-7 4E Short 11564 km



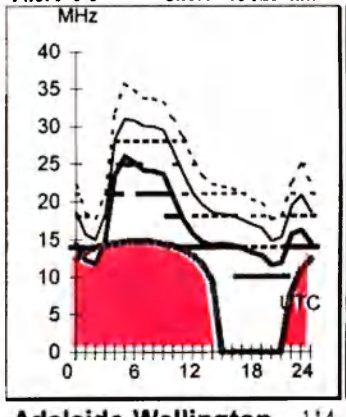
Canberra-London 136
First F 0-5 Long 23042 km



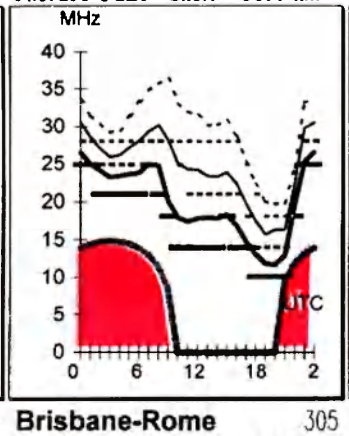
Darwin-Honolulu 65
Second 4F8-15 4I Short 8635 km



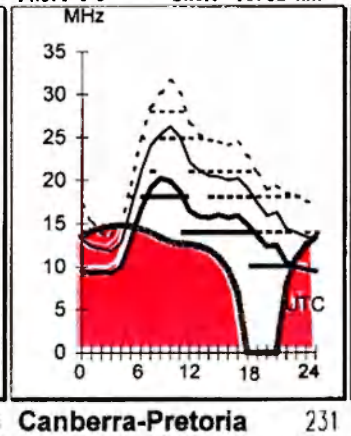
Adelaide-Tel Aviv 291
First F 0-5 Short 13125 km



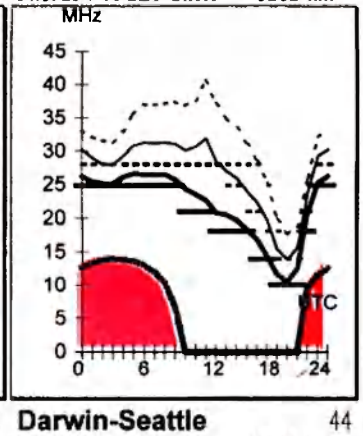
Brisbane-Manila 320
First 2F3-8 2E0 Short 5811 km



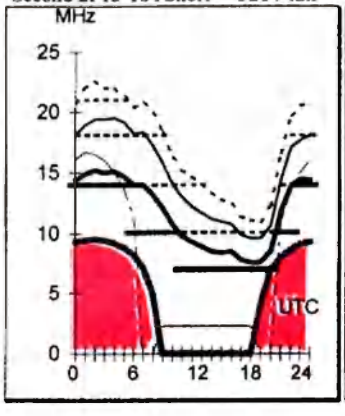
Canberra-London 316
First F 0-5 Short 16982 km



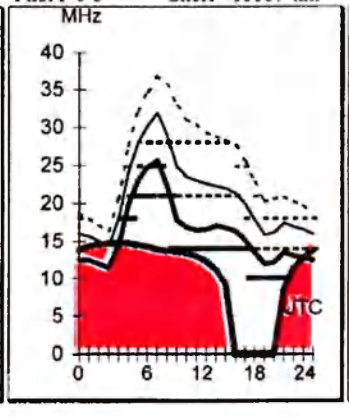
Darwin-Osaka 5
First 2F4-10 2E0 Short 5262 km



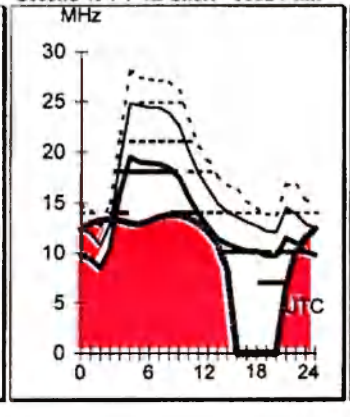
Adelaide-Wellington 114
Second 2F13-18 Short 3214 km



Brisbane-Rome 305
First F 0-5 Short 16107 km



Canberra-Pretoria 231
Second 4F4-7 4E Short 10824 km



Darwin-Seattle 44
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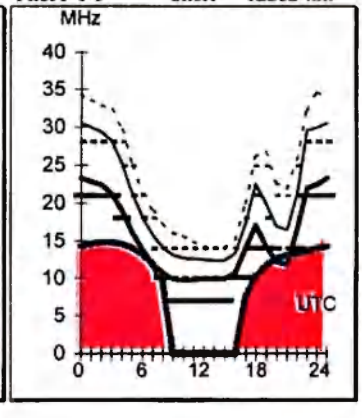
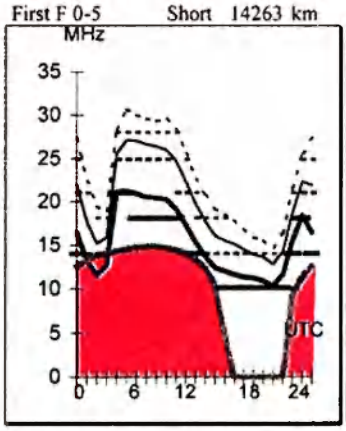
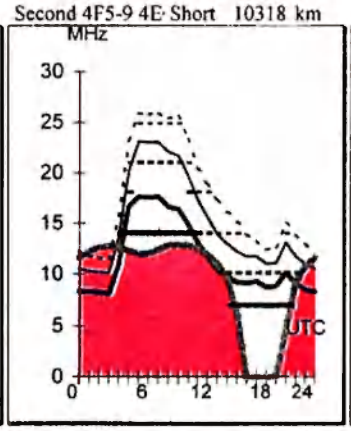


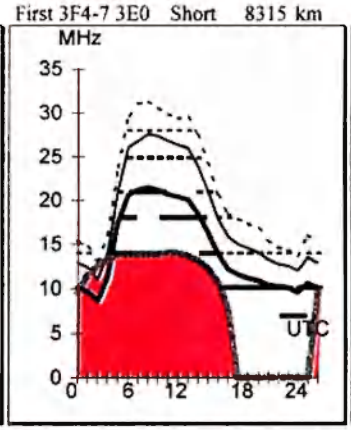
Hobart-Cairo 278
First F 0-5 Short 14263 km



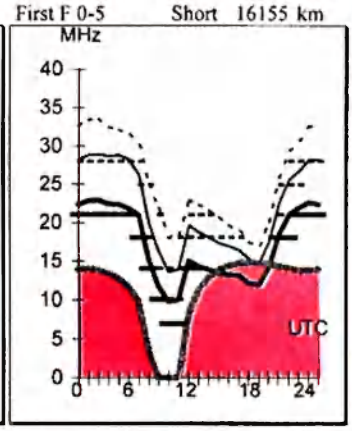
Melbourne-Capetowr 222
Second 4F5-9 4E Short 10318 km



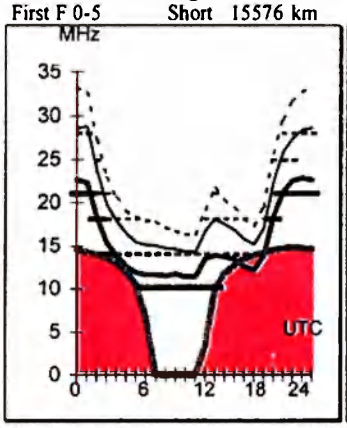
Perth-Johannesburg 148
First 3F4-7 3E0 Short 8315 km



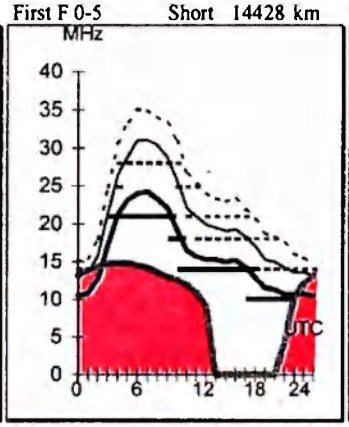
Sydney-Barbados 119
First F 0-5 Short 16155 km



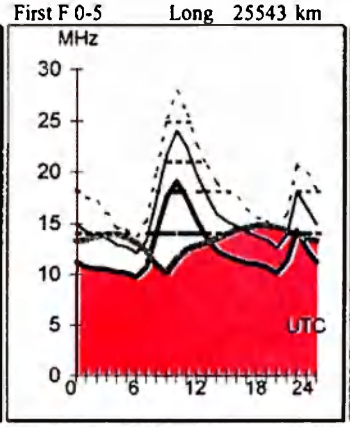
Hobart-Chicago 72
First F 0-5 Short 15576 km



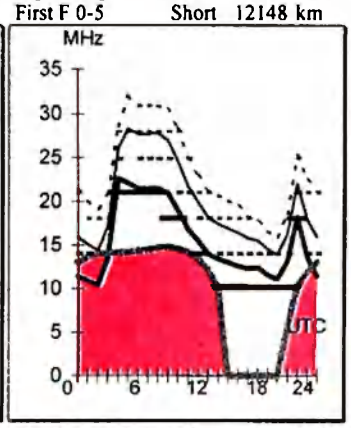
Melbourne-Moscow 316
First F 0-5 Short 14428 km



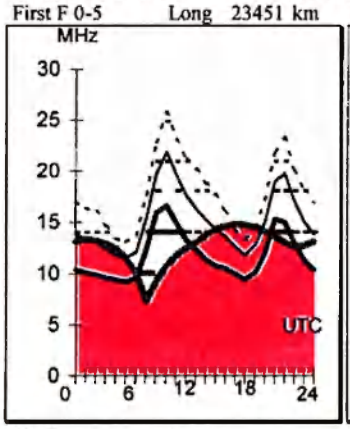
Perth-London 133
First F 0-5 Long 25543 km



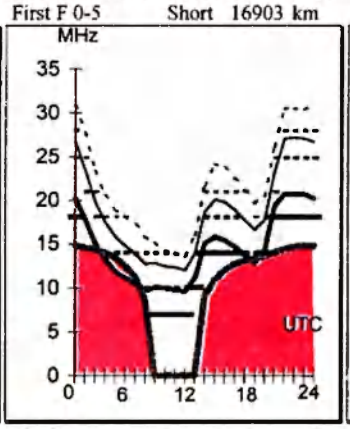
Sydney-Nairobi 255
First F 0-5 Short 12148 km



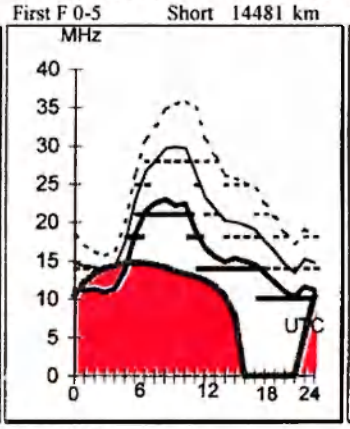
Hobart-Oslo 138
First F 0-5 Long 23451 km



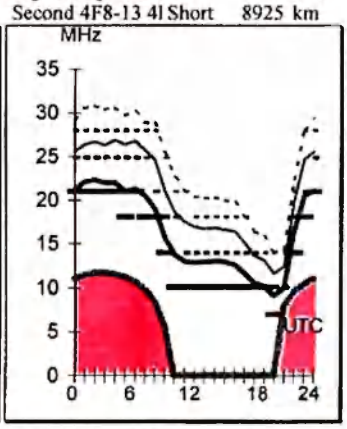
Melbourne-Quebec 60
First F 0-5 Short 16903 km



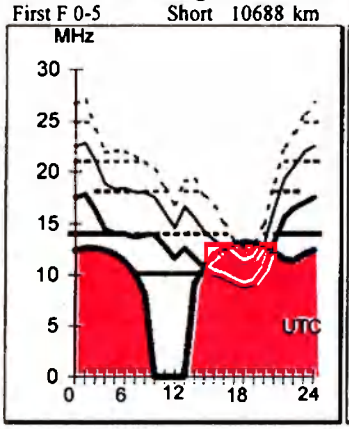
Perth-London 313
First F 0-5 Short 14481 km



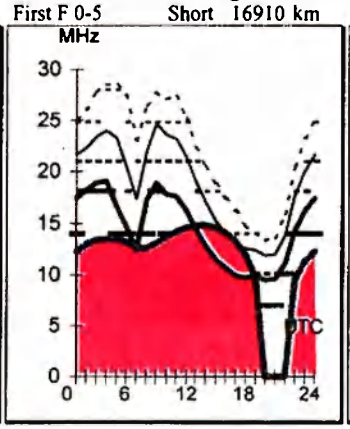
Sydney-Seoul 340
Second 4F8-13 4I Short 8925 km



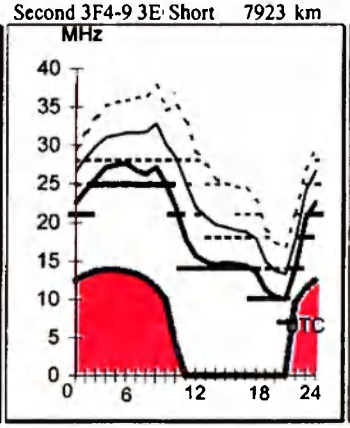
Hobart-Santiago 149
First F 0-5 Short 10688 km



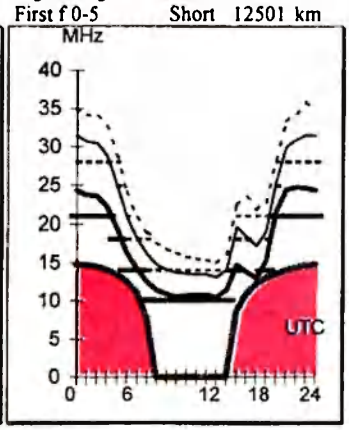
Melbourne-Senegal 219
First F 0-5 Short 16910 km



Perth-Tokyo 20
Second 3F4-9 3E Short 7923 km



Sydney-Vancouver 45
First f 0-5 Short 12501 km



Education Notes

Ron Smith
VK4AGS
Federal Education Officer

Do you object?

One of the educational phenomena which had its heyday in the 1960s and 1970s is 'Objective Testing' or 'Multiple-Choice Exams'.

The use of these continues today in exams for amateur radio qualifications, vocational education, 'on-line' assessment for a range of services, aptitude and IQ tests, standardised tests in the school system, and as part of the assessment systems for schools and institutions.

The big push to the multiple-choice style of exam back then was as a consequence of a belief that such exams were objective, and not subjective. At the time in Australia there was a perception in the community that where other forms of assessment were involved there was scope for bias and inconsistency in marking or correction.

The examinations for amateur radio qualifications were not immune from such allegations.

Another problem was that the longer answers took considerable time and effort to actually do the marking. So a system which could be machine marked or marked by an army of clerks was very attractive. It was perceived that such a system would be more efficient and eliminate the bias in 'examiners'.

One other attraction which was supported by educationalists was that this type of question targets a specific piece of knowledge. There is only one 'right' answer. There are not acceptable alternative answers.

However, it was soon realized that to design a valid multiple-choice examination is a very difficult process. It is easy to write questions but it is very hard to make a full examination accurate and valid. Some educational systems can spend several tens of thousands of dollars to research and validate a single question.

On the other hand, this type of examination is not suitable for the wide range of human skills and abilities that would be expected of an educated person. It is limited in its scope.

In the educational climate of the time it actually was successful. Two main features of the system nearly half a century ago enabled this to occur.

One was that course specifications, syllabi if you like, were mainly a list of topics without much guidance into standards.

The other was that the educational system, not for amateur radio though, was a ranked system where a certain fraction of the candidates will pass and a certain fraction will fail, regardless of the actual scores on the exams.

If this latter feature is put in amateur radio context it was like having a situation where at any one time, say the exams conducted during a month, only a third will pass and two thirds will fail. While this is unacceptable in today's amateur radio community as well as the wider community, such practices still do exist in educational institutions, particularly the bigger and older ones.

In spite of the marking system, there is scope for subjectivity in this style of examination.

Subjectivity exists in the actual design of questions. Subjectivity exists in the selection of questions from databases, in the specification of the allowable question styles (and there are many, but only one is allowed for Australian amateur radio exams), actual question design, in the topic emphasis in exam design, and in the acceptable result for an award (the 'magic' 70% for amateur radio).

One method that is believed by some to reduce the subjectivity of exam design is to use computers to randomly select questions.

This reduces one area of subjectivity but the other factors remain. It introduces as a new idea to be considered, the variability of the degree of difficulty of questions. There are some programs which use some 'difficulty factor' and they are very helpful. However, there is subjectivity in determining the 'difficulty factor'.

Variability can appear in another way that many people miss. That is the relevance in educational context.

When multiple-choice was introduced into Australian amateur radio examinations the educational culture of the day heavily relied on this approach to examinations with a range of questions styles, including the one adopted for Australian amateur radio.

People whose educational experience was before that time, and those whose educational experience is well after that time, have different educational perspectives of multiple-choice examinations. Essentially people over about fifty and younger than about thirty, would find the current style more difficult than those between thirty and fifty.

With the 'multiple-choice' style of examination, the subjectivity and variability are there, but they are usually hidden. However, while educational systems used ranking ideologies and tried to measure the average performance of groups of students, this was not a significant problem.

However, in the latter quarter of the heyday of multiple-choice examinations, interestingly at about the time they were introduced into amateur radio in Australia, a significant change started to appear in the broader educational scene. This was the move away from 'ranking' to 'standards'.

The transition is still going on many years later. This long and continuing development time suggests the standards idea might be good but the implementation is difficult to do well.

The concept of standards started with simple specification of results necessary for a 'pass' and has progressed in the broader educational community to various and detailed specifications in syllabi and criteria documents. In a way the 'competencies' in vocational education and the 'outcomes' appearing in school education are part of this development.

Education is evolutionary, even if at times it is revolutionary. As the educational community improves at

continues next page

Silent Key

William (Bill) Rees Gronow VK3WG

It is with deep sadness we record the passing of WIA Elder Statesman, William (Bill) Rees Gronow VK3WG, on 17 January 2003, aged 94.

Bill served both the Wireless Institute of Australia and the Royal Australian Airforce with distinction, and also made notable contributions to several other organisations.

He had a life-long interest in radio communication starting from the age of 13 when he built a crystal receiver, and later passed a Morse code test to obtain a listening licence in 1921. In 1925 he gained his AOCP.

The east-west Melbourne to Perth air race in 1929 saw him heavily involved in the provision of communications by the WIA for this event. He also helped build and install the radio equipment for the Mackay Central Australia aerial expedition.

Also around that time he had an involvement with Alf Treager VK5AX who developed the pedal wireless, and early tests of it involved radio amateurs throughout Australia.

Bill Gronow was active on a sub-committee of WIA Victoria, which examined the commercial feasibility of a journal for the Institute, and with others brought Amateur Radio magazine into existence in 1933. Held the position of Editor 1936 to January 1941.

His other involvements with WIA Victoria included being part of the organisation of several successful annual exhibitions, which introduced amateur radio to the general public, and the disposals equipment distribution of wartime surplus equipment to WIA members.

When war broke out Bill Gronow organised Morse code training sessions for those wanting this skill in the RAAF. The sessions at the WIA Victoria rooms in Queen Street Melbourne saw the RAAF sending many candidates before the armed services eventually ran their own training.

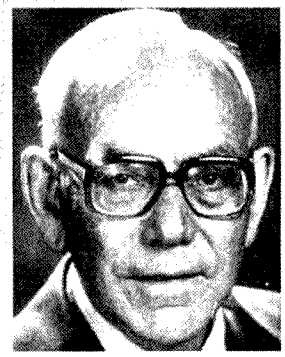
He enlisted in the RAAF in early 1940 and become an officer in the Directorate of Signals involved in engineering design of automotive petrol and diesel engine power supplies, radio transmitting, receiving and direction finding aerial systems.

The final years of service found him in charge of technical development of signals and radar equipment.

On retirement from the RAAF he worked with several firms in the radio field and then set up his own business Zephyr Products that supplied microphones and other products. That company had a regular advertisement in AR magazine for many years.

Apart from amateur radio, Bill Gronow was involved with the Australian Inland mission and the Royal Flying Doctor Service (RFDS). He held a position on the Council of the RFDS and became convenor of its Federal Radio Committee.

He was very a knowledgeable and friendly character, and held the status of "elder statesman" of the WIA, and was an important link for the organisation to its pre-war and immediate post-war years.



I regret to announce the passing of **VK3WG, William Rees (Bill) Gronow** on the 17th January 2003 in his 95th year. Bill was one of the very early amateur enthusiasts, his first licence being issued by the Department of Navy, long before there was a PMG.

Bill was a life member of the WIA and now regrettably joins the ranks of the "silent keys".

David Gronow.
Email : be@babcom.com.au

With his passing ends an era during which many of his peers in the management of the WIA were also business minded and leaders of industry.

In latter years he was President of the Radio Amateurs Old Timers Association and that group's Historian.

A life member of the WIA, he had held position of WIA Victoria President 1935-41, and Federal WIA President in 1939, from 1947 to 1950, and again in 1954.

He is survived by two sons, David and Geoff. Sincere condolences to his family, and the many radio amateurs who had a close relationship with him.

Jim Linton VK3PC LMWIA, President WIA Victoria.

Education Notes — concludes from previous page

specifying, interpreting, utilising, and certifying standards, it has become increasingly difficult in the wider educational community to reliably use multiple-choice style of examinations as the sole method of educational measurement, particularly in a single exam concept.

At this stage I am not arguing for or against any particular examination style. In the lead up article I mentioned that any educational assessment in any format will always have some subjectivity and opinion.

We simply cannot escape this. We simply have to evaluate all the options available and look at the advantages and disadvantages.

When implemented properly, the main advantage of multiple-choice examinations comes after the examinations. Results should be available reasonably quickly.

The main disadvantage is that the wider educational community would raise doubts about the validity of those results.

If you like, it is a balancing act.

Next time, I will look at another assessment scenario.

ar

Over to you

Poor Communications Vocabulary

I have recently been listening again to HF radio after a large number of years absence. I must comment on the poor radio communication technique used by most HF amateur operators, highlighted to me by a number of years operating as a Private Pilot.

An example callsign I heard recently was' washington five america london zanzibar '.

In another case the operator was using his own alphabet, conditions were marginal and I could not interpret what he was trying to communicate due to 'alien word' substitutions.

As in the examples above, many (most?) amateur stations seem to use word alphabetic substitutions of their own manufacture or liking. Typical of these are 'america' 'london' 'zanzibar' 'washington' 'queen' etc etc, the list goes on and on.

The phonetic alphabet was specifically designed to use specific words and intonations to ensure that communications are understood ie *an international agreement* to use certain words to describe certain letters of the alphabet.

Given this, why are amateur operators designing their own individual list ?

Listen to aircraft controllers and pilots and you will not hear the non professional communications behavior demonstrated by many amateur operators.

The correct phonetic alphabet is published in the ARRL Handbook, and the RSGB Handbook plus many other publications, so why don't amateur operators use it? It only makes them sound 'amateur' in the other sense of the word.

Peter Cossins
Victor Kilo Three Bravo Foxtrot Golf

STANDARD NATO PHONETIC ALPHABET

Alpha, Bravo, Charlie, Delta, Echo, Foxtrot, Golf, Hotel, India, Juliet, Kilo, Lima, Mike, November, Oscar, Papa, Quebec, Romeo, Sierra, Tango, Uniform, Victor, Whiskey, X-ray, Yankee, Zulu.

Ed Note: The phonetic alphabet and its intonations is also published in WIA's own callbook!

Re Dinosaurs Dreaming 1

I'm glad that Fred Backer VK2JFB didn't let difficulties get in the way of getting himself an Amateur Radio licence – congratulations Fred, and welcome!

The sooner we stop thinking about the WIA as "it" and "they" and start thinking in terms of "us", and act accordingly, the sooner we'll have a WIA that all amateurs can be happy to join.

In his letter "*Dinosaurs Dreaming*" (AR, Feb 2003), Fred highlights the problems he encountered along the way. Reading between the lines, it would appear that most of the "WIA" problems can be traced to amateur apathy.

Re Lesson #1: *(Don't believe the website)* As a former VK2 and Federal webmaster, I'm well aware of the problem of "link rot", a problem easily solved if clubs take the trouble to inform the WIA promptly when they relocate their web sites. Contrary to popular belief, webmasters are not gifted in telepathy!

Clubs also need active and interested members to keep the clubs alive (vale Shoalhaven), and to ensure that their affiliates (e.g. the WIA) are kept informed of any changes, so that potential new members can be referred on.

Re Lesson #2: *(Don't believe the exam application form)* I don't know why the Exam Service took so long, but I would guess they aren't exactly swimming in volunteers to grade exams. If it's any comfort, Fred, my first licence (in EI land) took 13 MONTHS to arrive!

Likewise, someone at the VK2 office would be better placed to comment on the scheduling conflict.

Re Lesson #3: *(cash management matters more than exams)* I'll bet there were no spare "bodies" to deal with the cash sale. All the same, I agree that as the examinee under stress, you should have received priority at the time.

Re Lesson #4: *(Invigilator training could be better)* Agreed, the equipment should have been tested before use.

Re Lesson #5: *(VK2WIA is not interested in new voting members)* Someone at the office would be better able to comment on this.

In a hobby noted for being top heavy with retirees, one would think that there would be plenty of amateurs who could spare some time to assist in running WIA services. In practice though, the same few "willing workhorses" put in all the effort, while the rest of the amateur community criticises them or ignores them, just happy that "at least somebody is doing something".

If you do not like what is going on in your *voluntary* organization, get in there and *do something* about it!

Now, imagine how different it would be if more amateurs were (to borrow Fred's phrase) "pro-active" to ensure that the WIA serves the needs of the amateur community.

Is the WIA worth keeping alive? Certainly! It's our insurance policy for continued access to the amateur bands. Unfortunately, too many are unwilling to cough up for insurance, unless they see the bushfires rapidly approaching their home, and by then it's too late.

The sooner we stop thinking about the WIA as "it" and "they" and start thinking in terms of "us", and act accordingly, the sooner we'll have a WIA that all amateurs can be happy to join. Remember that the WIA can only be as good as the people who take the trouble to support it.

73 Richard VK2SKY

PS: I'd also like to add my voice to that of Neville VK2YO in the same issue, regarding the Foundation Licence. Dumbing down is not the solution; rather, amateurs need to be active on a local level, to be SEEN enjoying the hobby, and openly welcoming those who show an interest.

For those who haven't noticed yet, hiding in the shack muttering that "the WIA should do something" hasn't provided the results we need.

Got something to say about Amateur Radio? This would be a great spot!

Re Dinosaurs Dreaming 2

My first comment to Fred, VK2JFB is to congratulate him on attaining his licence under such difficult conditions. Even more so because many other people would have given up in exasperation.

My second comment is that if all he says is true, then there is a real problem, which must needs be fixed.

My third comment is, that the most probable reason for all of this is that for any voluntary organization, there may be few people who do the work and many who watch and complain.

The solutions to the problems outlined in Fred's letter are blinking obvious. If you do not like what is going on in your *voluntary* organization, get in there and *do something* about it!

In closing, I agree with Fred's statement "Amateur radio can survive, but it needs an effective, pro-active organization..." but I disagree with "some more relevant organisation might spring up...."

It doesn't need something else springing up; it just needs the dinosaurs replaced by something more modern.

Let's be positive. Get in there and do something. Get your mates together and form a club. Get on the council or volunteer to help. Make it work. Take the WIA forward. There's your challenge.

Over to you.

Chris Flak VK2QV

The Dick Smith Way ?

I must protest most strongly AR's promotion of:"The Dick Smith Way" in their December issue.

I will quote from "CB Australia Vol1 No 4 regarding Dick Smith's submission for "legalised CB" – "The system should be allocated on the 27MHz band with 18 channels corresponding to the US channels 3 through to 20"

In Vol. 1 No 5 "Bill Payne, Dick Smith and friends had something to celebrate with the announcement that CB would be legalised. It seems that Dick Smith hopes for 27MHz CB will be realised"

The channels that were being promoted by Dick Smith for legalised CB were in fact the 11 metre amateur Band. I fail to see how a person who was this instrumental in the loss of an entire HF band could be seen in any way to be a friend of amateur radio.

For this reason, I object to his activities being promoted in AR.

J. Robertson.
(Call Sign and address supplied)

Why amateur radio is dying

I found the letter from Ashley Stephen Geelan in AR October 2002 most refreshing and interesting and I wish him well on his journey of discovery through amateur radio.

I have three comments to make.

1. Ashley, its great you've got onto the WIA but the journey really starts by joining an Amateur Radio Club and I hope there is one near you. After many fruitless years of trying to read the books and do the questions I was advised to join a Club and thanks to the Bayside and Sunshine Coast Clubs I learnt enough to pass my Theory, Regulation and Morse exams and qualify for my full call licence. I wouldn't be VK4KF if it hadn't been for the efforts of Joy, Tom and Ron. So the message is look around and find an active club and seek their help.
2. Amateur radio has many aspects. From your comments you seem to see amateur radio as being something like CB Radio except there are more bands with the sole benefit being intercommunication with a wider range of people. This is a perfectly valid view and I know a number of amateurs who are very happy that they know nothing about the technology or the medium of Radio. To them amateur radio is indeed CB Radio with more bands.

   However I see these views, valid as they are, rather like the blind non-imbiber traveler being given a tour of the wine growing areas of France. Lots of communication and chatting but what a shame that none of the magic of the technology of wine growing, none of the physical achievements of the centuries in building stone upon stone the magnificent castles, villages, homes, none of the beauty of the region will ever be known to our traveler. So Ashley, what I am saying here is that at the outset you need to give hard consideration as to what sort of experience you want in amateur radio? The blind non - imbiber or the one that sees and absorbs some of the magic that is amateur radio.
3. Finally Ashley let me say that amateur radio is not dying any more than the traditional skills of winemaking or any other endeavour where the activity has that element of magic and history about it.

I hope some one gives Ashley the opportunity to consider the range of things that are amateur radio before he decides how far he wants to go along the road of discovery.

Ken Fuller VK4KF

CQ to Teacher Hams

If you're a ham radio operator involved in education, either as a teacher, parent or school volunteer then Matt Ryan (VK2KVE) would like to hear from you.

Matt is setting up a national (and international) list of schools, (primary & secondary), which are able to participate in amateur radio activities. He is looking at ways that amateur radio can service the needs of the various primary and secondary syllabi (the sciences & geography in particular) and would, at this stage, like to make contact with as many schools as possible which have the capability for amateur radio through either a teacher at the school or a local mentor.

The Schools in Space Project, to be undertaken in 2003, is looking at developing strategies to allow students to participate in a variety of radio-astronomy and radio communications activities based around the amateur frequencies.

If you're a teacher operator (or know of one) and would like to get your classes involved in national and international contacts with other students please send an email to mjaryan@hotmail.com. You'll receive a short questionnaire to email back, and you'll be providing your students with a most unique opportunity to become involved with their peers in stimulating, interesting and unique educational activities. Further details about The Schools in Space Project can be found at www.radioastro.net

Matt Ryan VK2KVE,
The Schools in Space Project,

Hamads

FOR SALE ACT

• **Yaesu FT-101B** amateur transceiver with CW filter, mic and handbook. Good working order. $220. Ian, VK1BG, QTHR or Phone 02 6254 0121 or cowan@effect.net.au

• **Kenwood TS-130S** 100 watt HF transceiver with microphone, owner's manual and service manual, $395. Matching **Kenwood PS-30** power supply, $145. All items have had one careful owner/reluctant seller and in good condition with original shipping cartons if required. Contact Ray VK1ZJR on Mobile 0419 601 738 or rroche@msn.com.au or via PO Box 3391, Weston Creek, ACT 2611

FOR SALE NSW

• **Vintage** TV's, radios, dictaphones, tape recorders, test equipment, 2 way radios, B28 receiver, BC221, valve tester, teletype, valves, head phones, service manuals for TVs, radios, amplifiers, etc, sweep marker generator, colour bar generators. Retired technician's lifetime collection. George VK2ZDC QTHR Phone 02 4333 4411, georgeandhelen@tac.com.au

• **Tilt-over 45 ft mast, Icom IC-751 trans, Timewave DSP-9** filter, **Ameriton linear AL-811, Dentron 2kW ATU, Hansen 2kW power meter, Daiwa rotator,** 8 fibreglass spreaders, frame and boom **for 2 el. cubical quad, Azden 2m PCS 4000.** All cheap, VK2BBI QTHR Phone 02 9401 9012

• Deceased Estates Residue and Shack Clearance: **MOTOROLA UHF MOCOM 70** (unmodified) case rusty, complete with mic, cables, head $30. **MOTOROLA UHF SYNTOR** (Unmodified) $25. **RACAL SA535** Vintage counter-timer (predates display chips) $10. **CODAR RQ80 Receiving type ATU** $25. **KATSUMI EK105A Keyer** modified for 9v battery CMOS operation $25. **EINS PHP101** RF peak power meter, not working $10. **HEATHKIT (Daystrom) C3U RC Bridge,** case rusty, GWO $20. **TENKO 2XA** 2 m tcvr xtals, mic $20. **TAIT T500** UHF tcvr 2 channels synth low output $20. **TAIT T500** UHF tcvr 2 channels synth GWO $30. **ARLUNYA PG100E** TV Pattern gen GWO $50. **PHILIPS FM-747** UHF, xtals for 440.050 $30. **PHILIPS FM-828** Lo Band, converted 6 m $20. **YAESU FT-207R** 2m HH, spkr-mic, not working $30. **ADVANCE E2 Sig Gen** 100kHz-100MHz GWO $25. **WILLIS U10** UHF Autophone Xtals for 434.275/439.275 $30. **WILLIS U10** UHF Autophone, unmodified $20. **KYORITSU K142** VTVM battered but GWO $10. **SABTRONICS 2000 DMM** - Early bench type GWO $20. **UNIVERSITY MVA100** Multimeter, battered no probes, good $15. **SWAN WM-1500** SWR/PWR Meter 0-1500 W 3 ranges GWO $50. **MICRONTA 22-198A** DMM GWO $30. **UNGAR 9900** Soldering System GWO no spares $25. **AEA WB1** noise blanker condition unknown $15. **KDC KDG510C** Universal A/C adapter 4.5 - 12v dc $10. **POWER SUPPLY** Bench type Plus/Minus 25 V var 1.5 A GWO $30. **KENWOOD TH-25AT** 2 m HH **BC-10** charger **HMC-2** headset **DC-1** adapter GWO $100. **KYORITSU K200** FET VOM battered, working $10. **ASTOR TV1** Vintage 1950s TV service scope, working, $25. All prices plus post and pack, Serial Numbers available. Transmitting equipment to licenced amateurs only. S Bourke VK2EL QTHR (Ulladulla) Phone 02 4455 5825 sbourke@shoal.net.au

• **Variable capacitors,** wide spaced, 20/300pf. **Modulation transformer** 50 watt. **Transformer 2000 V @ 300 mA.** Filter chokes similar. Qty of Rx valves. **For the historian,** Army, Navy, Airforce year books for WW2. Doug, VK2DDR Phone 02 9949 3426 or dougandmoi@optusnet.com.au

• **BOOK:** Radiotelegraph and Radiotelephone Codes, Prowords and Abbreviations 3rd Edition (236pages), 610 gm, 1.5 lbs, now available. Probably the World's best compilation of this info now available. Q,X,Z Codes, 142 Phonetics, 24 Morse, 8 Needle codes. Myer, Phillips, 10, 11, 12, 13 and other codes. Much other info, abbreviations, procedures and methods. AU$25 + P&P. (in Australia $7.50). Internet: http://www.sarc.org.au/sarc1/phonetic.htm. John Alcorn, VK2JWA, QTHR, Phone +61 - 02-66215217 vk2jwa@sarc.org.au

WANTED NSW

• **Six pin min mike plug** or complete speaker mike, suit Yaesu FT207R. H/held tcvr. VK2ANI Phone 02 6920 4180

• **Bencher paddle** in good condition. Adrian VK2DZF Phone 02 4739 3747 QTHR

• **Operator's Manual for Lab Tech 20 MHz CRO Model 3502C.** Will pay photocopying and postage costs. Richard VK2HSW Phone 02 4295 1227

• **BWD-83S oscilloscope** wanted. Copy circuit diagram power supply. Will meet all costs. Allan VK2AGR QTHR Phone 02 4471 1059, email ahughes@sci.net.au

FOR SALE VIC

• 2 m hand held **Icom IC-2E** ser. 17355, includes **6146 linear amp** and **2 m yagi,** $95. **Kenwood TS-820** transceiver C/W linear amp and spare finals for both, $390. Merv VK3AFO Wodonga QTHR Phone 02 6024 2537

• **Yaesu FT-747GX** HF tcvr, EC, complete with power supply $575. **Alinco DX-70** HF + 6m tcvr as new, complete with power supply $975. **Oskerblock SWR 200,** SWR power meter $35. Alan VK3AMT QTHR Phone 03 9789 9106

• **Realistic DX-160 AX-190** receivers $75 each. **MC desk mike** $60, EC. **University VTVM MVA-6** $60. **Pye Overland FM-706** D/V/12 VHF $30. **Phillips 1676 VHF** $30. All GC. **7 metre triangular tower** $50. **Dynamic desk mikes** (new) $50. Davie VK3ADZ QTHR Phone 03 5241 1200

• **Yaesu VX-1R** micro dual band H/H, comes with a/c charger. Extras include **30 watt linear,** new spare **lithium battery,** filtered **D/C power adaptor,** carry case and external ant. adaptor, all as new, $300. Ted VK3KTF Phone 03 53674439, Mobile 0427 674 439

• **ICOM 746.** 100 W HF transceiver. In full working condition. Input is 240 V. $1200. Also **Hustler multiband vertical** $300. Chris VK3CGB Phone 03 5728 6585 email vk3cgb@hotmail.com.

• **Kenwood transceiver TS-440S** just been fully serviced and checked by Kenwood, has inbuilt auto antenna tuner, serial no. 7120301, hardly ever used, like new in original box with users' manual, $750 ono. Keith VK3HSS, Phone 03 5995 7958, email sadler2@optusnet.com.au

• **ATN. Log Periodic Antenna,** 13-30 MHz 6 element 6 m boom, 2 kW pep. balun. All stainless fittings. $ 350. Jack VK3AAC, vk3aac@amsat.org or Phone 03 5127 3905

• **Kenwood TS-690S** in excellent condition. Very little use, but not fitted with ATU. $1200. Please contact Andy VK3DTO, vk3dto@amsat.org or Mobile 0419 311 203

• New Years Resolution - **Clearance. Icom IC-271H** 2 m high power all mode base, EC $900. **Icom IC-471H** 70 cm high power all mode base, EC $1000. **Icom 70 cm masthead preamp** to suit IC-471H $200. **Icom IC-22S** with manual, not working $40. 5x **Motorola Maxar 80** VHF/UHF mobiles $30 each. 2x **UHF Repeaters Philips PRF1B** (430 - 500 MHz) with heaps of spares and full documentation, currently on 70 cm band $1400/pair. Commercial **VHF Repeater,** needs minor repairs $200. **Tektronix WFM-1480** video waveform monitor, EC $350. **Tektronix 465/100 MHz** oscilloscope & probes, EC $750.

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- Hamads may be submitted by ***email*** or on the ***form on the reverse of your current Amateur Radio address flysheet.*** Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or printed clearly, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Bosch HQ composite video decoder to RGB/YUV $350. **Compaq Deskpro 4100 486DX4/100** PC with 16 Mb RAM $100. (No keyboards, mice or monitors). **APC Smart-UPS 400** uninterruptable power supply & manual $150. **Timewave DSP-69+** Audio digital signal processor, as new $300. Pair **12" 2 way 100 watt** speaker boxes, VGC. 2x **Audio phase scopes**, CRT type, mains powered, balanced audio inputs $100 each. All offers considered! Paul VK3KHZ (ex VK3VRD/VK3YWD) QTHR Phone 0412 302 939

• **Deceased Estate – Yaesu FT-101Z** with WARC bands, complete, EC, $300, **Nally** tower with **TH3JR Antenna** and **Ham IV** rotator $750, buyer to remove, **Johnson Viking** CB converted to 10m, $50, **KDK-2016A** 2m FM $100, Many old radio books – offer. Phone 03 9803 8794

WANTED VIC

• **Short wave receiver, portable** such as Sangean etc. Must have SSB. VK3GMM, Phone 03 5985 2671

• **Operating manual** and tuning manual for **Swan Solid State SS-200.** Any cost paid for by VK3KMA. Mike Mobile 0438 721 337 or Phone 03 9721 1335

• **Service or maintenance manual** for **Marconi model TF-2002B** signal generator. All reasonable costs refunded. Drew VK3XU Phone 03 9722 1620

• **RT-85** for 2m use. Will swap **Philips FM-900** on 2m or monetary change. Michael VK3MSA QTHR. Phone 03 9808 9039, email mickd@alphlink.com.au

• Wanted - any amateur who has experimented with, or attempted to receive, the **1200 MHz world band satellite transmissions.** Please contact Andy VK3DTO, email vk3dto@amsat.org or Phone 03 5382 1759

FOR SALE QLD

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The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

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Broadcast schedules

All frequencies MHz. All times are local.

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga. VK1 Home Page *http://www.vk1.wia.ampr.org*

Annual Membership Fees. Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.

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VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

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Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

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VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

Generator and fuel can

The tent operating position. Jack VK3WWW

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Volume 71 No 4

Amateur Radio

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Alan Gibbs VK6PG on

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20–40 metre EH antennas

– how to construct a *small but efficient Antenna* with *PVC Plumbing tube* and *discarded fruit cans*

Jim Linton VK3PC *and* Roger Harrison VK2ZRH *examine*

Amateur radio and the challenge of change

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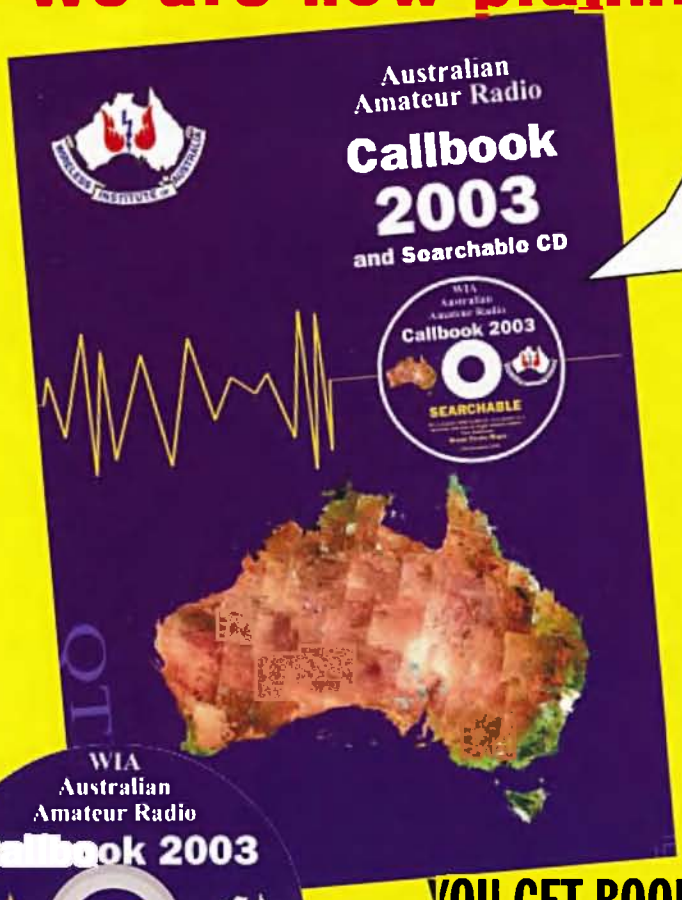

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Our Cover this month

Alan Gibbs VK6PG has been writing his 'Hamshack Computers' column for Amateur Radio for two years now. During this time he has collected a devoted following of readers who eagerly await each issue. Alan writes a special column this month on Computer Security.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

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Photostat copies

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Editorial Comment

Colwyn Low VK5UE

Using opportunities

Well another month has passed and I share my thoughts with you again. I have had some pleasing comments on the March issue of Amateur Radio magazine. I only hope we can keep up a standard close to it in the future.

I also was chided for the size of the Contest information. However not every contest interested amateur is on the net and so the Australian contest rules will continue to be placed in full.

I did get out on the John Moyle Field Day. Had a slow start but did get the Beetle packed by 2 pm and drove over 50 km to Long Plains. It would have been better to work back into Adelaide, if the site had been further to the west at Dublin. I will know better next time. However once committed I persevered and at teatime moved back towards Adelaide, to Para Wirra Recreation Park. This then became a fun evening with four stations operating in close proximity. This way we could use the Park facilities and sleep out of the weather. One interesting aside. When you work a station on 2 m at Warooka, as I did from Long Plains, and the distance on the map from location dot to location dot is 147 km. You realise you were a kilometre or so to the east and he could have been a kilometre or so to the west then maybe you should be getting 30 points not 20. However you did not have the exact location you operated from and you did not query the other station closely enough about his location so you've lost 10 points !!!!! Bugger. Next time come properly prepared.

The WIA Federal Convention is running April 4th, 5th and 6th April in the Glenelg Convention Centre. One of the topics for discussion is future Amateur Radio licencing. There are several articles on this topic in this month's issue. Having read through these more than once chocking the English etc, as Editors have to do, I came to the realisation that we are talking about Amateur radio in a modern IT world where long distance communication and local contact communications are beyond the wildest dreams of most of us amateurs over 60 when we sat for our licences. It is no wonder we need a modern exam system. We also need to accept that most of us use commercial equipment. We would not as one letter put it "point a soldering iron at it". In the light of today's technology and the easily realised developments in the next few years let us do some lateral thinking and get the ACA onside for a evolutionary change in Amateur Radio operation, while still maintaining the principles on community support, self training and training a pool of people with a wide knowledge of communications technology with a component of radio linking.

My final shot is if you have a licence use the opportunities it provides and if you do not then get one. There are several readily available courses that can get you there. Just by the way 5 words per minute morse can just about be deciphered with a crib sheet.

PLAN AHEAD

BARCFest

Brisane Amateur Radio Club Fest (BARCFEST) is on again this year, on 10th May, at the Holland Park Bowls Club

49 Abbotsleigh Street, Holland Park, Qld

Trans Tasman Contest 80 m

Phone: 24 May
CW: 7th June

Ernie Hocking VK1LK
Email: president@wia.org.au

Federal AGM around the corner

The time of the Federal AGM is rapidly approaching. The AGM is the main forum at which the WIA divisions get together to review the past year, and set policy for the year ahead. This year there are a number of motions being debated:

- A proposal to adopt a UK style foundation licence.
- A motion addressing LCD changes resulting from WRC 2003
- Planning for the WIA 100th anniversary in 2010.

If you have a view on the above subjects I would urge you to make contact with your Divisional Federal councillor in order to make your views known. This also applies throughout the year. If you have a view on any subject then please drop Colwyn, our editor, a line. Your views are important, please let us know what they are.

Federal Coordinators

One of the other activities that we perform at the AGM is to receive reports from the various Federal coordinators. This year we have had a number of coordinators stand down from often many years of outstanding service to amateur radio. I would like to express my thanks to all of you who have provided assistance throughout the last year. Without your assistance much of the excellent work performed would not have been achieved. However we always need more volunteers. If you have the time to devote to something that interests you such as: contesting, publishing, the history of amateur radio, or for that matter any aspect of amateur radio please talk to you local division or directly to me and I will put you in contact with the people you need to speak to.

More threats to the 70cm band

Gilbert Hughes and I met with the ACA in early March 2003 to be briefed on the future spectrum requirements for emergency service communications in Victoria. I know that many of you will be upset that government is seeking to take away yet more amateur radio spectrum and allocate it to other services. There are though some factors that we should consider when looking at these proposals:

- Here in Australia we take for granted a high level of access to emergency services. Recent experience of bush fires on the East coast shows us just how dependent we all are on such services in order for us to go about our daily lives in safety.
- Current evidence indicates that we are a declining group. Levels of licensing of amateurs in Australia is falling and a direct consequence of this is a reduction of any claims that we have for access to spectrum on the basis of large number of amateur operators needing access to this spectrum.
- Surveys conducted of the spectrum being sought indicate a very low level of utilisation in the amateur segments.

The ACA liaison committee are in active negotiation with the ACA to ensure that any changes to the amateur spectrum allocation are handled in a way to minimise the impact upon current amateur operations (such as for example repeater linking in the 70cm band). In addition we have proposed that we examine ways that the current LCD can be changed to permit alternate solutions to the issues that such spectrum reallocation would entail. I will be providing more information on all aspects of these proposals as soon as they become available.

The Foundation Licence opportunity

The subject of the foundation licence is one that I believe is extremely important to the future of amateur radio. As noted above amateur numbers are declining. Recently I was lucky to be able to attend a presentation by Bob Whelan, G3PJT, about the British experience on the introduction of such a licence scheme. One of the major drivers behind the British initiative was the observation that if current trends continued, that within a period of 5 years the intake of new members to the amateur radio community would drop off to zero. You do not need to be a rocket scientist to recognise that we face a similar threat to the hobby here in Australia and then work out what this means for the future of the hobby. Some of the things that strike me as important to the debate are:

- We all expect that WRC 2003 will formally remove the need to have knowledge of Morse as a prerequisite for gaining an amateur licence.
- We all know that today's society has different expectation in terms of education and access to technology to many of us old timers.
- We all know that the future of the hobby is at threat due to declining numbers
- We all know that there is increased pressure on the amateur radio spectrum
- We all know that we need to do something to "fix" this situation.

I believe that the foundation licence is one way to do this. Experience in the UK has shown that the new entrants are all very keen to progress through the system – in fact many clubs are struggling to teach the new foundation licence applicants at the same time as the next stage licence courses (and self learning is of course at the heart of the hobby). Experience has also shown that the newly licenced operators do comply with the restrictions on power and equipment that have been mandated. I would urge you all to give some serious thought to the issue and also to make you views heard. It may be the last chance that we have to ensure the future of the hobby that we all hold so dear.

73s and I look forward to hearing you comments, either directly or via the divisions. All the best in amateur radio

ar

Ham Shack Computers

Part 24

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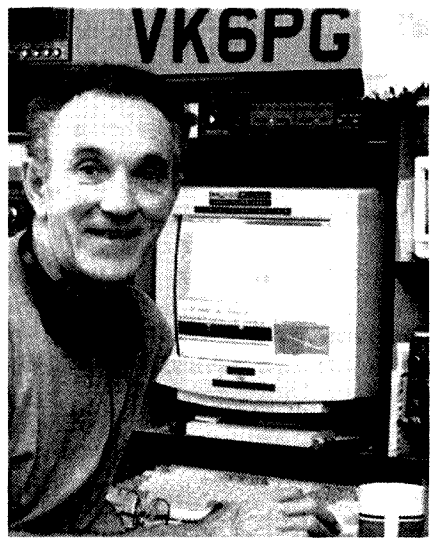
Computer Security

It won't happen to me! Think again

Hardly a day passes without the writer finding out that someone has been 'hacked', is receiving e-mail spam, suffers from virus attacks, or that their computer has totally crashed. Computer Security has become the 'buzzword' around the on-line world of digital data exchange. Indeed, this topic is huge and plagues most users who connect to the Internet or who exchange disks with other computer users. Once your computer is connected to the Internet, the gate is wide open to attacks from anyone who can 'see' that your machine is on-line. This article will probably be the most important in the Ham Shack Computers series, irrespective of readers' personal skills, software choices or their assertiveness in trying to protect their own system(s).



Alan Gibbs, VK6PG

Computer Hacking

Every year, billions of dollars are spent by government and corporate industries on attempting to protect their privacy, and keep others from 'peeping' into their networks and 'stealing' confidential information. In addition, millions of e-mail messages pass via the Internet every second each announcing crucial information for others to see and copy.

No one is immune from invasive attacks by undesirables who take amazing steps to find information about you and the ways that you are using your computer. Frightening indeed!

Banks, corporate businesses, security authorities, government agencies and even military satellite networks have all been 'hacked' to the detriment of their users. Today, an effective way to bring down world economic stability is to 'attack' the very network that strives to stabilise and promote international dialogue, trade and information exchange.

Spreading computer viruses is just one method of doing this - devastating continents and world networks costing billions to restore. It's clear that most of the world's espionage is being conducted on-line. Some might be legitimate, and in the best interests of the agency. However, many are clandestine and ruthless in gathering confidential information for nefarious reasons.

It won't happen to me!

Think again. Just because you are a humble Radio Amateur (RA) who is enjoying the delights of the on-line world, you too CAN, and WILL be caught every time you log onto the Internet to send a short message or just surf around looking for goodies.

Every time you use a radio, others can hear you, read your messages and gather information about you. Even your own call sign tells others where you are, your name, your postal address, email information and other data. The on-line world does the same but much deeper by finding out about your computer, the hardware you use, detailed information about your software, your user name, passwords and even your 'plastic card' numbers, your bank account, and other confidential information. That's just for starters!

What's the solution?

If there were a total solution, everyone would be using it! However, there are steps that can be taken to minimise the problems.. NEVER give out your 'plastic card' account or PIN number by purchasing merchandise on-line, ALWAYS check with your bank about their security policy. If you do, or check your bank balance on-line, install appropriate software to minimise the possibility of hacking, receiving viruses and spam mail, and other techniques used by the dreaded invasion seeking communities.

If you can't be bothered about all this stuff - expect the worst and be prepared to live with it! Stay offline.

Most viruses are spread by unsuspecting e-mail senders who might be friends or members of your local club or society. However, many are sent to you from others who have 'pinched' your e-mail address from news groups, popular e-mail sites like HotMail, Yahoo, FreeServe etc. The first step is to quickly dump these sites and use a proper ISP based e-mail service which is less likely to 'on sell' its subscriber information data bases.

DO NOT use popular e-mail programs linked to an Internet browser that require messages to be composed, sent and received whilst on-line. The process gobbles up download times, solicits 'drop down advertising', opens up unwanted windows, and broadcasts your personal information worldwide.

MailWasher

Most computer users connect to a local Internet Service Provider (ISP) and download mail without bothering to look seriously to see if ALL the messages are legitimate. WRONG! The right method is to gather a detailed list of messages held by the ISP mail server BEFORE you choose to accept them and download to your computer. Extra software is needed on your computer to 'snoop' at the messages before they damage your computer. MailWasher (2) does this very effectively, and gives you the choice to accept, delete or bounce messages back to the sender. The writer has found that if a persistent spam sender - receives back their own unsolicited spam mail, then they very soon have their own mail boxes full of their own rubbish and stop the practice. Once you have cleared the junk mail from the ISP, then - and only then - you are clear to download and enjoy your own legitimate mail.

MailWasher offers warnings if a virus is possibly attached to a message, with added notifications about potential spam messages to help you make choices. Just like a well-known rubbish trucking company in Perth called Buckley's. Their motto is "... You've got Buckley's - satisfaction guaranteed or double your rubbish back..."

Every reader will want to download and install MailWasher. It's freeware in the unregistered version and delightfully easy to install and use everyday. Just open a new folder in C:\Program Files\MailWasher and place the downloaded file to the new folder - then 'click' to execute and install. Once installed, look through all the Options in the Tools menu and insert your own data about your ISP (POP mail account details etc), your default mail program, friends e-mail addresses and other data. For advanced users, DNS identities of known spam perpetrators can also be added. The options will change once you feel comfortable with the program, and gained experience.

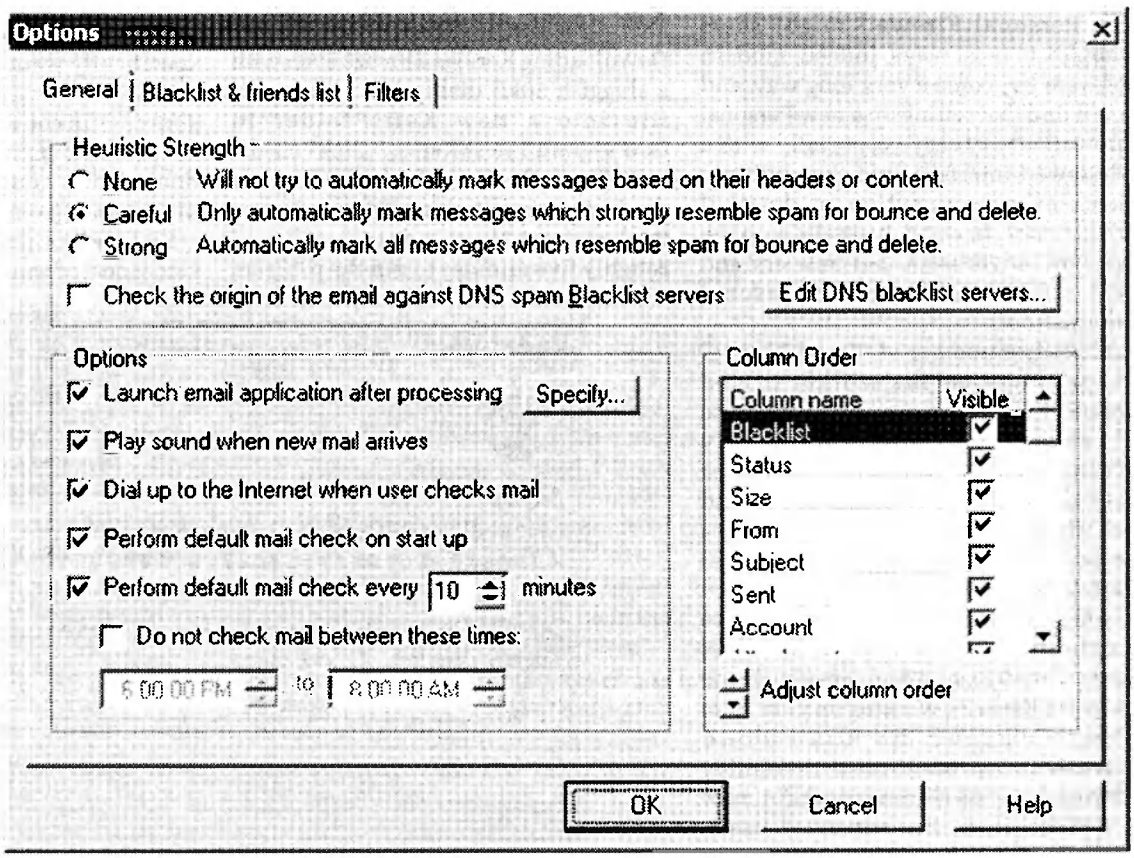
Next time you connect on-line and check for email, open MailWasher first. A 'connect' menu appears on top of the MailWasher window. 'Click' to connect and your modem will do all the work for you. Once the ISP acknowledges the connection, MailWasher takes control and 'peeps' into your ISP POP mailbox listing all the messages on the MailWasher screen for you to scrutinise. You can choose to delete, bounce or black list messages. Once done, select Process Mail and MailWasher finishes the job AND opens your e-mail program to download your WANTED e-mail. The process is quick and simple, costs nothing, and traps a good 95% of spam messages with viruses attached! Excellent value indeed!

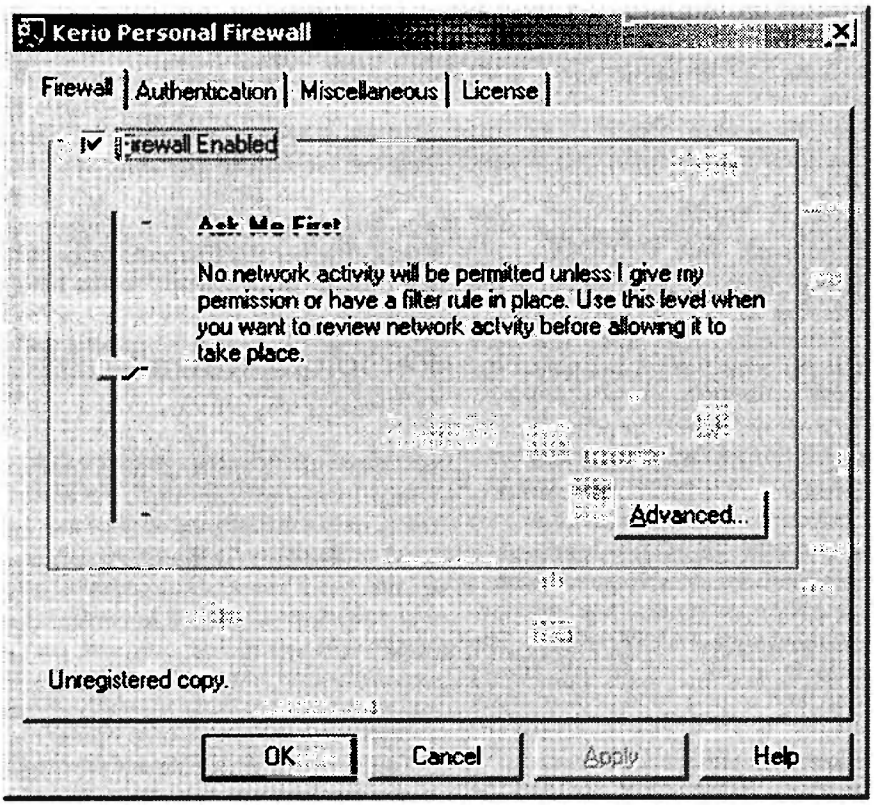
The above image shows some of the MailWasher options that can be selected. Work steadily through all the settings until a reasonable level of protection has been achieved. Remember, you can change the settings at any time as your experience expands. MailWasher was evaluated for three months to determine suitability, stability on all Windows platforms through Win 95/98-XP, and ease of use before any decision was made and this article was considered. There are many other filtering programs, some at a very high retail price, but MailWasher beats the opposition hands down - and it's FREE!

Personal Firewall

MailWasher was your first assertive step in fighting viruses, spam and hackers hell bent on the destruction of your AR computing environment. However, that's only a small part of your armour used to defend your honour. Installing a Personal Firewall is the second step after you've settled down with MailWasher.

A Personal Firewall (PF) (3) is a software program that can totally screen everything between your computer and the outside world. Any device that needs to connect to you, or from your computer to any outside device needs your permission to 'connect'. All this might sound daunting to the new computer user.





However, a Personal Firewall has become a 'must have' package these days. If you choose not to implement this - be prepared for some very nasty activities. You have BEEN WARNED. The Personal Firewall might seem complex to most users. Indeed, modern software has come a very long way, and you'll find that setting up a new Personal Firewall is very easy - especially with a windowed interface, and the ability to check every connection in detail if doubts exist. In short, firewalls stop the 'hackers', advertisers, 'net-trawlers' and others from stealing your personal information.

There is a number of 'Brand Named' PF products on the market priced around the $130 range. Many of these have been surveyed and widely evaluated by popular computer magazines. Most are marginal at best and not worth your hard-earned cash as a protective investment. Kerio Personal Firewall (3) outshines most commercial products on the market, and is FREE to single, non-commercial users. Just because it's free, never underestimate the power of Kerio PF working on your Ham Shack Computer. It's a full-blown commercial product and extremely powerful, yet easy to maintain by new computer users. For advanced users, Kerio PF has all the 'anti-snooping tools' needed to detect and kill unwanted 'snooping' - especially the common 'snoops' from very well known software vendors.

Kerio PF in Action

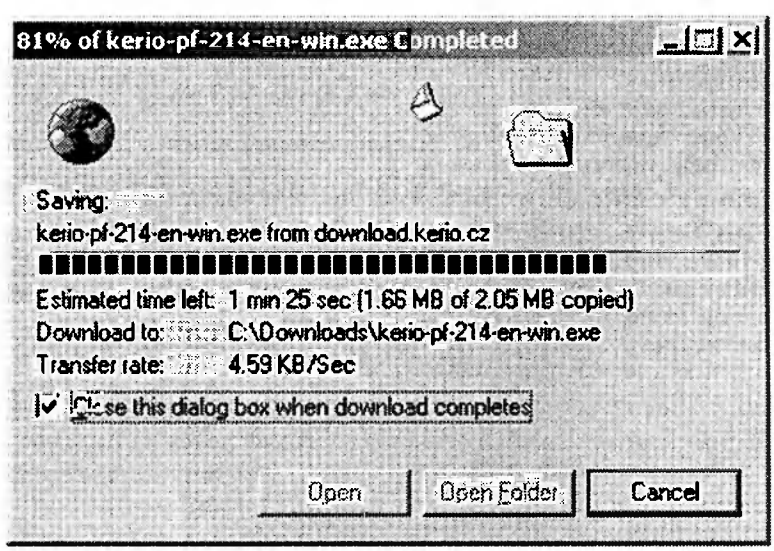
Downloading Kerio is a breeze even with a sluggish 56kB dialup link. Dump the file into a new Kerio folder in C:\Program Files\Kerio. 'Click' on the new file in the Kerio folder and follow the instructions to install the software. It takes about 15 seconds to install, and roughly five minutes to run the program and insert the required personal settings. Just like MailWasher, Kerio will work like a charm first time on all Windows platforms.

Now comes the fun part. Connect to the Net via the 'connect menu' using MailWasher. There will be several notices that appear in the middle of your screen. The first will be from your ISP asking for your permission to connect. Tick the box and push the Permit button. The connection is made to the ISP. Another notice will ask permission for MailWasher to connect, then another to collect mail headers, and yet another when you finally open your e-mail program ... and so on. Take heart because giving permission for each and every request made by your computer software to connect with a desired location, builds a profile log within Kerio of your wanted connects. This is quite normal, so work carefully through each request until each and every application has been permitted.

Although this looks complex, it makes good sense to build a Kerio permission profile. Once done you can relax and enjoy the Internet goodies. However, other permission requests will appear. Examples being Norton Anti-Virus 2003 live updates, browser cookie requests, FTP sites, EchoLink connects and other interactive activities to which you specifically want to use.

Other notifications will appear from sources unknown to you, and seem suspicious. 'Click' the NO option if doubt exists and Kerio will block data interchange from now onwards.

Kerio works in the background for you. Once most of your favourite permissions



have been granted, and the undesirables have been blocked, watch the Kerio activity indicated by a red/green arrow spawning across the blue Kerio shield on the right of your taskbar. It's clobbering the 'nasties' and permitting all the 'goodies', AND tells you when someone - or something - is trying to hack into your system. Nice stuff, very satisfying and the software was FREE. Readers won't find a better deal.

Next, try 'right clicking' on the blue Kerio shield and select Firewall Status, and watch Kerio in action. Try the same procedure to open Kerio Administration and adjust the level of protection, and 'tweak' the settings if required.

The writer has often mentioned in this series that there are three levels of AR computer users: Those who...

1. MAKE it happen.
2. WATCH it happening.
3. WONDER what's happened.

You have now graduated level 1, so start feeling good about yourself from now onwards!

Advanced Kerio Settings

For our power readers, open the Kerio icon again and select Kerio Administration then 'click' Advanced. A list of permissions can be studied in detail, and edited to change specific permissions, or delete a site having changed your mind. Some advanced knowledge of network protocol is needed to hack this file. However, if you look carefully, you'll see the processes involved when TCP/IP communicate requests happen digitally on-line. It all makes sense with a little practice. Kerio also writes a logging file that shows every contact request, where it's come from, and the IP address of each site.

The results are, or can be staggering to see who's snooping into your computer. Kerio also logs the blocked requests so you can see who was blocked and why you blocked it. Advanced user can ping the offending site and find out who they are! Nasties stuff because you are now thinking like a hacker in your quest to protect your own interests. But that's what Computer Security is all about in today's uncertain world.

AntiVirus Protection

Now we have got to the last of the essential three stages of protection. This topic was well covered in the April 2002 edition of Amateur Radio Magazine. If you missed it, dig it out and read it very carefully again - or ask for another copy - FREE via e-mail (1).

There are other AntiVirus software packages available on-line that are free to personal users like AVG (7). However, be cautious because there are numerous reports that AVG sometimes 'leaks' sending nasty viruses that can clobber your system. Be wise and spend some pocket money on the latest and well-respected Norton AntiVirus 2003 edition (4) (Less than A$100).

Summary

The writer regrets that this edition of Ham Shack Computers has not been more comprehensive. However, space is limited in this publication but the essentials have been covered - enough for assertive RA's to get to grips with the right tools. Don't fiddle around, do what has been suggested, especially RA's, clubs, societies and business users alike. Remember that you won't be spreading spam and viruses from your newly configured system, AND the AR community will love you for it.

Ham Tip No. 24.

In your spare time, hack the Kerio settings log file and note just who is trying to hack you!

Ham Shack Computers, Part 25 next month- Fed up with the cost of Office software? Save big money with a FREE 'OpenOffice.org Review' package.

(1) Ham Shack Computers Web:
www2.tpg.com.au/users/vk6pg

(2) MailWasher software at:
www.mailwasher.net

(3) Kerio Personal Firewall at:
www.kerio.com

(4) Norton Anti Virus 2003 at:
www.semantec.com

(5) "Internet Shields Up!" In. Australian Personal Computer Magazine. January 2003 p.42.

(6) "Why Holiday Hacking is Child's Play" In. Australian Personal Computer Magazine. December 2002. P.18.

(7) AVG Anti Virus Software at:
www.grisoft.com

73s de Alan, VK6PG

ar

420-430 MHz band Victoria

Summary of Meeting held Tuesday 4 March

1. Ernie Hocking and Gilbert Hughes attended an ACA chaired meeting in Canberra with the Department of Defence and Victoria Government representative to be briefed on the proposal for a Victoria wide voice and data emergency services network in a significant portion of the 420 – 430 MHz band.
2. Due to this being the very early stages of the project, many of the details are presently undefined and subject to negotiation at this time.
3. The essence of the proposal is to secure spectrum for the following:
   - A communications system consisting of mobile voice and data system to support Police, Ambulance, Metro Fire Brigade, SES and CFA in support of Victorian Emergency Services.
   - A Victoria wide deployment (initial deployment will be in the greater Melbourne metro area)
   - The proposal will require access to significant portions of the 403-430 MHz band and will affect amateurs and other users of this spectrum.
   - The system needs to be operational by the first quarter of 2005, in time for the 2006 Commonwealth Games.
4. More detailed discussion of the impact on the amateur radio service is planned for the April WIA Federal Convention

Further information on developments will be provided on the WIA web site and AR as soon as it becomes available.

Ernest Hocking, WIA Federal President
Gilbert Hughes, WIA/ACA Liaison Committee
3 March 2003

How to construct a very small but efficient Antenna with PVC Plumbing tube and discarded fruit cans.

20–40 metre EH antennas

By Lloyd Butler VK5BR

There has been some revolutionary thinking on how Electromagnetic Waves can be generated. One outcome of that thinking in small efficient antennas is the tubular dipole which has been named the EH antenna. Here we describe typical antenna assemblies made up for 20 and 40 metres.

40 metre Dipole

An excellent way to start on the EH Antenna would be to just read the material by Ted Hart (W5QJR) on web site http://www.eh-antenna.com. However not everybody has access to the Internet and I will give a very short precis of how Ted introduces his subject.

It is some 120 years since Heinrich Hertz discovered that radio waves were periodic. For the last century our concept of the basic antenna has been a resonant half wave with other antennas being subsets of the basic Hertzian antenna.

Also about 120 years ago John Henry Poynton discovered the components of radiation which are in brief:

(1) There is an Electric (E) field and a Magnetic (H) field which must occur in the same space, be at right angles to each other and be in time phase.

(2) The relationship between the E field in volts/metre and the H field in amp-turns/metre is equal to 377 ohms, the impedance of space.

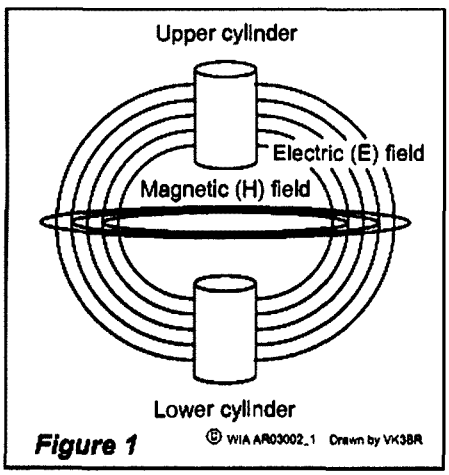


Fig 1. Fields generated between the two cylinders

To enable radiation, the E and H fields must be developed which satisfy these requirements. We learn that the E field in a resonant Hertzian half wave antenna is developed from the ends of the antenna where the voltage is greatest and the H field is developed essentially in the centre where the current is greatest. Apparently the correct relationships between the E and H fields don't occur until around a third of a wavelength distance from the antenna where the fields are becoming weaker. So perhaps there is a better way!

Just the thing to fit in a small space like an attic

We have gone along with the basic Hertzian antenna for a century. However in the 1980's, Scottish Professor Maurice Hately (GM3HAT) correctly concluded that we didn't need a large resonant antenna and radiation could be achieved by creating the fields in the correct relationship from correctly phased untuned field generating elements. As a result, Professor Hately, together with several associates, introduced (and in fact patented) various forms of the Crossed Field Antenna which were designed to generate the E and H fields at right angles, in phase and in the same (and comparatively small) space. Hence the name Crossed Field Antenna (CFA).

Some of us will remember Ted Hart (W5QJR) who developed comprehensive formulae for the design of the Magnetic Transmitting Loop. Ted eventually became involved with documentation for the Crossed Field antenna and went on to develop what he has called (and patented) the EH antenna.

So, I had a go at assembling versions of this antenna, one each for 20 and 40 metres. The article is about how I assembled them and how they performed.

Constructing an EH Antenna

The antenna consists of two tubular (or conical) plates with natural capacity between them. You might consider them to be a fat dipole (or fat bi-cone). The E field is generated by voltage across the plates and the H field by the displacement current in the dielectric between the two elements. The fields intersecting at right angles are shown in Fig 1.

What I have assembled is two samples of this antenna based on some construction ideas by Stefano (Steve) Galastri (IK5IIR) which can be found on the web site I have mentioned. Steve formed the dipole by wrapping sheets of copper around PVC plumbing tube. For my antenna, I selected plumbing tube which nicely fitted around recycled

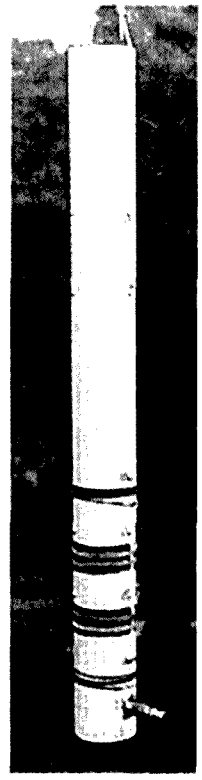


Photo 1. VK5BR 40 metre EH Dipole Antenna.

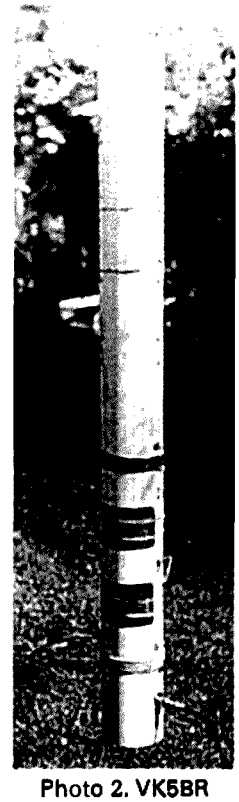


Photo 2. VK5BR 20 metre EH Dipole Antenna.

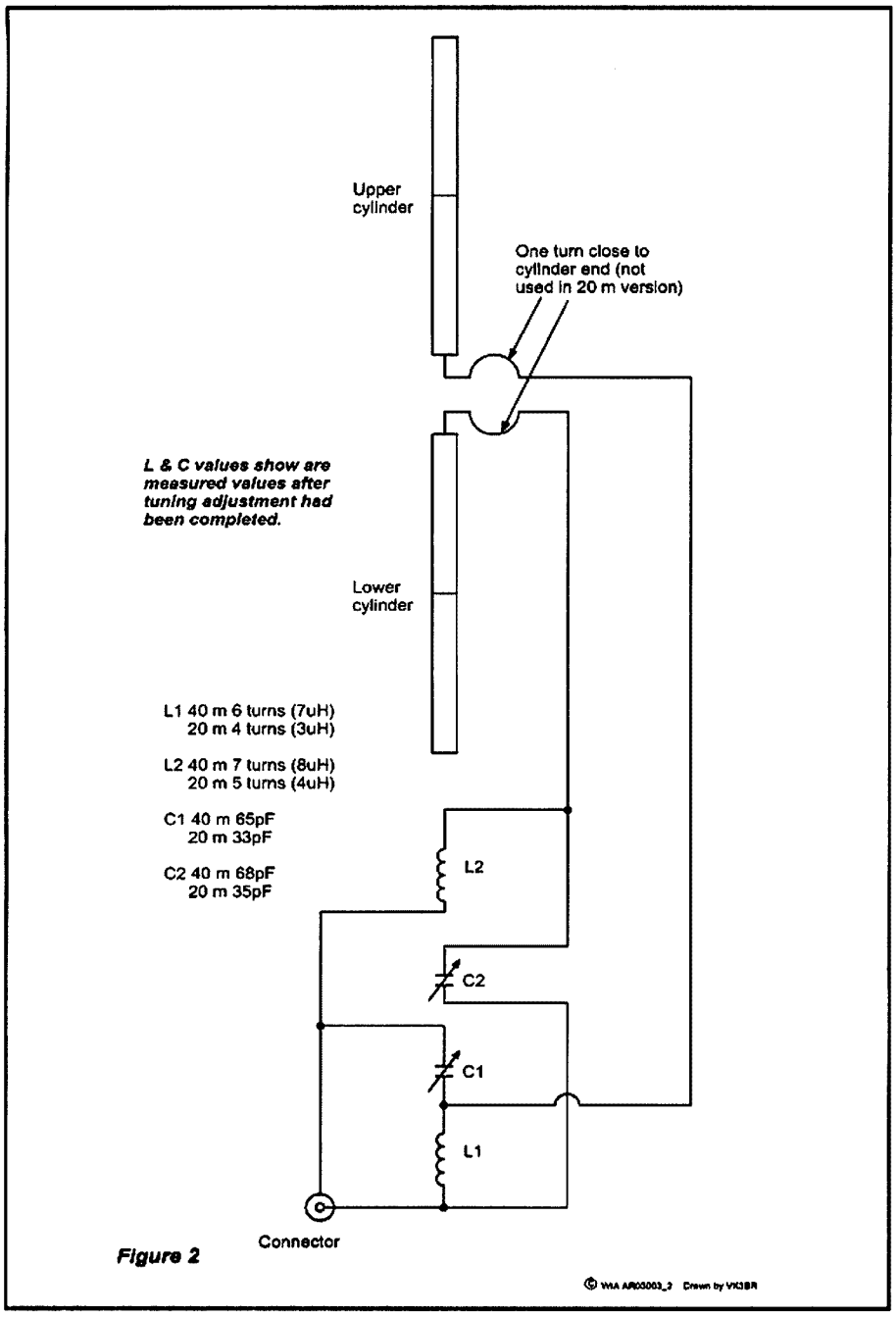


Fig 2. Circuit Diagram of EH Antenna.

metal fruit containers which I had saved. So my tubular elements are on the inside of the tube instead of the outside.

For a standard EH design, the Radiation Resistance (RL) is given as equal to 2 pi x 377 = 2368 ohms. An external matching network is required to transformation from 50 ohms unbalanced line to the balanced input of the dipole with 2368 ohms radiation resistance. A balanced form of L network is used with two inductors and two capacitors. It is an easy matter to calculate the value of these components as each must have a reactance equal to the square root of (50 x RL) which equals 344 ohms. Adjustment of the network apparently also ensures that the displacement current is in phase with the voltage across the plates so that the E and H fields are in phase. From my experiments, the phase correction is so small that it is difficult to notice the deviation from the calculated values I have just quoted.

At this point I must draw attention to the fact that in Australia our standard measurement units are metric. However all the data I have referenced is in imperial units. To avoid any confusion, both to myself and others reading this article in conjunction with the web site, I have purposely kept to the imperial system.

The circuit diagram for my two units is shown in Fig 2. I first assembled the 40 metre unit as shown in Fig 3. For each cylinder (half dipole) I used two of our standard Australian fruit containers (fruit tins or fruit cans) which are 4 inches in diameter and 4.5 inches deep. The inside diameter of the PVC pipe I obtained was just a little over 4 inches, so the cans fitted in nicely. The cans were secured by self tapping screws which also doubled as connecting terminals where required. The can pairs were connected together by three straps on the outside of the tube.

I followed closely Steve's arrangement for fitting a matching network. For the capacitor stators, I fitted cut down sections of more cans fitted inside the tube. For the adjustable sliders on the outside of the tube, I used further pieces of the tinned cans which are held in place by strong rubber bands. This allows them to be slid up and down to vary the capacitance made up by the two plates with the PVC tube as dielectric. If required, these can be glued in place later after adjustment is finalised.

The lower inductor L1 has one less turn than the upper inductor L2. On testing, I found this needed slightly less inductance which I reasoned was probably due to the extra inductance of the very long lead between L1 and the top cylinder.

Cylinder dimensions

According to the reference, cylinder diameter is not too important and my own tests seemed to confirm this. However, the ratio of cylinder length to diameter does control the radiation beam width. A low ratio gives a spread pattern more suitable for local contacts whereas a higher ratio narrows the beam and gives a lower angle of radiation, more suitable for long distance (DX) communication. They say, typical ratios could vary from as low as 1.5 to an optimum figure of 3.14 for DX work.

My ratios are somewhat set by the can dimensions. For the 40 meter unit, the ratio is 2.4. Using this ratio, local reports consistently gave my signal as two S points below my half wave end fed inverted V antenna. At longer distances the difference was considerably greater. For the 20 meter unit, I tried to get the

ratio a bit greater (again somewhat controlled by can sizes). For this unit the ratio is 2.85 and this works much better for distant stations.

For 20 metre, the reference suggested 2 inch diameter cylinders. I only had cans just under 3 inches diameter, so my cylinders for 20 metre are a little larger than suggested.

20 metres

The assembly of the 20 metre unit is shown in Fig 4. The arrangement is much the same as the 40 metre unit except that it is assembled with 3 inch diameter PVC plumbing tube which nicely takes another Australian standard fruit can which is just less than 3 inches in diameter. The can pairs are also a bit different. In the forty metre unit, I fixed each can in place separately and bonded them together. In the 20 metre unit I lapped ends of a pair, soldered them together and used only one set of screws to secure the pair in place.

Once again with the 20 metre unit, I found the matching balanced better with slightly less inductance in L1.

Isolation Coils

Not mentioned previously are two coils of a single turn shown on the 40 metre unit, one mounted just below the top cylinder and one mounted just above the bottom cylinder. According to the web references, this introduces a small amount of phase shift which reduces radiation from the connecting wires inside the tube and actually increases the radiation from the cylinders. Steve says that spacing between the winding and the cylinder edge is critical but I don't know why.

Anyway I have spaced my coils at 0.25 inch from the edge.

I have not included these isolation coils in the 20 metre unit but I might later add them to see if I can notice any change in performance.

Matching adjustment

The setting of L and C in the matching section is quite critical. Set the transmitter up on the centre frequency of the band with the transmitter set for about 10 watts output and look for low SWR. With the inductors, I put on more turns than I had calculated using Wheeler's formula and took off a turn at a time adjusting to the extremities of C1 and C2 each time. I close wound the coils but inductance can be reduced by pushing the turns apart. When the adjustment gets close, the reflected power will drop and SWR will run right down rather suddenly close to 1:1 when the right adjustment is found. When adjusted, I found I could light up a small BC fluorescent lamp from the field around the dipole with less than 15 watts. Low SWR also corresponds to maximum field strength as measured on a meter some distance away.

After alignment I disconnected leads from the inductors and capacitors and measured their values. The measured inductance and capacitance values are recorded on the circuit diagram (figure 2) and are very close to values calculated from reactance using the formula quoted earlier with the assumed radiation resistance of 2368 ohms.

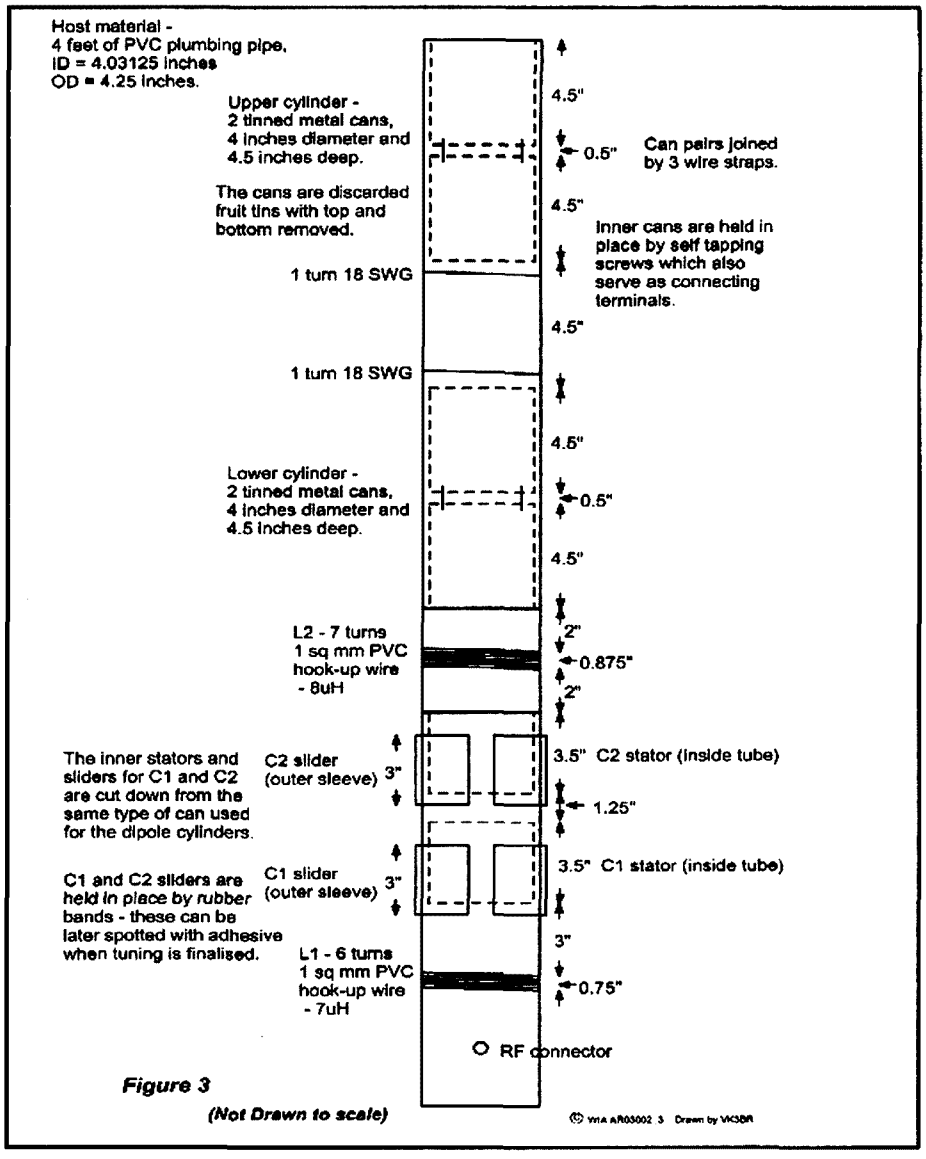


Fig 3. 40 Metre EH Antenna Assembly.

Some Air Tests

To test the unit on the air, I made comparisons with an end fed Inverted V antenna which is a half wavelength long on 40 metres. On 20 metres it is a full wave long and operates, no doubt, with a rather complex arrangement of radiation lobes.

In general, on receiving with the antenna about a metre above the ground, both antennas produced signals several S points below the inverted V although I did find an occasional signal on 20 metres which appeared comparable with the inverted V. The receive level of the 20 metre antenna improved considerably when I raised the antenna to around 3 metres above the ground.

On transmitting on 40 metres to stations in the local Adelaide metropolitan area, reports gave the

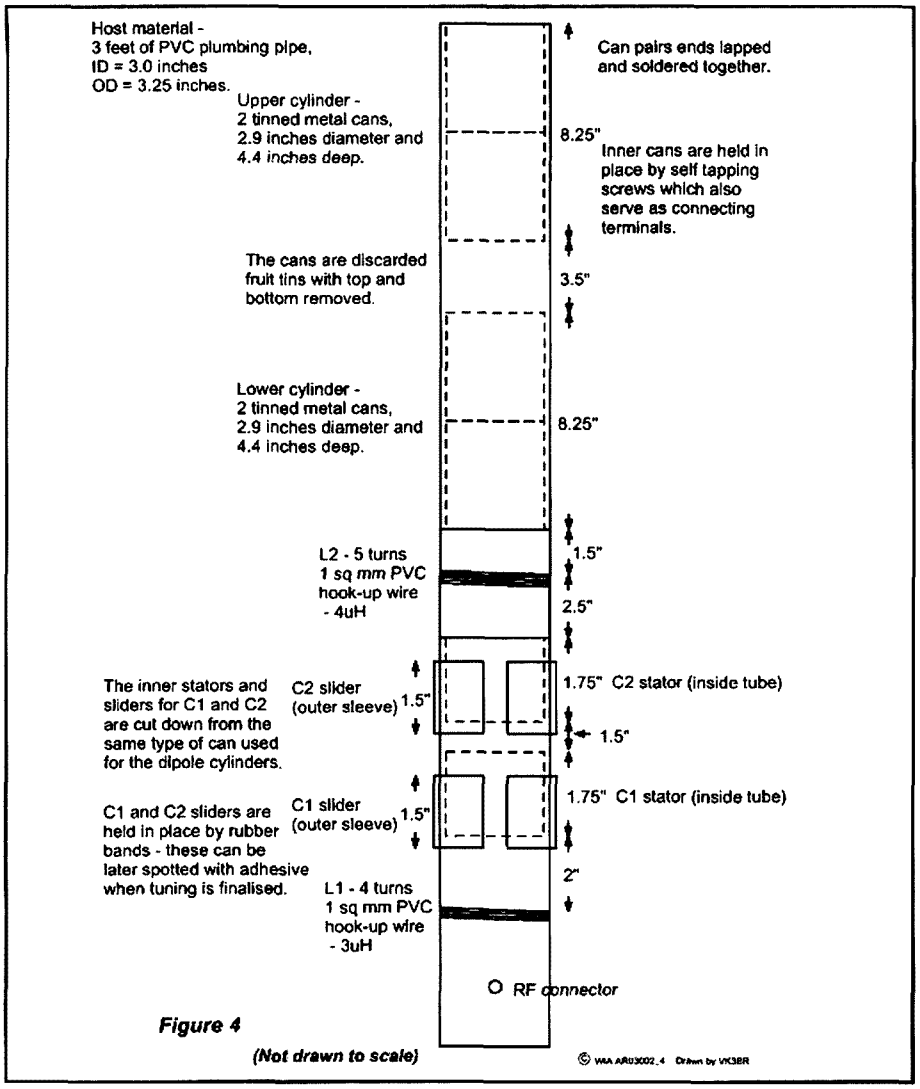


Fig 4. 20 Metre EH Antenna Assembly.

signal down around two S points on the inverted V. It was down a bit further on distant stations. On the other hand, it seemed to work better than a random length of wire strung up to the nearest tree and tuned up with a Z Match.

On transmitting on 20 metres some 1500 km to the east coast of Australia, the EH dipole was just barely below the inverted V. This is quite impressive considering the dipole element is just 20 inches (half a metre) long and a fraction of the length of the 20 metre full wave inverted V.

Weather Proofing

My antennas, constructed as experimental units, are not made to withstand the elements without some form of protection or weather proofing. Without protection, the tin plate on the fruit cans would soon deteriorate and the cans would corrode. I could also envisage the many birds we have finding the hollow tube great to build a nest. The hollow tube would also be a great haven for spiders. Imagine having cooked spider as part of the dielectric between the two cylinders. However, the antenna would be fine if fitted under the tiles in the roof cavity or some other protected area.

Conclusions and Comments

The concept of the basic antenna has certainly changed. The fact that long distance communication can be carried out with such a small sized antenna is quite revolutionary. However if you have the space for a full sized antenna and you have one installed, I wouldn't dismantle it. From my tests, the full sized dipole (and complements of it) still works better. However if you live in a housing unit with limited yard space, one of these could be the way to go. Of course it could be that my assembled example of the EH antenna might not be an optimum design. For example, for the radiating cylinders, I have made use of discarded fruit cans which are tin plated steel. More expensive copper sheet or copper tube would have lower surface resistivity although with such a high radiation resistance I wonder if this would make much difference. However there is one thing that I wondered about. The steel is a ferro-magnetic material and I wondered if its magnetic properties might in some way distort the desired magnetic field and alter the properties of the antenna.

Comparisons of performance with the magnetic transmitting loop have been made. I felt I had better signal reports on 20 metres from my one metre square magnetic loop. However the magnetic loop has extremely high Q and it has to be continuously retuned to traverse the frequency band. The EH antenna can be tuned up at the centre of the band and operated across the band without retuning. I found that it is possible to tune up with close to 1:1 SWR in the centre of the band and hold within 1.5:1 over the whole band.

Another point of comparison is the physical size. It's not so apparent for the smaller magnetic loop on 20 metres but an efficient magnetic loop on 40 metres might need 10 metres (or around 33 ft) of copper pipe in the loop circumference. Compare this to the dimension of the radiating element of the 40 metre EH dipole described.

A further feature of the EH antenna is its small capture area for noise pick-up. It is a very quiet antenna for pick-up of noise.

The hertzian concept for antennas has been with us for a long time. But now we are introduced to a new exciting concept and a new avenue for experimentation, all based on electromagnetic wave theory discovered by John Henry Poynton 120 years ago.

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2. Full Network 20 Metre Antenna - http://www.qsl.net/w0kph/fullnet.htm
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Amateur radio and the challenge of change

by Jim Linton VK3PC and Roger Harrison VK2ZRH

Amateur radio in Australia is in decline and must change. Changes in technology and society have created the challenges amateur radio faces today. The authors propose changes to the Australian amateur radio examination and licensing system to meet those challenges. The authors previously tackled these issues with a discussion paper in 1985. This is the "Linton-Harrison Paper 2003."

Amateur radio in Australia has reached a watershed. The number of radio amateurs is clearly in decline. Interest in the hobby is declining. There are fewer new amateur licensees each year than the total of those radio amateurs who die and those who do not renew their licences. This has been the situation for at least the past five or six years.

What the radio amateur community in Australia needs is *sustainable* growth. That means encouraging people into the hobby who retain their licences and their interest in amateur radio

The number of candidates sitting licence examinations has been declining since the mid-1990s. The downturn in exam candidate numbers would be far worse were it not for a steady number of already-licensed radio amateurs upgrading. The number of amateur exam invigilators has also declined significantly since the mid-1990s.

What the radio amateur community in Australia needs is **sustainable** growth. That means encouraging people into the hobby who retain their licences and their interest in amateur radio, rather than getting a licence in a flurry of interest only to give it up or let it lapse some years later because they find there is not enough in the hobby that continues to interest, challenge or reward them.

We are not saying something new here. Generally, the Australian radio amateur community already has some sense of the decline. The recent response has been a debate in the local radio amateur community over making entry to the hobby easier.

Australia is not alone in experiencing a decline in the numbers of radio amateurs. Britain, Canada, Germany, Japan, New Zealand and the United States are all experiencing declining radio amateur numbers. The local debate on easier entry has been stimulated by the UK's response, where the *Foundation Licence* was introduced at the beginning of 2002. A motion debated at the 2002 WIA Federal Convention sought the introduction of a similar licence in Australia. That motion was defeated, but the debate among radio amateurs in Australia has intensified over the past year. The 2003 WIA Federal Convention will debate another motion on an entry level licence for Australia. Irrespective of the outcome, debate will continue on the future direction of amateur radio in Australia.

Before we look into the issues that face Australian amateur radio today and examine a path forward, it is appropriate to outline a little history.

Some background

The number of individual amateur licensees in Australia peaked around 1990 at approximately 17,500. Callbooks of the era cite greater numbers of callsigns, but club, beacon and repeater licences have to be subtracted, along with those individuals who held multiple callsigns. Figure 1 illustrates the general growth of amateur licensees in Australia from the mid-1960s through to 1990. Numbers plateaued during the early 1990s then began to decline. That decline has accelerated in recent years.

Many radio amateurs who have been licensed for 25 years or more (the authors included) will recall the "CB boom" years from roughly 1975 through the early 1980s. That boom in CB radio brought an influx of new radio amateurs into the hobby from people whose interest in radio communications was aroused by their experiences on the air. The comparative freedom and scope available in amateur radio attracted them. But few took up the hobby until

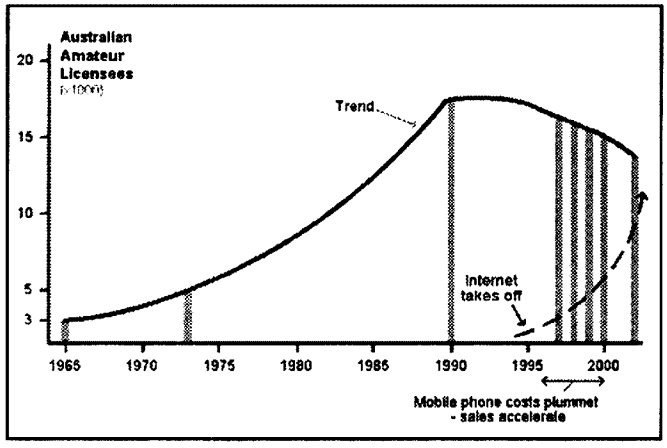

Figure 1. Australian amateur licensee numbers from 1965 through 2002. Having hit a peak of approximately 17,500 in 1990, numbers then levelled-off over the early 1990s before declining – a decline that has increased since the year 2000. Has rapid growth in the Internet and mobile phones had an influence? (Figures from WIA, government and other sources).

an "entry level" licence to suit their needs and backgrounds was brought in – the Novice licence. It was introduced by the Post and Telecommunications Department in 1976 as a measure to provide an alternative outlet for the growing ranks of unlicensed operators using 27 MHz CB equipment. A few thousand pirates in 1974-75 had swelled to tens of thousands by late 1976.

By the time the P&T introduced CB licensing in mid-1977, a $20 licence fee did not deter hundreds of thousands taking out the over-the-counter licence to use 27 MHz and 477 MHz equipment. At $6, the Novice amateur licence in 1977 was cheaper than a CB licence at $20, but then piracy was prevalent, particularly above and below the 27 MHz CB band. No licence, lots of fun to be had and the risks were considered to be low. Nevertheless, over the boom years of the late-1970s through early-1980s, many CBers joined the radio amateur ranks. The range of things to do and the relative freedom to pursue interest in a wide range of radio communication technologies and activities had considerable appeal. The influx from CBers built a solid base for growth over the next decade and half, just as the introduction of the Limited licence in the 1950s contributed to growth over the 1950s and 60s. Without those factors, where would the growth curve of Australian radio amateurs have reached at its peak – 5000 perhaps?

Worldwide, growth in the number of licensed radio amateurs has stalled, as can be seen from Figure 2. In the developed nations having large numbers of radio amateurs – the USA, Japan, Canada, United Kingdom, Germany etc – the pattern of decline over the late 1990s is repeated, as revealed in data collected by the International Amateur Radio Union (IARU). Japan's radio amateurs have declined from a peak of two million to about 1.3 million.

By 2002, the number of exam events and number of candidates had collapsed to *less than one-fifth* the numbers of a decade earlier.

From the mid-1990s, the rate of growth worldwide began to slow. In Australia, licensee numbers had already reached a plateau. It is the growing radio amateur communities in the rapidly developing nations, such as Thailand and Chinese Taipei, and the recently independent nations in eastern Europe, the Ukraine for example, that has balanced the declines elsewhere over the late-1990s. Indeed, given that our latest figures are for the year 2000, the number of radio amateurs worldwide may now be falling.

The dip in licensee numbers in 1998 is curious. The authors note that it coincides with the 1998 Asian economic crisis, but may not be related, given the swift recovery. The fall in numbers may simply be an aberration in licensee numbers reported to the IARU. The authors note that licensee data assembled by the IARU has some anomalies. However, the overall trends are readily discerned.

In Australia, other evidence of declining interest in amateur radio is revealed in data from the amateur examination service run by the WIA. Previously conducted by the government licensing authority, examinations for amateur operator certificates of proficiency were devolved to the WIA in 1991, just as the number of radio amateurs peaked. The number of exam invigilators accredited when this system began exceeded 500. The number of invigilators has now almost halved, falling to 307 last year. In 1992, more than 2300 exam events were held, with more than 4000 candidates attending. Here, an 'exam event' is an occasion on which an examination is held. It may be several persons sitting for multiple segments, or it may be one person sitting for one segment. An exam segment may be regulations, theory,

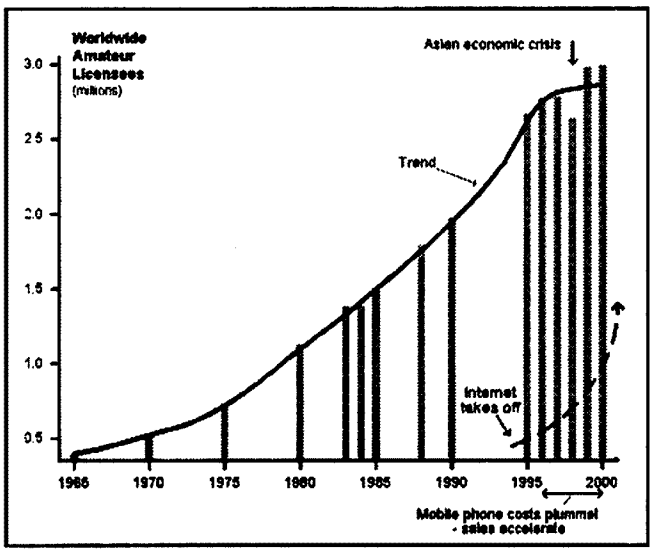

Figure 2. Worldwide amateur licensee numbers from 1965 through 2000. The dip in 1998 is a curious artefact. It may be related to the 1998 Asian economic crisis or some aberration in amateur licensee numbers reported. Again, the question arises – has rapid growth in the Internet and mobile phones had an influence? (Figures from the International Amateur Radio Union).

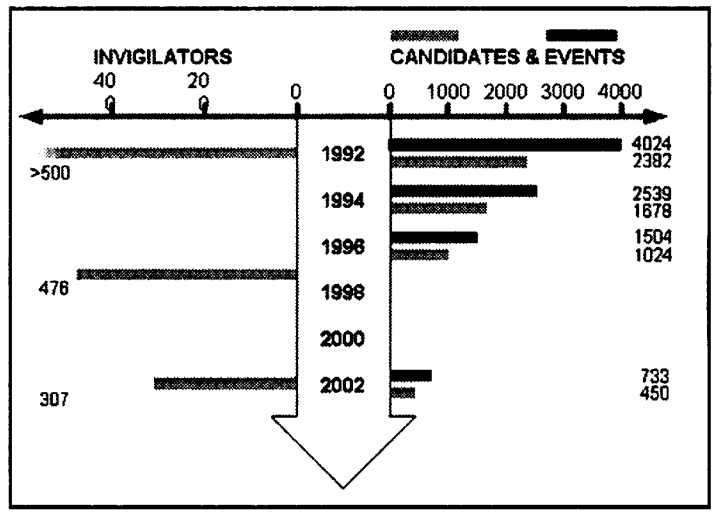

Figure 3. The decline in interest in amateur radio in Australia is well-illustrated here. Amateur exams were devolved to the WIA in 1991, coinciding with the peak in amateur licensee numbers. At the outset of the new exam service, invigilators numbered more than 500 and there were strong levels of exam events and candidates sitting. All have declined over the decade since. The numbers of candidates and events have fallen to less than a fifth of 1992 levels. Invigilator numbers have almost halved – most likely as a result of falling demand for exams.

Morse sending or Morse receiving. A 'candidate' means one person for one exam segment. By 2002, the number of exam events and number of candidates had collapsed to less than one-fifth the numbers of a decade earlier.

It is clear that the Novice Limited licence introduced in 1996 has not engendered revitalised interest in amateur radio. It's just another slice of 'the same old thing'. This is not to decry those who have leapt in and gained their Novice Limited licence. Every new recruit is to be applauded. It must be said that a proportion (maybe a sizable proportion) of candidates sitting for exam events over the past six years have been existing licensees 'upgrading'.

The numbers tell the story of Australian amateur radio's decline. Licensee, exam candidate and invigilator numbers are declining. The numbers provided here are not "statistics" – that is, mathematically manipulated quantities. Any further analysis would be merely discussing the tatters on the deckchairs of the Titanic.

Another problem – decline begets decline. With fewer amateurs each year, and very few newcomers getting on the air at every opportunity with their infectious enthusiasm, there is less activity. It has become noticeable in many small ways, across many bands and spheres of activity. It is not, perhaps, universal but nevertheless a noticeable thing. Less activity results in existing radio amateurs finding amateur radio less interesting, and their activity drops off too. It has in recent years led some to exit the hobby and cancel their licences. Hands-up surveys at radio clubs to the question "who has been on air in the past week" find the majority not putting up their hands.

The corollary is – activity begets activity. The revitalisation of interest in weak-signal and long distance working on the VHF and UHF bands in recent years has come about through the rapidly growing use of digital signal processing modes such as FSK441, JT44 and the like, together with the pursuit of working 'grid squares' (small geographic areas). Modestly equipped stations can achieve results via troposcatter, aircraft enhancement, meteor scatter and moonbounce that were undreamed of a decade ago. Perhaps this example provides an inkling of a way forward.

Influences

Japan has had a no-code entry level licence ("fourth class") for decades. Japan became the nation with the greatest amateur population in the world – two million in a population of some 130 million, and twice the number of radio amateurs throughout the rest of the world. Since the mid-1990s they've lost some 700,000 radio amateurs. In a recent interview in CQ magazine, the president and founder of equipment manufacturer Icom, Tokuzo Inoue JA3FA, commented that he thought much of the loss was due to young people's use of the Internet and cellphones.

There is no doubt that the rapid rise of the Internet and the proliferation of cheap mobile phones has coincided with the downturn in amateur licensees in the developed nations. This was preceded by a booming interest in personal computers from the early 1980s that continues today. Today's 20-somethings and teenagers have never known a time when there weren't personal computers around. There is plenty of anecdotal evidence that PC hobbyists who discovered amateur radio fuelled sustained growth in amateur radio after the CB boom waned.

decline begets decline.... the question "who has been on air in the past week" find the majority not putting up their hands.

More recently, the ready availability and ever-falling cost of Class-licensed wireless LAN technology operating on the 2.4 GHz industrial-scientific-medical (ISM) band has sparked a boom in 'amateur' wireless networking. Amateur radio shares this band with all other users. Across the world, computer hobbyists have exploited this '802.11 WLAN' equipment – intended for in-home or across-the-office networking without cables – establishing neighbourhood wireless networks for file-swapping, 'free' Internet access (via some kind soul's broadband connection), PC-to-PC chit-chat and the like. While it seems rather like amateur packet radio technology, these 802.11 wireless LANs push data around at speeds of 2 Mbits/sec up to 11 Mblts/sec, not the 1200 baud or 9600 baud of amateur packet radio.

These wireless network enthusiasts have embarked on solving the technical and logistics challenges involved in extending the 2.4 GHz signals way beyond their property boundaries to create hub-and-spoke or point-to-multipoint networks. Strong parallels with amateur radio are readily recognised. To quote from the weblog (online diary) of Aaron Swartz (www.aaronsw.com/weblog/000842), who lives in San Francisco, in a piece titled "The Wireless Future", he says: ". . . the (WLAN) boxes are getting stronger too, able to push bits for farther distances. They're cheap and popular enough that all of San Francisco is covered by a forest of overlapping wireless. It's time to unify them. The next software upgrade turns this collection of hub-and-spoke networks into one large mesh, letting packets bounce from one base station to another, perhaps stopping at a few laptops in between."

Aaron is 16 years old. He's no newbie. He's a member of the World Wide Web Consortium's Resource Description Committee (www.w3c.org/RDF/) and in 1999 won a prize for excellence in building non-commercial websites. Is he a visionary, or a revolutionary?

Wireless LAN hobbyists in state capitals around Australia are carving out a similar vision (see http://melbourne.wireless.org.au, www.sydneywireless.com and www.x.net.au/coverage.html). Last year, these local WLAN hobbyists won dispensation from the government from having to take out telecommunications Carrier licences (at $10,000) that otherwise regulated their activities.

But there may be other factors at work. Since the early 1990s in Australia, educators, scientists, engineers and industrialists have commented on the declining interest in and understanding of science and technology in Australia, particularly among school students. This was identified by research carried out over 1994 and highlighted in a report prepared for the Department of Industry, Science and Technology (DIST), titled "Strategy Development Study – An evaluation of Changes in the Understanding of Attitudes to Science and Technology" (Woolcott Research Pty Ltd).

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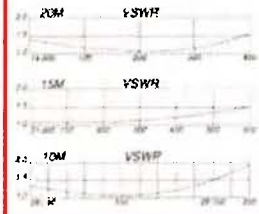

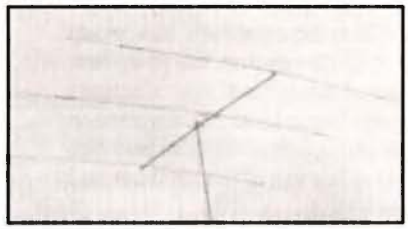

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Published in January 1995, the report drew two telling conclusions: "The community at large has a very poor and confused understanding of what science and technology really are," and "Students continue to regard science based careers as risky." The latter comment was repeated in the media earlier this year in commentary on competition for places in university courses – demand is high for law, medicine and commerce, and low for science and engineering. Commentators felt that the "tech-wreck" of 2001-2002 had influenced this trend because of the sharp decline in available jobs. But the difference in demand between law/medicine/commerce and science/engineering existed before the high-tech boom of the late-1990s. It would seem the DIST research findings have prevailed right through the 1990s.

The whole licensing structure, the examination system and syllabuses need a fundamental rethink.

Challenges ahead

From the decline in amateur licensees and our rapidly ageing population, the future does not look too bright. It is clear that either the hobby is becoming irrelevant to people with an interest in radio communication or the 'entry barrier' – the licence and exam system – has become irrelevant.

The authors contend that the licensing system and the syllabuses behind the examinations have become irrelevant because they are well behind the times. Indeed, the whole philosophy is rooted in the 19th century, arising from the system instituted to train and accredit industrial craftsmen and tradesmen – boilermakers, electrical tradesmen and plumbers, etc.

The whole licensing structure, the examination system and syllabuses need a fundamental rethink. As it stands, it smacks of bureaucratic paternalism to today's potential radio amateur – of any age. The issue is no longer just about providing an entry level licence, something easier to gain than the present Novice or Novice Limited licences on which current debate among Australian radio amateurs centres.

As noted earlier, Japan's no-code entry level licence did not stem the loss over recent years of some 700,000 amateurs out of two million. Why? Because, despite a basic syllabus and a simple exam, Japan's Fourth Grade licence offers severely limited licence conditions that hold little attraction to people in their society today who have an interest in radio communication. Licenses in Japan cost 500 Yen, about $7, so the licence fee is no barrier.

Likewise with our Novice Limited. The 'entry barrier' is little different to the Novice licence, but the licence conditions in terms of spectrum access and available transmission modes limit significantly the variety of available activities in which the Novice Limited licensee can participate – and the variety and number of other radio amateurs they can contact.

The Australian amateur community must face the question of whether it is relevant any longer that candidates for an amateur licence need to spend up to 40 weeks in part-time study to cover the AOCP exam syllabus, somewhat less (but still tens of weeks) for the NAOCP ("cram courses" notwithstanding). Conditions prevailing in society today must be taken into account in any consideration of changing the amateur licensing and exams system.

Most of us enjoy a high standard of living, but are time poor. In the early-1980s, when people in full-time employment worked on average 228 days a year (about 46 working weeks) and enjoyed 137 days of leisure, social researchers forecast that by the year 2000 it would be almost the other way around. Full-time workers in 2000 would spend 148 days at work (about 30 working weeks) and have 217 days leisure during a year ("The Year 2000", Kahn and Weiner, 1983). Yeah, right. That didn't happen. Many part-time workers today spend 140 or more days at work in a year. Many full-time workers are spending 240 or more days at work. Holidays are more often taken as short breaks, rather than several weeks, as was the norm 20 and more years ago. The 'standard' working week may be 38 hours, but a high proportion of workers spend 50 or more hours a week at work. That's not to mention work taken home, to be done outside office hours.

The Australian amateur community must face the question of whether it is relevant any longer that candidates for an amateur licence need to spend up to 40 weeks in part-time study to cover the AOCP exam syllabus

Young people in Australia doing full-time tertiary studies are knowledge rich, time limited and cash poor. If they're employed and doing tertiary studies, they're knowledge rich, cash limited and time poor. In the majority of households, both partners of a couple work – both full-time in many households, or one full- and the other part-time in a proportion of households. They're knowledge rich, often cash constrained (high mortgages, high rents) and time poor. In the case of retirees, whether self-funded or not, they're frequently time rich and generally cash constrained.

Pretty much all of the sophisticated technology that is part of our everyday lives is used on a 'plug-and-play' basis – mobile phones, microwave ovens, DVD players, personal computers, even cars. The technology is taken for granted. No interest in science or technology is needed to cope with it, only an interest in what it can do. It's designed that way. But when some individuals or small groups see further possibilities for a technology, where its purpose can be extended to new and different roles, they are enthused by the challenge presented. This is what's driving the wireless LAN enthusiasts. It's what motivated the pioneers of shortwave amateur radio in the 1920s and 30s, packet radio enthusiasts of the 1970s and 80s, and so on.

It is essential that a new system of examination for amateur licences must take into account our prevailing social conditions.

In addition, as most amateurs are already aware, the International Telecommunication Union's (ITU) World Radiocommunication Conference this year (WRC2003) will likely adopt a resolution that removes Morse code proficiency as a requirement for amateur licences that provide access to bands below 30 MHz. If adopted, it will then be up to administrations in each country whether they retain Morse code testing or not. Many countries around the world have indicated they

will drop Morse code testing and have adopted testing at 5wpm as an interim measure.

In August 2001, the ITU adopted this *Recommendation* on amateur qualifications:

In consideration that certain minimum operational and technical qualifications are necessary for the proper operation of an amateur or amateur-satellite station, any person seeking an amateur license should demonstrate theoretical knowledge of specific topics in the areas of:

- *radio regulations,*
- *methods of radiocommunication,*
- *radio system theory,*
- *radio emission safety,*
- *electromagnetic compatibility, and*
- *avoidance and resolution of radio frequency interference.*

Last year, David Sumner K1ZZ, Secretary of the IARU said, "The International Radio Regulations have long required that administrations take such measures as they judge necessary to verify the operational and technical qualifications of any person wishing to operate an amateur station. In anticipation of changes that are likely to be made in the amateur and amateur-satellite service regulations at the next World Radiocommunication Conference (WRC2003), the new Recommendation provides additional definition to these qualifications without reducing the prerogative of an administration to set its own standards."

So, the climate and conditions for change have already been set. And they apply globally.

The way ahead

Time to put a proposition on the table, examine the pros and cons and likely concerns. To meet the challenges and issues outlined, the authors propose that a future licensing system comprise the following:

- An Unrestricted licence, with all the licence conditions of the existing AOCP; and
- An Entry Level licence, with licence conditions appropriate to the licensee's understanding of radio system technologies and operations, without unduly restricting the opportunity to learn by experience and experiment.

We believe there must be a new syllabus, and thus a new exam system, devised for each.

The Australian radio amateur community must ask the question: Is the AOCP suited to the third millenium, or more aligned to the views of the 1950s or 70s? Likewise for the NAOCP syllabus: Is it suited to today and the future, or a relic of the late-1970s and 80s? See for yourself and compare them against the ITU's Recommendation of 2001. Download the AOCP and LAOCP syllabuses from:

- www.aca.gov.au/publications/info/amatexam_attach1.htm, and
- www.aca.gov.au/publications/info/amatexam_attach2.htm.

Each syllabus has been subject to "scope creep" over time, such that they are bloated well beyond the technical and operational basics needed as a foundation to ensure essential understanding of elementary electronics and radio communication systems. The AOCP syllabus comprises a schedule of almost 800 items in 15 topics, while the NAOCP syllabus schedule is almost 300 items under 15 topics. Each syllabus covers many detailed specifics of a narrow range of radiocommunication systems and related electronics technologies.

If potential radio amateur candidates are voting with their feet, it is our contention that the AOCP and NAOCP syllabuses are no longer relevant.

If potential radio amateur candidates are voting with their feet, it is our contention that the AOCP and NAOCP syllabuses are no longer relevant. Hence, new ones have to be developed. Their structure and scope must align with the ITU Recommendation of August 2001. That's what the Australian Communications Authority (ACA) will look to for guidance to comply with international requirements.

As appropriate knowledge of regulations and operating practices are necessarily common to each proposed licence, the authors suggest that there

be a single syllabus for regulations. It is administratively simple. The present regulations syllabus could be retained; the authors suggest adding a basic knowledge of radio emission safety (EMR) standards. It is taken as 'given' that radio amateurs must know the basics of how to be – and that they must be – "good neighbours" among other radio amateurs on the bands. This is about considerate operating practices, knowing common operating procedures and about knowledge of emergency operations. The present regulations requirements are on the ACA website at:

- www.aca.gov.au/publications/info/amatexam.htm#Regs.

In line with the world trend, examination in Morse proficiency is not included. It is understood that the ACA has already indicated their preference for a simplified licensing and examination system, without the necessity of testing Morse proficiency for access to bands below 30 MHz. This does not mean *abolishing* the use of Morse code by radio amateurs. It remains a valid transmission mode for radio systems, like any other – SSB, FM, TV, spread spectrum etc.

So, the new licensing and examination system would look like the diagram in the lower half of Figure 4, compared with the present system above it. The proposed **syllabus topics** are listed in the examination modules. They include the topics listed in the ITU Recommendation of 2001, mentioned earlier. Two topics have been added – electrical safety and some elementary electricity and electronics at differing levels for each.

Each licence in the proposed system stands alone. Candidates would not have to take the Entry Level licence before attempting to gain the Unrestricted licence. This differs from the UK Foundation Licence system. Similarly, a radio amateur would be able hold an Entry Level licence for life. If that satisfies them, it's their choice. The Entry Level licence should not be time-limited as was the Novice licence when it was first introduced. "Enforced upgrading" did not work. The idea smacks of bureaucratic paternalism.

The proposed system has the virtue of simplicity, while ensuring appropriate competency.

The Entry Level licence should not be strictly an "operators' licence" – a simple permit to use a type-approved transceiver. It should afford the licensee two principal opportunities:

- to enjoy the thrill and satisfaction of operating a radiocommunication system under as many circumstances and conditions and on a wide variety of bands across the RF spectrum as they wish to explore; and
- to learn about radiocommunications as much as they wish to learn through their own effort, at their own pace, through experience and experiment within their competence, to satisfy their interests thereby.

This is in keeping with long-standing amateur radio tradition and with the ITU definition, which says amateur radio exists for the purpose of self-training, intercommunication and technical investigations. These two factors should best meet the expectations of people with an interest in radiocommunication who would be likely candidates for an amateur radio licence. These two factors, of course, apply equally in the case of the Unrestricted licence, only at a different level of expectation, knowledge and competence.

An operators-type licence restricted to commercial (or type-approved) equipment would have little appeal. Why sit for an exam when you can use a commercial off-the-shelf, no exam needed CB rig, a voice transceiver on the 434 MHz LIPD band, or a bunch of WLAN transceivers? If a prospective radio amateur has to take out an Unrestricted licence in order to experiment at all, then it will be seen as an "enforced upgrade." It is the prospect of having a wide range of possible activities to explore that is appealing, whether as an "operator" or experimenter – even if the basic knowledge required is elemental. Accommodating the interests of people in operating on the air, along with those interested in exploring the technological aspects of radiocommunications, maximises the breadth of appeal of the Entry Level licence. As a corollary, the Unrestricted licence should offer "more of the same."

When you dispassionately analyse the current AOCP and NAOCP syllabuses, it is readily apparent that they embody predominantly the amateur radio practices of the past

Licence conditions

The Unrestricted licence in the proposed system would enjoy the same licence conditions as the present (Unrestricted) AOCP.

Rather than being prescriptive on licence conditions for Entry Level licensees, the authors propose their licence conditions should generally provide:

- access to most amateur bands from 1.8 MHz through to 5.65 GHz
- all currently permitted transmission modes, and
- 100 watts (pX) transmitter output power maximum.

Long experience with the Novice licence has proved that there is little or no risk in them using 100 watts output power. In keeping with the previously outlined principle of not "unduly restricting the opportunity to learn by experience and experiment," the authors have included wide access to frequency bands and transmission modes. If we are to attract a new generation of "experimenters" into the hobby through the Entry Level licence, then the authors believe the three points above are essential conditions in offering them a place to start. Note that the principal two bands radio amateurs share with wireless LAN and other Class-licensed technologies – 2.4 GHz and 5.65 GHz – are included.

For those Entry Level licensees wanting to mostly pursue 'operating on the air', the proposed licence conditions are in keeping with the previously outlined principle of affording them "the thrill and satisfaction of operating a radiocommunication system under . . . many circumstances and conditions and on a wide variety of bands." The paltry range of licence conditions for the current Novice, and especially the Novice Limited, just don't cut it in today's world. See for yourself. Download the current Amateur Licence Conditions from the ACA website at:

- www.aca.gov.au/legal/determin/lcd/amateur.pdf

Continued on page 20

Concerns

Are the syllabuses to be "dumbed-down"? This is an emotive term with an underlying assumption or belief that the current syllabuses are of a "high standard" or are the "proper benchmark." When you dispassionately analyse the current AOCP and NAOCP syllabuses, it is readily apparent that they embody predominantly the amateur radio practices of the past and the technologies specific to them, rather than encompass fundamental concepts of radiocommunication and the systems that affect it.

It makes no sense to expect newcomers to amateur radio today to make themselves in the image of the past. Those who came into amateur radio via CB, or via computing, did not generally see themselves in the same mould as amateurs licensed earlier. Despite some 'social dislocation' at the time, new traditions were formed and accommodated along with those of long-standing. The hobby acquired more variety in activities, interests and technologies. It grew in diversity as well as numbers. A new licensing and exam system, if successful in attracting sustainable growth in newcomers, will do the same all over again.

Past thinking divided licence "grades" by successively restricting available frequency bands, transmission modes and power. The system preserved the privileges (ie. licence conditions) of those who'd previously gained higher licence grades and arguably offered an incentive to upgrade in order to access more frequency bands, more transmission modes and greater transmitter power. The authors realise this will be an issue with existing radio amateurs. No one likes to see their "hard-won" privileges seemingly undermined by newcomers apparently "getting it easy." However, when staring in the face of the decline that's under way, retreating to the past will likely make it terminal. Innovation is necessary to reverse it.

Meeting the challenge

So far, the policy debate within the Wireless Institute of Australia has been focussed narrowly on what sort of "Foundation Licence" the WIA should lobby for. This is short sighted, as can be seen from the evidence presented. Certainly, the issue of an Entry Level licence is important, but it cannot be properly considered alone, divorced from the wider issues facing amateur radio in Australia today.

The Australian radio amateur community and the WIA has to come to grips with the fact that the amateur radio examination and licensing system has become irrelevant to people in today's society who have an interest in radiocommunication technology. The syllabuses, examinations and licensing each need a wholesale overhaul. Ubiquitous, low-cost communications technologies – cellphones and the internet – influence people's views and understanding of amateur radio. Time pressures on the one hand and limited expendable incomes on the other, affect people's view on hobby activities. Wireless LAN technology offers enthusiasts a competing interest, while

The Australian radio amateur community and the WIA has to come to grips with the fact that the amateur radio examination and licensing system has become irrelevant to people in today's society who have an interest in radiocommunication technology

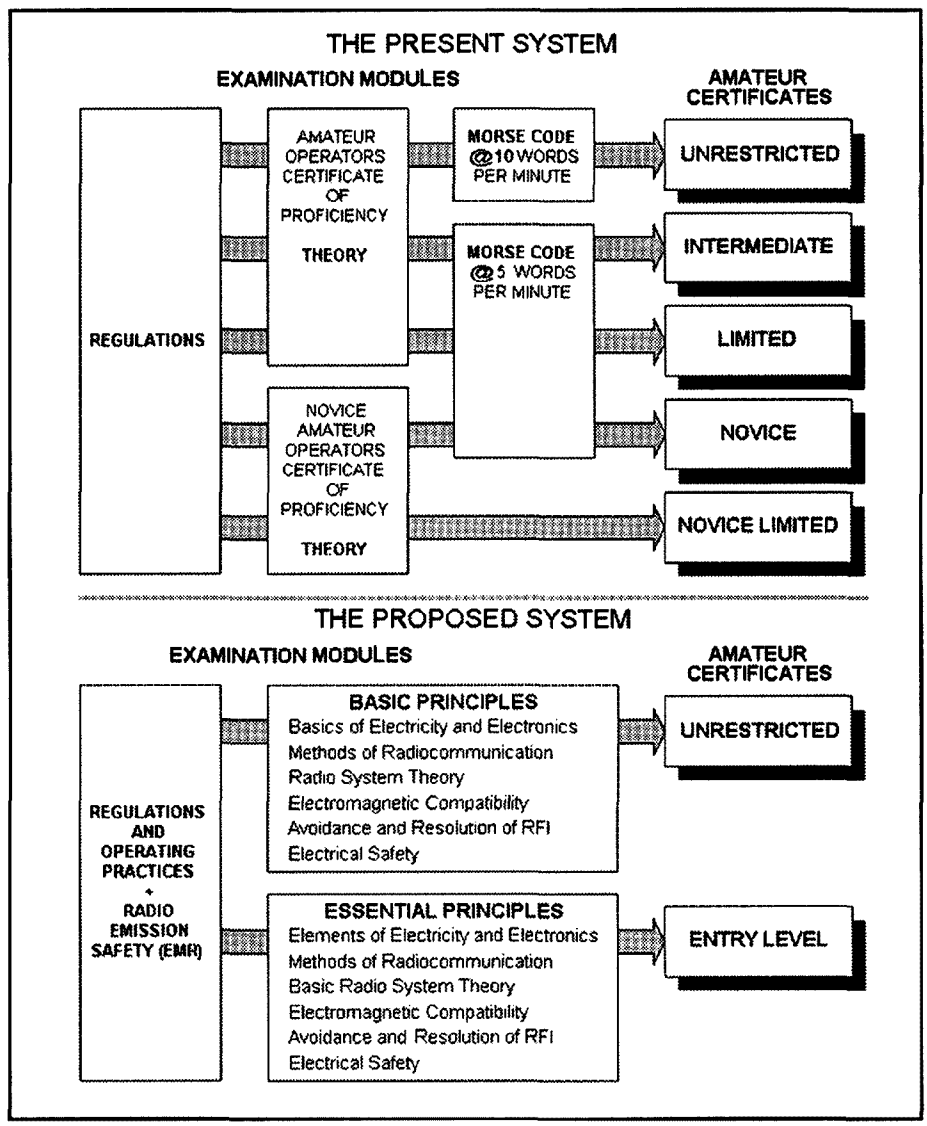

Figure 4. The authors propose a simplified examination system, based on revised syllabuses (summarised here in the examination modules), leading to a two-tiered licensing system. Candidates would not have to take the Entry Level licence before attempting to gain the Unrestricted licence. Each licence stands alone. This differs from the UK Foundation Licence system.

handheld 434 MHz LIPD voice transceivers are another example. Any response to the decline in amateur radio must take the gamut of such influences into account. A quick cut-and-paste of the current Novice syllabus and conditions will not suffice.

A revised and revitalised amateur radio examination and licensing system would offer some contribution to reversing the declining interest in and understanding of science and technology in Australia. An Entry Level licence with appropriate syllabus settings could have strong appeal as a curriculum complementary study course for school students. But it would also have appeal to people of all ages.

The time to act is now, before the World Administrative Radiocommunication Conference makes a decision on the future licensing requirements for amateur radio. We must be ready to take action to revitalise the amateur radio licensing system at the earliest opportunity, else the chance to bring about effective change will be lost and the decline of amateur radio will turn to a self-fulfilling demise.

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ABOUT THE AUTHORS

Jim Linton VK3PC and Roger Harrison VK2ZRH issued a discussion paper "Amateur Radio – Future Direction" on 7/12/1985. It was published in both *Amateur Radio Action* and the WIA journal *Amateur Radio* magazine. The authors received the WIA's Higginbotham Award for the paper. That document is recognised as being the first serious look at possible ways to increase Amateur Radio's attractiveness and relevance in society.

Both authors began an interest in the hobby as shortwave listeners in 1962; other parallels in their lives include being journalists. Jim Linton has worked for a major multinational news agency and has had many articles published in *Amateur Radio* magazine. Roger Harrison spent his early career working in scientific research (part with IPS Radio & Space Services), is well-known as an editor of some popular electronics magazines, and industry publications.

Jim Linton VK3PC is the long-serving President of WIA Victoria. Roger Harrison VK2ZRH has been Secretary of the WIA NSW Division, NSW Federal Councillor, WIA Federal Media Liaison Officer, member of the WIA-ACA Liaison Team and Federal WIA Vice President. He is not currently a member of a WIA Division.

Both the 1985 discussion paper and the Linton-Harrison Report 2003 are based on personal views, which may not necessarily be reflected in WIA policy.

The authors draw on their experiences and knowledge in presenting this discussion paper at a time when the introduction of a new entry level licence is being seriously considered for Australia, and on the eve of a possible major restructure of the amateur radio licensing system.

CODAN HF Transceivers

Part 1

by Malcolm R Haskard (VK5BA)
RSD 1244 Bassnet Road, One Tree Hill, SA 5114.

Year 2002 being "The Year of The Outback" provides an incentive to examine the extensive range of Eilco/ Codan HF transceivers that over the last forty years have brought to the people of the outback improved communications and safety. Even when older Codan tranceivers are discarded others find use for them, including amateur radio operators and four wheel drive club enthusiasts.

This article, in two parts, provides brief historical background information on Codan, an overview of their design and manufacturing philosophies and finally a summary of HF transceivers marketed.

Background of Codan

In the 1950s three young men attended the University of Adelaide, Ian Baker Wall, Alastair Edward Rose Wood and Irvine James (Jim) Bettison. During their first year Ian and Alastair were drawn together through common interests in engineering and particularly electronics and they became friends. On graduation in 1954 Alastair, with a Bachelors Degree in Mechanical Engineering, undertook part time lecturing in Mechanical Engineering while Ian, graduating in 1955 with a Bachelors Degree in Electrical Engineering, was employed by Philips at their factory Radio and TV Design Laboratories at Hendon, Adelaide. Over those years the two formed a working association that designed and built electronic equipment. They both obtained amateur radio certificates of proficiency being allocated the call signs VK5IW and VK5ZAE respectively and together they built UHF mobile amateur radio equipment, perhaps their first joint venture into communications. Known everywhere as Wood and Wall, they initially operated out of Ian's home at Hampstead Gardens designing and building equipment for the University, repairing taxi receivers. Gradually their home business grew until with their normal day work there was no time for anything else. A decision needed to be made whether or not to go full time into their own engineering business.

Jim Bettison's interests were a little different from his University engineering friends. There were common bonds such as a love of good cars (Ian having at the time an MG TC, Alastair a Triumph TR3A and Jim a Triumph TR2, both with electric overdrive). Jim's university fields of study were very different, yet complemented the two engineers, and included history, law and commerce. In 1961 he graduated with an Honours Degree of Bachelor of Arts in History. Having a love of theatre and the arts he secured for himself the agency for Strand Electric, UK, theatre lighting equipment manufacturers. When needed Wood and Wall were engaged to assist him designing variable reactors and such to control the lighting. From this situation it was but a small leap for the three to form a joint company, Ian and Alastair providing the engineering side and Jim the needed skills in commerce and law. The new company, The Electronic, Instrument and Lighting Company Limited was formed on the 1st July 1959. With the financial help of parents, adjacent house properties at 7 - 9 Osmond Terrace, Norwood were acquired, and early 1960 the company moved to this address.

In the beginning the company took on a wide range of work for it was a matter of survival. They applied their skills to redesign and manufacture medical instrumentation amplifiers for the company Both Equipment, the servicing of electronic instruments for government departments and other organisations, as well as the development of their own products such as theatre sound and lighting systems. Ian remained at Philips until the end of 1959 and even in later years used his TV knowledge and skills to do part time lecturing in TV at the SA Institute of Technology, School of

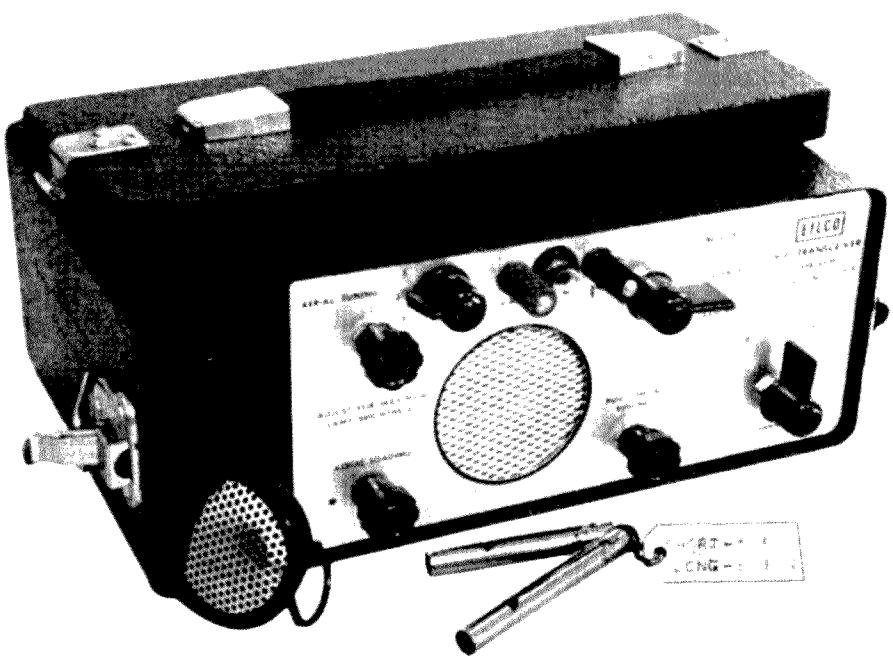

Figure 1. Type 6104 transceiver, Elico's first set. Note the two whistles used to give the emergency tones

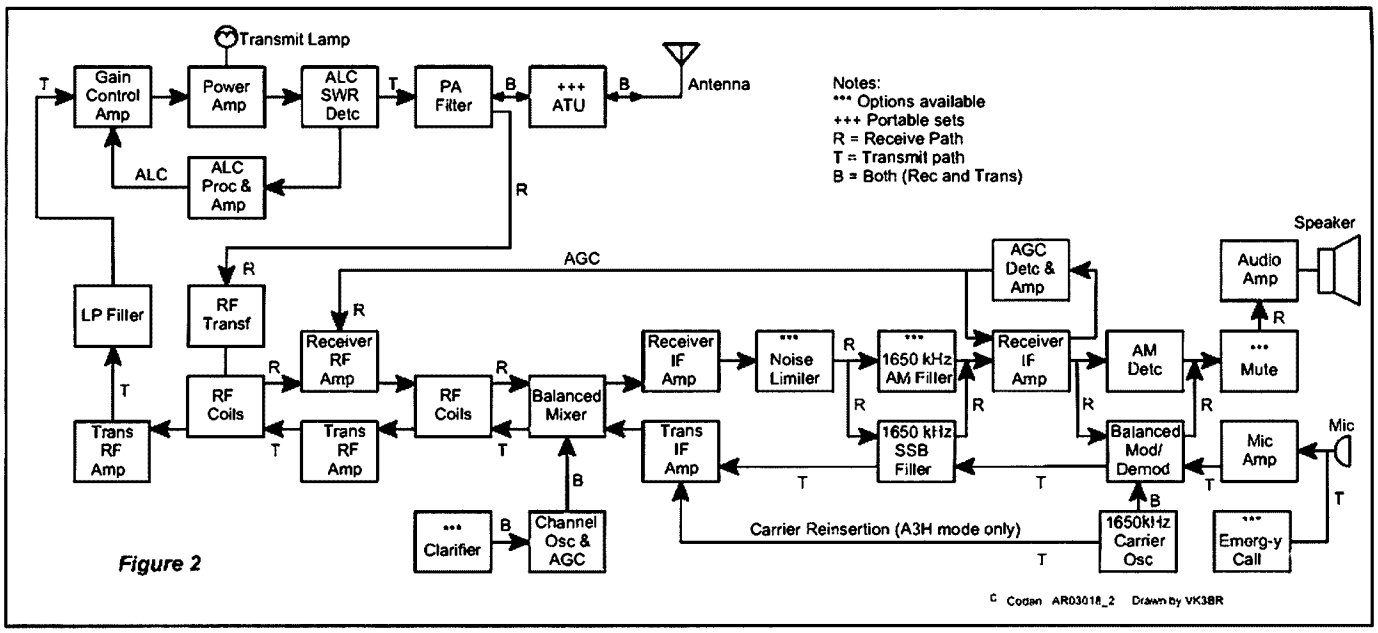

Figure 2. Block diagram of a typical Codan transceiver

Electronic Engineering. The Anglican Bush Church Aid Society operated a School of the Air from a base station located at Ceduna, South Australia and through Gordon Bowen (VK5XV) approached Eilco to assemble some HF radio transceivers that had been designed by the late George Cameron. Through undertaking this work Ian and Alastair believed they could produce a better transceiver. By 1961 they had developed the portable "lunch box" transceiver, type 6104. It was compact, rugged, reliable, weighing 10 lbs, having its own in-built antenna tuner so that it could work with the simplest of antennas, matching indicated by simply peaking the brightness of a lamp, and requiring only 3 amps current from a 12 volt battery or mains supply. This set became the standard for everyone, mining companies, surveyors, church organisations, government departments, all who were using HF radio in the outback. Figure 1 shows this set. At this stage it is interesting to note the Eilco custom of issuing a product with a four digit type number, the first two digits indicated the year the idea for that product originated (not the year released to market), while the second two digits represented the product sequential number for that year. This numbering system was retained up until the nineteen nineties, however with time the second two digits were frequently selected to have a type number which simply had a good "ring" about it.

In the late 1960s there was an international move to change HF communication methods from AM to SSB, which, although a more complex system, was more efficient in its use of the HF spectrum. Eilco initially set about designing a hybrid set utilising quick heat valve technology for the final stage of the transmitter and elsewhere transistors. Fortunately, towards the end of the design phase RF power transistors were just starting to appear on the market so the final version was delayed and redesigned, so when released, as the type 6924, it was a fully solid state transceiver. Although the delay caused some difficulties, as will be seen later, it laid the foundation for the years ahead. The change to SSB meant that all of the Royal Flying Doctor Service bases needed to be upgraded and so the Government called an initial tender in 1968. Eilco applied. At the time there was a feeling in some quarters that a newly formed, small company like Eilco could never handle a half million dollar project. Interestingly, Eilco must have sensed this for they had previously approached Alf Traeger to see if he was interested in a joint operation, he having the name and contacts and Eilco the new technology. Their invitation was declined. As frequently happens with tenders for new systems various additional considerations arose and so tenders were recalled. In June 1970 Eilco received the purchase order to re-equip twelve RFDS base stations. The project was completed in 1973, on time and within budget. Eilco continued to prosper.

Over these years the premises at Norwood had been extended, but increase in work meant that staff numbers had risen, so that by the early 1970s larger premises were needed. In October 1973 the company, now employing some 80 people, moved from Norwood to a new purpose built factory on two hectares of land at 81 Graves Street, Newton, an area zoned as light industrial.

During the early years agents had been set up to market the Eilco products, one in Western Australia being Associated Electronic Services (AES). Because of the delay in releasing the type 6924 set, Eilco could not provide SSB transceivers for AES to market. AES was therefore told to market sets it was able to get. At the time the US company Granger Associates were assembling SSB transceivers in Sydney, but now wanted to dispose of this facility. Consequently AES purchased it allowing them to source their own transceivers from there, raising the potential of becoming direct competitors with Eilco. The possibility of a joint AES/Eilco venture was explored and an association was formed whereby each had a half share, AES contributing its manufacturing facility as well as its marketing network while Eilco brought with it the RFDS contract. Basil Reynolds the Director of AES suggested that the new association be

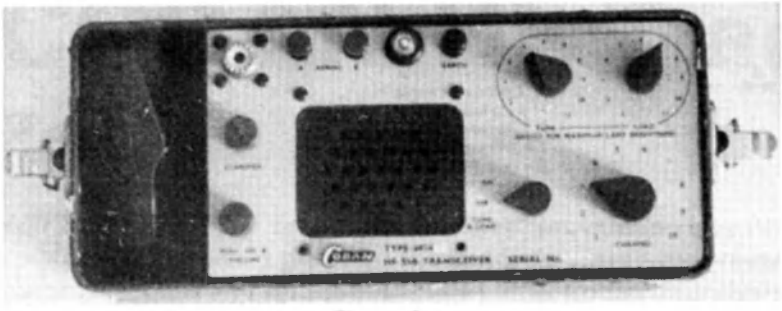

Figure 3a

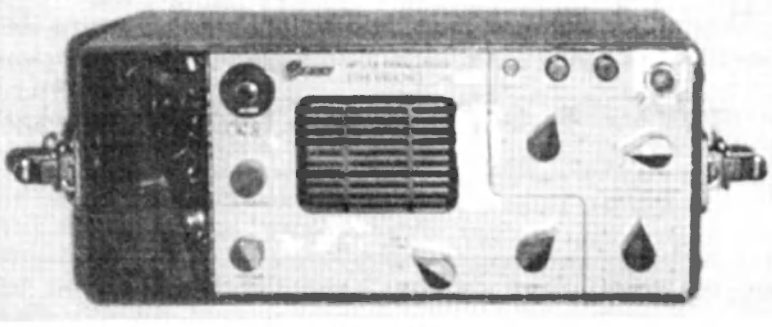

Figure 3b

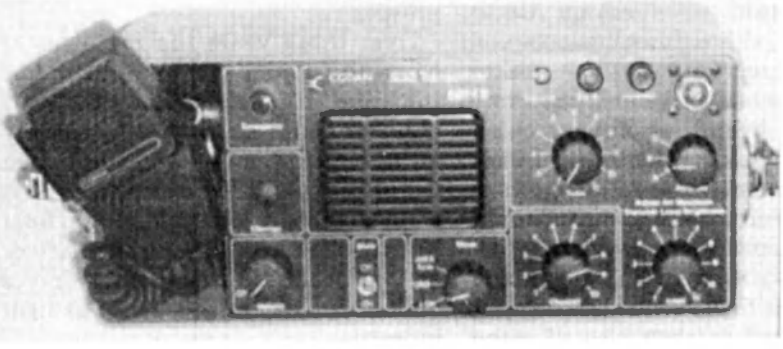

Figure 3c

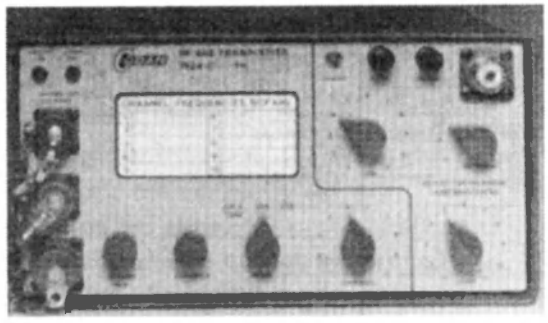

Figure 3d

Figure 3. Four versions of the portable type 6924 set. a) Original version, b) Mark two version having improved performance and used thick film modules, c) The new styling, having the same circuit as the Mark 2 and called the 6924B, d) Ruggedised water proof version called the type 6924C

called Codan, an industry acronym for Carrier Operated Device (Delay (2)) Anti Noise, a squelch or muting system. Being a simple name, a word already known in the industry it was accepted. Codan Ltd business grew. About 1981 it was resolved that Codan and Eilco should amalgamate, AES remaining a separate entity, to concentrate on ticket machines and related products. This decision was quickly followed by a second move in 1983 when Eilco acquired all of the shares owned by the AES Director, Basil Reynolds, thus giving total control of Codan, including the name, to Eilco. With the growing market for SSB equipment the Codan name had now become better known than Eilco, so in 1983 a decision was taken to rationalise the whole activities of the company under the name of Codan Pty Ltd. The result was that the company became more focused and looked at ways of expanding its communication products. They did this by firstly, extending their HF range of equipment using recent technology advances, secondly moving up in frequency of operation to satellite and earth station equipment and finally placing even greater emphasis on the international market.

As part of the new Codan image, new styling for sets and a Codan logo were produced under contract with Chris Myors (product designer) and Lyndon Whaite (graphic designer) respectively, both lecturers in the School of Design, Adelaide School of Art at the Underdale Campus of the SA College of Advanced Education. The early AM transceivers utilised armed service styled knobs and colours (blue grey) giving the impression these sets were equally rugged. The change to the standard grey and green colours with teardrop shaped knobs in 1968 conveyed the elegance seen on some American equipment of that era. The 1984 new image change was to black panels with black collet knobs, keeping products aesthetically pleasing, making touch up/restoration easier, as well as allowing older reliable sets to be "disguised" as if they were truly a new generation of products. The first of the new style sets released was the type 8525, a frequency synthesized transceiver allowing up to 99 channels which won the Electronics Association of South Australia's 1986 bi-annual Gold Cup, awarded for excellence in engineering and commercialisation.

Codan had an interest in the satellite communication field as far back as 1972 when the Australian Post Office published a study advocating Australians should enter it. In 1979 when the Hon A. A. Staley announced that a domestic system was envisaged for Australia, Codan responded. An area of unique need was identified, namely small earth terminals for two way communication and from 1980 Codan engineers, supported by the largest Industrial Research and Development Grant awarded hitherto by the Commonwealth, became involved in developing such a terminal for Ku-band using Australia's own Aussat satellites. In 1983 Codan received its first satellite equipment related order for five receive only earth terminals. Codan again diversified and moved into C-band equipment giving wider market opportunities. In 1984 a joint venture was commenced with M/A-Com Inc. of USA, called Microwave Associates Australia Pty Ltd and based in Sydney, to address the growing market for microwave communication systems, both for terrestrial and satellite communications. Early 1989 in conjunction with Sattel Technologies of California, they

were awarded an OTC contract to establish and operate a satellite based telephone service in the South Pacific Region. During 1991 Codan joined a new mobile satellite communications consortium which included Auspace Pty Ltd, CSIRO, Mitec Pty Ltd, Mosaic Electronics, Net-Comm and the Digital Communications Group at the University of South Australia. In 1998 Codan acquired Mitec, the Brisbane based company specialising in microwave RF design. All this allowed Codan to aggressively expand its existing range of satellite communications transceivers, to diversify into terrestrial microwave links, and to acquire specialist defence projects. While the initial growth in the satellite area had been slow it has currently reached the level where it is providing income at a level similar to the HF products.

Codan directors were well aware that for survival they needed to look beyond the Australian market. Once the reliability of their products was established in Australia this gave opportunity to look elsewhere, using Australian case histories to further the cause. By 1975 they were selling HF equipment into African countries. About this time a license to manufacture selected Codan products was granted to a New Zealand company owned by W (Bill) E. Barlow, Electronic Products Ltd. In 1978 Codan acquired the major interest and renamed the company in 1979 Codan (NZ) Pty Ltd. All this was to get behind NZ import licenses and when such licenses between Australia and NZ were abolished Codan (NZ) was closed in 1989 and their operations transferred to Adelaide. In a similar way to get behind trade barriers and into Europe Codan established in 1980 a marketing office and some manufacturing facilities at Fleet, Hampshire, England. Again once barriers were abolished the manufacturing facilities closed, but a marketing office retained to cover Europe, Africa and the Middle East regions. An office, previously in Vancouver, Canada, but now in Manassas, USA covers Canada, USA and South American countries. At present Codan exports to over 150 countries, accounting for some 85% of their production. Truly a global service.

Design and manufacturing philosophies

An original aim of the company was to bring professionalism to the electronics industry and this was interpreted by the founders in several ways all evident in their HF products. Four ways that reflected their professionalism in technical and business matters will now be considered. Combined, these factors led to the development and marketing of reliable cost efficient products.

i) Utilising the latest advances in technology in products.

The original transceivers such as types 6104 and 6332 utilised semiconductors wherever possible. Initially this was germanium transistors in the receivers, modulators and DC to DC converters required to generate any voltage higher than the battery voltage. Vacuum tubes could only be used for the transmitter. However, as soon as RF power transistors became available they were utilised and resulted in new type 6801 and 6924 transceivers. Similarly to ensure good receiver selectivity narrow band IF filters were incorporated, right from the outset. Initially for AM work ceramic resonator filters were used in the first few sets, but from then on magnetostrictive resonator mechanical filters were employed. The advent of SSB operation immediately brought a change over to high quality narrow band crystal filters, raising the IF frequency from 455kHz to 1650kHz to give a marked improvement in image suppression at the higher frequencies of operation.

Sets were always crystal controlled, a procedure necessary to achieve good frequency stability no matter whether the sets were used in the outback, in vehicles or ships, locations where extremes in temperature frequently occur. Printed circuit cards, were introduced in 1964 when a new single board receiver was made, designated the type 6415 and employed in several transceiver types. In about 1978 a decision was made to introduce thick film daughter board modules, each coated with a non transparent epoxy material. This not only simplified construction, but added a measure of security to their products, in that what was in the modules remained confidential. The type 8525 set saw the introduction of microprocessor control and frequency synthesis and from then onwards there were moves to employ software to provide improved performance and flexibility.

ii) Ensuring that products were appropriate for their application, both in terms of electronic, mechanical and ergonomic performance, including appearance, robustness, reliability and maintenance procedures.

While excellent electronic design was essential so too was the mechanical construction and appearance aspects. Cadmium plated sheet steel of 16 and 18 gauges was normally used for construction, providing strength, lightness and resistance to corrosive materials. Aluminium of 18 gauge was employed for the front panel escutcheon. Controls and operating procedures were kept to a minimum so that people of all ages had little difficulty in using them. Further, the company maintained a comprehensive in house manufacturing facility enabling it to maintain good quality control and quality assurance procedures on all products.

No matter how well a set is designed, failures and/or upgrades will occur, so sets had to be repaired or modified. Consequently the manuals made available with each product were very comprehensive. Placement of components on PCB drawings, step by step descriptions of operation, upgrades, tuning, etc. were all included. By and large there was easy access to boards and components with boards either having cable connectors between them or plug in card connectors used.

iii) Incorporating flexibility in products, that is, sufficient options given so all sectors of the market could be satisfied.

Even the original type 6104 set was offered in four variations. The standard was a 5 channel set, but

New additions to the Federal Awards Program

The Federal Awards Program now has two new awards certificate updates.

DXCC Certificate

W.I.A. Achievement rewards

The DXCC Certificate has now been updated with "achievement labels" that can be readily attached. Those that have achieved a greater Country total than 100 can now apply for special achievement rewards that increment from 125, 150, 175, 200, 225, 250, 275, 300 and 325.entities. These achievements are rectangular in shape, and have been designed to be placed neatly along the bottom edge of the DXCC certificate.

If you have achieved these they all fit nicely along the full width of the internal border and are colored Dark Green on a smart gold background.

W.I.A. Honour Roll award

This special reward is for those that achieve minus nine of the total DXCC entity list. Its shape is round and is colored smart gold on a Black background. At this period the special achievement total is 326 entities. The Honour Roll achievement label is placed on the top left hand side of the DXCC certificate.

W.I.A. DXCC Excellence award

This very special reward is the highest of all. It's for those that achieve the maximum total of the DXCC entity list.

At this period the special achievement total is 335 entities.

Its shape is round and is colored Black on a smart gold background. The DXCC Excellence achievement label is placed on the top right hand side of the DXCC certificate.

"Free" DXCC smart achievement labels can be requested via the Federal Awards Manager with a stamped address envelope, they are issued only once to a single certificate.

Non members also can apply although a small fee will be required.

WAVKCA. (Worked all VK call areas) Certificate.

This award certificate is one of our most prestigious, both here in VK and overseas or Dx Countries. We have updated this certificate as a face lift and added all Australian A.C.A. VK9 prefixes as they are in 2003.

The prefix areas are:

VK9C Cocos Keeling Islands.
VK9L Lord Howe Island.
VK9M Mellish Reef.
VK9N Norfolk Island.
VK9R Rowley Shoals.
VK9W Willis Islands.
VK9X Xmas Island.

Samples of these updates will be soon viewed on our National Website or alternatively by email.

"This is another Federal Awards update, working to keep pace for our members in 2003".

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CODAN HF Transceivers continued

there was also a single channel set, a 12 channel set in a larger case, plus a 5 channel version for light aircraft. Later sets had even greater range of options, examples being, number of channels, single and two frequency simplex; modes offered AM (H3E), CW, LSB, USB or combinations; clarifier - narrow or wide range, two tone call encoder, noise blanker, mute facility; battery pack; vehicle installation kit; whip antenna. Marine versions were available and these had an added option of output power level.

iv) Using the process of incremental product design to gradually improve the overall performance of products. The original 6104 set was constructed using valve techniques. Transistors were held in rubber grommets in the chassis with other circuit components mounted on tag strips. Both valves and transistor circuits could now be assembled in the same way. Once the 6415, a single PCB receiver was developed, it became the receiver section of the 6104 set, which was now called the 6104 Mark 2. This same combination was then used in the type 6332 transceiver, a self contained set having a screw-on portable battery pack, whip antenna and carry bag. This idea of utilising modules developed in a range of products became even more common when SSB sets were made. The company developed a modular system of generation and reception of SSB signals, shown in Figure 2, and it became their standard. Improved blocks or modules developed for next generation sets could then be utilised in older type sets, resulting in a upgraded type number. A good example is the type 6924 set and illustrated in Figure 3. After thick film modules were developed and improved RF power transistors became available a new version the type 6924 Mark 2 was released. Next there was a cosmetic change from the green/grey/teardrop knobs styling to the black/silver grey/black knobs version which was renumbered 6924B. The 6924C version is a ruggedised, waterproof version of the 6924 Mk 2. Similar circuits, concepts and flow can be seen in the sister sets type 6801 and 6801 Mk 2, that is, these sets match the 6924 to 6924 Mk 2 upgrade, but have a higher power RF amplifier with 50 ohm output impedance. Some sets were so similar that the one manual covered a series of transceivers. Naturally this process makes good engineering sense for it allows a steady progress in updating products, shares and minimises design and production costs as well as making life easier for those undertaking set maintenance.

(To be continued)

Notes

1. For a more detailed history of Codan see, Haskard, M R (2002) Radio Waves, "Codan - the era after Traeger Part 1", No. 81, July 2002, Historical Radio Society of Australia, Melbourne, Australia.
2. The CODAN acronym - According to F E Terman in "Radio Engineers' Handbook", McGraw-Hill, NY, 1943, page 653 the D stood for Device, yet Rob Gurr (VK5RG) maintains that in the local Australian industry it stood for Delay.

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Passive Grid

A simple way to achieve a broadband low SWR input match for a passive grid linear amplifier appeared in the *In Practice* column of Ian White G3SEK in the November 2002 issue of *RadCom*. The idea is to form a low pass Pi network with the input capacitance of the high power tetrode, and so absorb the input capacity into the low-pass filter and obtain a wide band low SWR input match. This was described for a Russian 4CX800A/GU74B but the technique could be used with other power tubes.

The basic passive grid input circuit is shown in Fig 1. The necessary voltage swing is developed across a 50 ohm resistor, R1, which absorbs the drive power. The tube in Class AB1 has a high input impedance and, even if Class AB2 operation is attempted, the low value of R1 swamps the lower valve grid impedance. The resistor R1 provides a load to the driving transceiver. However, the input capacitance of the power tube is in parallel with R1 which can result in a poor SWR on the higher HF bands.

Another problem can arise due to the low drive required by many tetrodes. A 100 watt transceiver can provide too much drive. You could turn down the output of the driving transceiver but watch out for the power spike at initial operation that is due to the ALC action of the transceiver and the means of reducing power employed using the ALC circuit. This has caused problems due to overdrive with some amplifiers, resulting in damage to power devices and the generation of spurious signals and EMI problems.

A way of overcoming the overdrive problem was suggested, using negative feedback, and this is the purpose of the unbypassed cathode resistor shown in Fig 1. This suggestion originated in the tube data sheet. For the 4CX800A/GU74B around 30 ohms is suggested which will result in a drive power requirement of around 50 watts. This will be within the range of the transceiver drive control without the danger of serious overdrive. The transceiver driver will also be operating in an area where it can produce a cleaner drive signal. ALC should be provided from the amplifier to the transceiver to hold the system in check and prevent overdrive from occurring.

For situations where the drive requirement is much lower the best option may be to use a power attenuator. The use of TO220 thick film power resistors was suggested in this case.

The matching circuit to provide a wide band input match is shown in Fig 2. This is a skeleton circuit to show the low pass filter components. The 4CX800A/GU74B has an input capacity of 51 +/- 5 pF which in Fig 1 appears in parallel with the 50 ohm resistor, worsening the input match on the higher HF bands. The input filter shown in Fig 2 is designed to be matched in the region of 30 MHz and uses the input capacity as one capacitor of the Pi filter therefore only requiring one inductor and one capacitor.

The values given are for a 51 pF input capacitance; the inductor can be scaled for other values of input capacitance by multiplying the inductor by 51/C. The capacitor C1 is equal to the tube input capacitance. A silver mica capacitor is preferred. For the 4CX800A/GU74B with 51 pF input capacitance the inductor is 0.22 microhenries. The inductor can be a small self supporting coil. Other values of inductor will vary the match as shown in Fig 3. For inductors between 0.2 and 0.23 microhenries the SWR dip can be set between 20 MHz and just over 30 MHz. Adjustment of the value of C1 and L will allow tailoring of the SWR curve to obtain an optimum result. You could push the compensation into the 50 MHz region by moving the dip into the 40 MHz region at the expense of a larger SWR bump at lower frequencies.

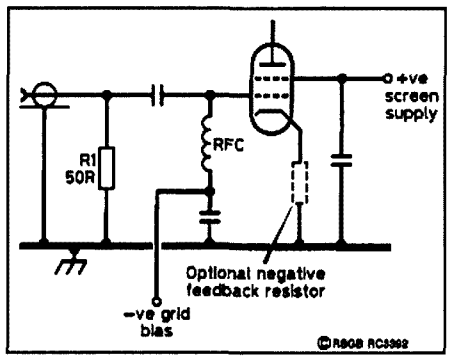


Fig 1. Passive grid input circuit. The 50 ohm resistor is the driver load, and an optional negative feedback cathode resistor is shown in this skeleton circuit.

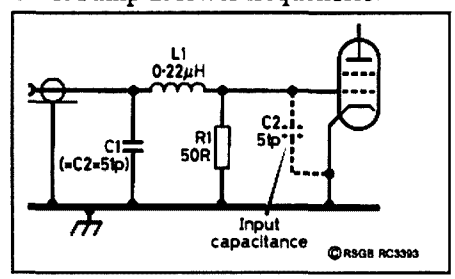


Fig 2. Additional components C1 and L1 form a low pass filter with tube input capacitance and help smooth out input SWR.

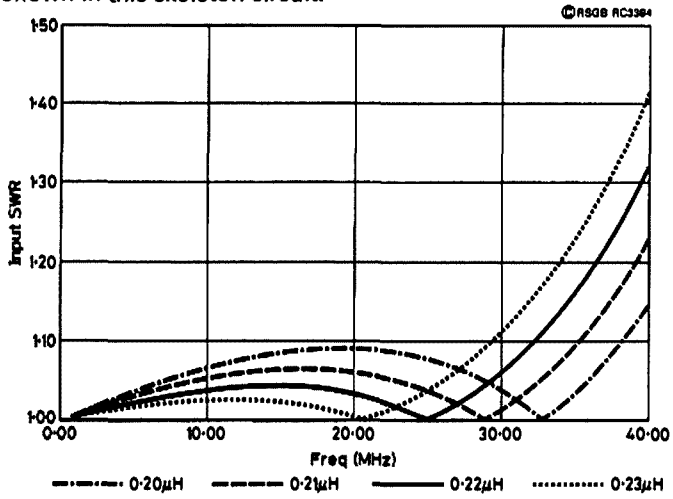


Fig 3. Input SWR with various values of L1. A value of 0.22 microhenries is optimum but is not critical.

Portable 2 Metre Yagi

A small two metre Yagi which could be carried in a car boot was described in *QEX* Sept/Oct 2002 by Zack Lau W1VT. The Yagi was designed to fit into the boot of Zack's car and uses a 32 inch boom. Zack W1VT designed the Yagi using The Yagi Analyzer program which is distributed with the ARRL Antenna Book. The antenna was built with a one inch square aluminium boom 32 inches long. The elements were made from 0.25 inch diameter solid aluminium rod and were mounted insulated from the boom using home made Teflon insulators. The driven element was made out of 0.25 inch brass rod or tubing. The match was a T match with a coaxial balun to give balanced feed with coax.

The antenna is shown in Fig 4. The element lengths are for insulated elements. If you want to use un-insulated elements you would need to add 0.133 inches to the element lengths. For information on element length corrections there is information available which is probably more critical for 70 cm and 23 cm antennas. For information you could look at:

The ARRL UHF/Microwave Experimenters Manual.

The VHF UHF DX Book edited by G3SEK.

G3SEK's Website www.ifwtech.co.uk/g3sek

Articles by VK2KU, AR March 1999 and by VK2ZAB, AR November 2002.

The feed system is a T match made from 9/32 inch brass tubing with straps made from 20 mil copper sheet. The joints are soldered after adjustment. The feed system is shown in Fig 5. The balun was made from UT141 semi rigid coax and is a half wavelength of coax. The balun coax is shown in Fig 6. The centre conductor pigtails should be long enough to wrap around the ends of the T bars. The balun coax is coiled to reduce the space occupied and is held in place by a plastic clip.

The SWR was under 1.8:1 across the two metre band. The computer calculated gain was 8.3 dBi and the front to back ratio was at least 20 dB.

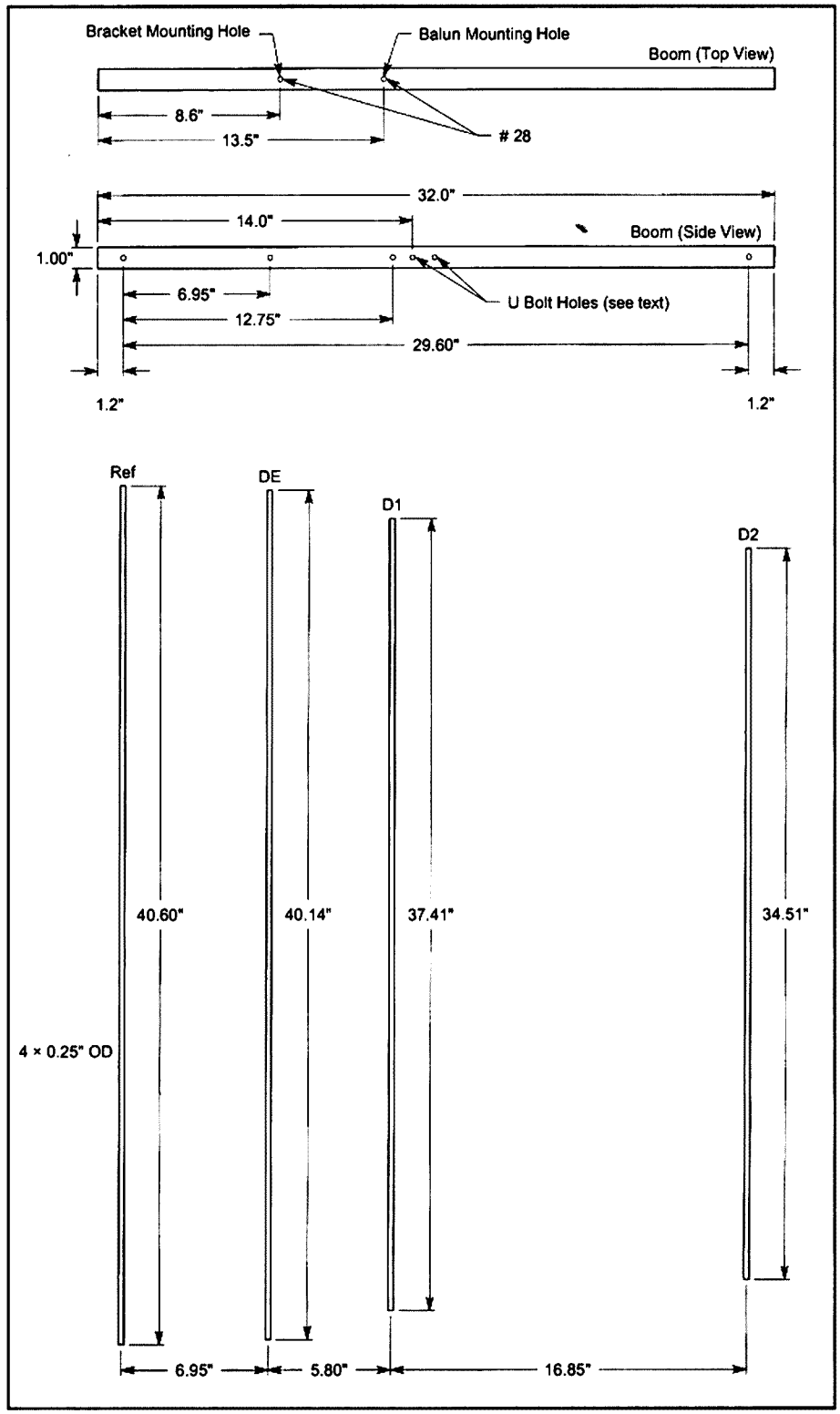


Fig 4. Boom and elements.

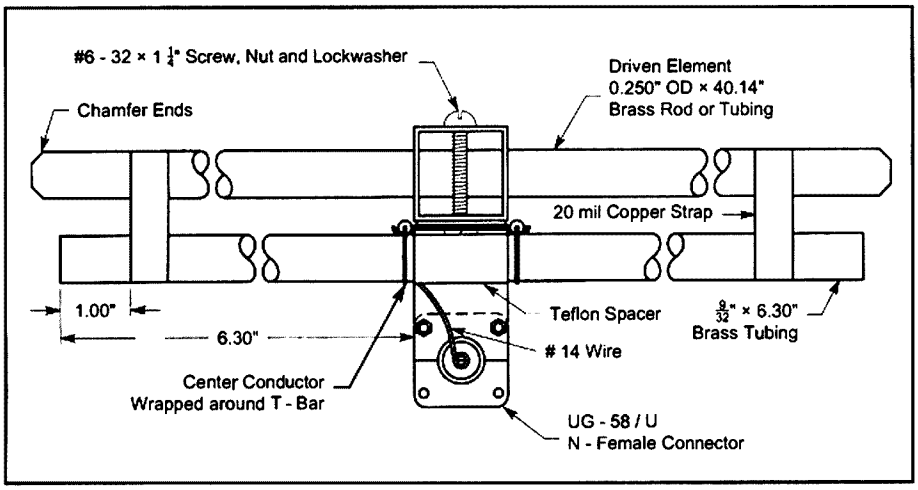


Fig 5. Yagi feed system – T match.

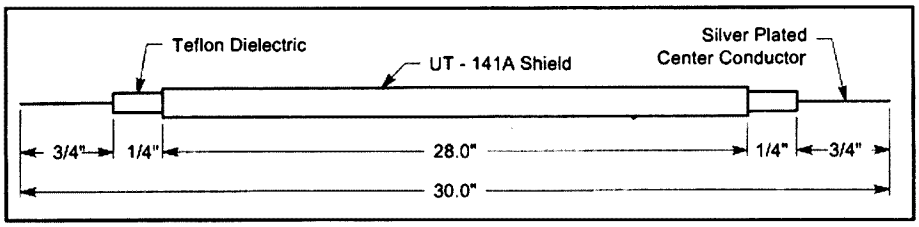


Fig 6. Half wave UT141A semi rigid coax half wave balun.

Rusted Threads

A useful tip about how to deal with rusted threads appeared in the In *Practice* column of Ian White G3SEK in *RadCom*, January 2003. The tip comes from Graeme G0EEA.

Unsticking a rusted nut on a U-bolt is often only half the battle. The nut must then be unscrewed along the long rusted thread. This can be speeded up by applying some automotive valve grinding paste.

This can be obtained from an automotive spare parts shop. Don't forget to clean it off after use. Use a lubricant coating that won't seize up next time.

Feeder Loss

An interesting table shows the SWR to be found at the fed end of a lossy feeder terminated in a short circuit. The short circuit results in a very high SWR . The table appeared in the *Down To Earth* column of Ian Poole G3YWX in *RadCom*, January 2003.

The SWR found at the fed end is much less than the high SWR due to the short circuit and illustrates the effect of feeder loss on the SWR indicated at the radio end of a feeder.

The power at the transceiver is constant but both the power at the far end and the reflected power are attenuated by the feeder attenuation. Thus, as shown in Table 1, a 2 dB feeder loss will never result in an SWR greater than 4:1 at the transmitter. This is the loss of 10 metres of RG58 in the 144 MHz band. So, if you use this thin coax, you may well think that your antenna is better than it is. A similar length of RG213 would show a maximum SWR of approx 10:1 for the same antenna termination.

One use of the table would be to check the loss of a length of cable. A short circuit termination is fairly easy to make. However, it would be wise to have some attenuation between the transmitter and the SWR meter so as to minimise the effect on the transmitter. A suitable roll of RG58 or other thin and lossy coax would serve as a suitable attenuator. A 3 dB loss between the transmitter output and the SWR meter should provide protection. A 6 dB attenuation would be even better. Simply read the SWR presented by the cable under test when it is terminated in a short circuit and then refer to Table 1 to find the cable loss.

ar

Table 1. VSWR created by a lossy feeder terminated by a short circuit at the far end.

Feeder Loss dB	VSWR Reading
20	1.02
16	1.05
13	1.10
10	1.20
7.5	1.4
6	1.6
5	1.8
4.5	2.0
3.5	2.5
3	3
2	4
1.75	5
1.5	6
0.75	10
0.6	15
0.4	20

Division News

VK1 News

Forward Bias

Peter Kloppenburg VK1CPK

There were two significant events during the past reporting period, the Division's AGM and the visit by the president of the RSGB, Bob Whelan (G3PJT).

In spite of the Constitution being changed last year to allow for a reduced quorum of 15 members at a General Meeting, 35 members turned up at the AGM on Monday, February 17, 2003. Some members even had to sit on the floor at the back of the hall. After handing out the annual report, each committee member answered questions about his portfolio and provided background information on some of the decisions taken by the committee. The following members were elected to the new committee: Alan Hawes (VK1WX) President, Phil Longworth (VK1ZPL) Senior Vice-President, John Woolner (VK1ET) Vice-President, Deane Walkington (VK1DW) Secretary, Linden Orr (VK1LSO) Treasurer, Peter Kloppenburg (VK1CPK) Membership Secretary, Russell Manning (VK1JRM) Committee, Robert Howie (VK1HBH) Committee, and Peter Marcusson (VK1USJ) Committee. Gilbert Hughes (VK1GH) was re-elected as Federal Councillor to represent the Division at the Federal Annual convention. The last official act by the previous committee was to appoint Alan Hawes as a second Alternate Federal Councillor.

Bob Whelan spoke on the subject of the Foundation Licence at a special general meeting of the new committee which took advantage of Bob's visit to the ACT, where he will participate in the RSGB Commonwealth Contest (CW) in March. With the number of aspirant radio amateurs in the UK dwindling fast, the RSGB and the Radiocommunications Agency (RA) got together and created the Foundation Licence. Its purpose is to attract a new and young generation of radio amateurs and prepare them for HF operations, and open the door to the use of digital modes and the microwave segments of the amateur bands.

A full report appears elsewhere in this magazine and I thoroughly recommend a careful read of it as it has much information of value to Australia.

The next general meeting will be held at Scout Hall, Longerenong St., Farrer, on April 28 at 8.00 pm. Cheers.

VK2 News

by Pat Leeper VK2JPA

The first item of interest this month is the upcoming annual general meeting that will take place on Saturday 12th April. There are three motions to be voted on and we expect some lively debate on at least one of these.

Now follows a report on the Central Coast Field Day, put together by our Bookshop Manager Chris VK2QV.

Wyong 2003 :

It rained on the Parade

The 2003 Field Day was the victim of some welcome, if not entirely expected, wet weather.

For this reason attendances appeared to be down – for instance, the "flea market" was populated by a few determined souls – wet shoppers, wet vendors and wet equipment was the order of the day. The hassle of the rain, where the droplets appeared to be of that thin, nuisance type, made life uncomfortable.

The wet conditions also drove people under cover, again making life difficult as a several hundred wet and bedraggled hams made like sardines.

Still activity at several stalls appeared to be intense, the Dick Smith stall staff for example resembling a wagon train besieged by angry Indians.

The WIA table managed to sell out of all but one item of deceased estate equipment, while the bookshop closed early due to the rain being blown in, damaging the books. Still it was a good day with most of the stock being sold.

The rain forced most people undercover

The Radio and Communications crew were at the show, Ron Bertrand VK2DQ/4 making a notable appearance marketing his Radio and Electronics School.

A pretty wet and miserable day, however an antenna purchase, a 2m linear and a fistful of QSL cards made it all worthwhile – along with the opportunity to renew old acquaintances and make new ones.

The Field Day was made possible by members of the CCARC putting in their time and effort – without which, there would be no field day.

Bravo !

Chris de VK2QV

Thanks Chris. That's all for this month.

Buyers braving the weather in the Flea Market.

VK3 Notes

by Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

WIA Federal Convention

The major discussion topic at this month's WIA Federal Convention in Adelaide will be amateur radio licensing in Australia – four of out six motions on the agenda relate to this topic.

WIA Victoria has been encouraging its members to have their say on the issue by writing to their Federal Councillor.

WIA Victoria has submitted a policy motion which seeks to avoid unnecessary delay in Australian radio amateurs benefiting from licence changes expected as a result of July's World Radiocommunciations Conference.

The ACA has indicated that there could be a delay of six months or even longer before it would act on the decisions of the World Radiocommunications Conference, particularly the expected removal of mandatory Morse code tests from amateur licensing requirements..

WIA Victoria believes it is possible to prepare now for the anticipated change, have the amateur Licence Condition Determinations drafted in advance, and miminise any delay.

In another motion, Proposed by WIA New South Wales, and Seconded by WIA Victoria, the Federal Convention will be debating whether there should be a new Entry Level licence in Australia.

In the past year there has been much discussion on this topic, the WIA Federal Council should be well prepared decide on the matter this month.

Two other motions concern the celebration of the WIA's centenary in the year 2010. WIA Western Australia has submitted motions seeking to lower the pass mark for theory examinations, and also put into the public domain the theory question banks.

The WIA Federal Convention will also consider annual reports from office-bearers, and coordinators, and statutory matters as required under Corporations Law.

The WIA Victoria team attending this important event is Jim Linton VK3PC, Federal Councillor, Peter Mill VK3APO, Alternate Federal Councillor, and Barry Robinson VK3JBR, Observer.

Banyule Council and amateur radio masts

WIA Victoria remains absolutely puzzled by the maverick action being mounted by the Banyule Council, in claiming that a small amateur radio mast is a Telecommunications Facility.

Banyule Council, in Melbourne's north-east, is mistaken and confused, and as a result is threatening the activity of amateur radio not only in Victoria but potentially throughout Australia.

WIA Victoria has been assisting its member, Mark Stephenson VK3PI, in trying to persuade the council's planning staff, Mayor and Councillors, that a mistake has been made by trying to extend the planning laws related to Telecommunications Facilities, to amateur radio masts.

While WIA Victoria began its involvement in January at the request of Mark VK3PI, the issue has been simmering for 18 months. It is clearly an injustice, and hopefully commonsense will prevail.

VK3WI in another contest

The WIA Victoria callsign VK3WI was activated during last month's RSGB

Commonwealth CW contest, thanks to Jim Baxter VK3DBQ who worked 76 stations in five hours. He reported what appeared to be low activity but good propagation event.

VK3WI joined the other "headquarters" stations in the contest and logged GB5CC, VK2WHQ, VK4WIA and ZL6HQ also put on due to the added significance of HQ stations.

A member who is very proficient in hand sending CW is being sought for next year's Commonwealth contest.

Thank you to Jim VK3DBQ for his effort in putting VK3WI on the 80, 40, 20, 15 and 10 metre bands during this year's test.

Good luck to VI5WCP

Four WIA Victoria members are mounting a DXpedition to Waldegrave Conservation Park off South Australia's Eyre Pensinula this month, signing VI5WCP.

The DX community, and particularly those chasing contacts under the Islands On The Air (IOTA) program are eagerly waiting for VI5WCP to appear on the bands 17-22 April, CW and phone on all bands except 160-metres.

The team is Tom Marlowe VK3ZZ, Peter Forbes VK3QI, Jack Bramham VK3WWW and Keith Proctor VK3FT.

The four members are mounting a commemorative IOTA DXPedition, marking the bicentenary of the naming of Waldegrave Island East by explorer Mathew Flinders during his coastal exploration of 1802-1803.

WIA Victoria was pleased to be able to provide a letter of support for VI5WCP.

A special bicentenary commemorative QSL card will be issued – SASE with sufficient for return postage to VK3ZZ QTHR, or via the bureau.

Recruiting drive

A continued effort to increase WIA Victoria membership is reaping positive results, through new members who include former or lapsed members, and those who have not been a member previously.

The year 2002 saw the first rise in membership for many years, in a difficult climate with declining numbers of radio amateurs.

A few non-members with "issues of the past" have been questioning WIA Victoria, and the answers being provided mostly results in them rejoining the fold.

Thank you to those individual members, and our member radio clubs who have been promoting WIA membership and the need to support the organisation that support our hobby.

Division News

VK4 Notes

Qnews

Alistair Elrick VK4MV

World Scouting Jamboree Talk from VK4SGW

Steve VK4SGW, is full of vim and vigour after attending the 2003 World Scouting Jamboree in Thailand, he was a guest speaker at the TARCinc Management Meeting on Tuesday 4th of March 2003, to report on the trip.

He described his experiences at the Jamboree in helping run the Radio Scouting facility - a ham station which by all reports ran nearly 24 hours a day. Steve also gave an insight into the amount of organising that took place to make the event an unqualified success plus recount a number of humorous happenings during the jamboree.

Steve snared the attention of one and all at the talk with the aid of audio-visual technology, and so it wasn't just Steve pointing at a blurred figure in a smudged photo, that was on his temporary Thai Amateur Radio License!

Steve noted that the World Jamboree nearly didn't go ahead, due to organising staff attrition (several teams were sacked). Some organisers also warned leaders that the jamboree would be a survivalist one. The Jamboree site was at Sadahip Naval Base, approx. 2 hours south of Bangkok. Approximately 1000 military personnel, risk management teams and navy gunboats were deployed to ensure security at the Jamboree.

And then there is the North Queensland Amateur Radio Convention 2003, with notice being issued early for all to plan their trip.

The date is set for one of THE most popular conventions in the Amateur Radio calendar world-wide. In its 30th year, the 16th North Queensland Amateur Radio Convention will be at James Cook University from PM Friday 19th to PM Sunday 21st September 2003. Activities will be centered, around University Hall, Roccocos Bistro and a number of lecture theatres.

Mackay Repeater up and running

Brian Coleman VK4DFD says "Good Friends" of the Mackay Club, VK4KBQ, VK4NY and associates have re-sited the repeater on their commercial site, and also, the local IRLP node 6450 is operated from their business site.

A special thanks to Doug, Vic and Andrew for the work, time and know-how they have devoted to this. So let's hear reports of the local voice and IRLP activity getting the most out of it.

Technology in schools

Ronnee Meachen VK4CO reported that Queensland Innovation Minister, Paul Lucas has met with seven students from the North Rockhampton State High School. The students will be taking part in the Professional Partnership Program, designed to introduce them to job opportunities in the Science, Engineering and Information and Communication Technology (ICT) industries.

These seven students will actually be placed in jobs, so that they can see what the industry is like and whether it's an area they'd like to pursue as a career. The Association of Professional Engineers, Scientists and Managers Australia (APESMA) are running the program.

Col McCamley Award

At the Sunshine Coast Amateur Radio Club prior to the Annual General Meeting, the Col McCamley award is voted on and presented. Past WIAQ President Geoff VK4KEL gave a brief summary of the history of the award and its purpose, which is to recognise club members who have put a lot of personal effort into the club.

Harvey, VK4AHW, won the award. Among other things, Harvey showed great dedication, as he travelled from Dalby to the Coast just to attend meetings while he was President.

Barcfest in Brisbane

From the Brisbane Amateur Radio Club comes notice that Barcfest is on again this year, the date is the 10th of May, venue is changed this year to the Holland Park Bowls Club, 49 Abbotsleigh Street, Holland Park. So mark it in your diaries now.

Watch out for Pirates

Gordon Svenson VK4TS is a "non active amateur", so next time you hear VK4TS particularly on 20 metres, get as much info as possible because THAT VK4TS is a PIRATE!

Gordon, the real Gordon, lives in Maryborough and is in fact a life member of the Maryborough Amateur Radio Club. Please report this station as an "intruder" and to WIAQ Brisbane.

73s from Alistair

VK5 Notes

Peter Reichelt VK5APR
Hon Secretary.

The AGM will be held on Tuesday the 22nd of April 2003 at the St Johns Hall, Arthur Street Unley commencing at 7:30 p.m.

Nominations are called for the position President, Secretary, Treasurer and Minute Secretary.

Nominations are to be in writing and be received by the secretary prior to the commencement of the meeting. Nominations may be sent to the Secretary, GPO BOX 1234, ADELAIDE, SA 5001.

All nominations to be proposed and seconded by financial members and signed by the nominee as accepting the position.

Regards & 73

VK6 Notes

RSGB Pres. Tours VK

Dennis 6KAD and I greeted Bob Whelan, G3PJT, hours after his arrival in Australia. The WIA Council had invited him and his wife to dinner on Saturday night. We enjoyed a Chinese Banquet and discussed the differences between life down-under and the UK. Bob left us a copy of the study pack for their new and very successful Foundation Licence. This new Licence classification has rejuvenated AR in United Kingdom, boosting some radio clubs membership by 600 %. Electronics retailers have sold out of Morse keys and oscillators.

The Foundation Licence and its suitability for Australia will discussed at the National conference. Many thanks must go to VK4 and the QNEWS team for a very professional interview with Bob Whelan. It is well worth a listen. Go to http://www.wia.org.au/vk4 and Click the Red NewsRoom Link.

New Award in Pipeline

Don 6HK advised the Council that a small group of individuals were working on setting up an "Indian Ocean Trophy" to be awarded to the first stations completing a two way contact from Australia to the African continent via tropospheric propagation in the 144-148 MHz band. i.e. not involving satellite, repeater or EME modes. The trophy would be similar in principle to the "Brendan Trophy" offered by the Irish Amateur organization for a contact across the Atlantic. A suitable body was sought to administer the award when rules and an actual trophy were settled. Council agreed in principle to the concept that the VK6 Division could provide such administration.

That's all for this month. Please remember that any comments or information for inclusion in VK6 notes can be sent to me at vk6notes@wia.org.au

Volunteer Firebrigade to recruit AR Operators

The Kalamunda Bush Fire Brigade has written to WICEN hoping to recruit some members to join their team. Apparently they have plenty of people who want to fight fires but a shortage of those with the necessary skills to man their communications network.

If you live within 30 minutes of the Kalamunda area I'm sure they would love to hear from you. If you don't, then I am sure there would be other Volunteer Fire Brigades in a similar situation.

Brian Jeffrey Slarke VK2ZCQ

It is with regret that I must advise of the sudden death of Brian Jeffrey Slarke VK2ZCQ on his property in Bellingen N.S.W. on 20 November 2002.

Brian Jeffrey Slarke was born on 25 February 1938 at Graceleigh Hospital, Bellingen N.S.W.

From a very early age he showed his intelligence, with his first words being, CAR CAR, not the usual MUM MUM.

His early school days were spent at Raleigh, due to there being no school bus to Bellingen. When a bus did run up the North Bank road, Brian sat on the engine cover and waited for the driver to engage the clutch, before the driver could change gear, Brian had it done. If ever there was a problem with the bus Brian was the first out to help.

From an early age he built crystal radio sets and moving picture shows from scrap cardboard etc. He was a prolific collector of things that may have been useful.

He lived his full life on the family farm with his brother Gerald. Ruth, his sister had married and moved to Cairns Qld.

When TV arrived, he was in his prime. He ran a very successful TV & Electronic business in the Bellinger Valley.

Brian was a man of many hats and he wore them all with proficiency. He was a fully qualified motor mechanic as well as his expertise in the electronic field. He was appointed a Justice of the Peace in 1990.

Twelve years ago he had a change of lifestyle and entered into a relationship with Marie, thereby gaining an extended family who all loved him very much.

To most who knew Brian and his white overalls, he will be remembered in the HAM environment, as the driving force in latter years behind the URUNGA convention where he was known as "Mr. Fox". It is said he only missed one of these get-togethers in 53 years. He was a tireless worker also on the local repeater group. He never mastered Morse Code, "didn't need to" as he spoke fast enough.

Vale Brian VK2ZCQ

Submitted by Bill Sinclair VK2ZCV

Sid Ward VK2SW

It is with regret that I must advise that Sid passed away peacefully in his sleep in the Calvary Hospital, Wagga Wagga, NSW at 11.30 am on March 17, 2003, in his 77th year.

He is survived by his wife Jean, daughters Suzanne and Barbara and their families.

Sid gained his Amateur licence in 1948 and recently received the WIA Medal for 50 years continuous membership. His many Amateur friends in Australia and overseas will be saddened at his passing.

Tony Mulcahy VK2ACV

Division News

VK7 Notes

Cape Hauy DXpedition

The recent edition of the Australian Digital DX News reports on a DXpedition by Rex, VK7MO, to the rare grid square QE46 at Cape Hauy on the East Coast of Tasmania. The DXpedition involved backpacking the station over some 4 km of very rough terrain.

To quote Richard Rogers, VK7RO, "The whole thing is so ridiculous it has got to be worth doing". In addition to the radio equipment and laptop computer, a Honda generator, tent, sleeping bags, etc., also had to be carried in - and then were nearly blown and washed away during a big storm that night. How come most of us up here don't have the energy to drive to a hilltop to give out a new grid

A big thankyou from Rex VK7MO to all who participated:

Eric who overnighted with me and mopped up the tent to get us operational after we had half an inch of water over half the tent floor.

The deployment team of Ian VK7IR, Ian VK7IF, Mike VK7MJ and wives and friends.

The recovery team of Gary VK7HGO, Roger VK7HRN, Brian VK7HSB and wives and friends.

The liaison team of Dave VK7DM and Bob VK7KRW.Trevor VK7TS who operated my home station.

All the stations that took the time to make contacts with us or tried.

Despite very poor VHF conditions I was very pleased with the results:

- 2 VK3s on JT44 troposcatter on two metre
- 6 VK2s on FSK441 meteor scatter on two metre, one as far as Coffs Harbour
- 1 VK1 on FSK441 meteor scatter on two metre
- 1 VK3 on FSK441 meteor scatter on two metre
- 40 contacts with VK7s mainly on SSB and FM on 2 metre and 70 cm

The exercise demonstrated that with the new digital modes one can make regular contacts in poor conditions up to 1600 km on two metre with a back packed station comprising a small antenna and 60 watt. Overall a great team effort from members of the Southern Branch.

Silent Key notice

Tasmania lost another oldtimer recently when VK7BT, Tom Barnes became a silent key. Tom came to Tasmania in the 1950s and lived at Taroona but many TV interference complaints put an end to his Amateur Radio activities. After retirement he expanded his interests, becoming a councillor on the Kingborough Council. He reactivated his Amateur Radio activities both from his QTH and also from his holiday shack.

He leaves his XYL, Judith and a fine family. Vale VK7BT

Club Notes

Adelaide Hills Amateur Radio Society

The February AGM for AHARS saw following committee elected.

President Geoff VK5TY

Treasurer Bryan VK5SV

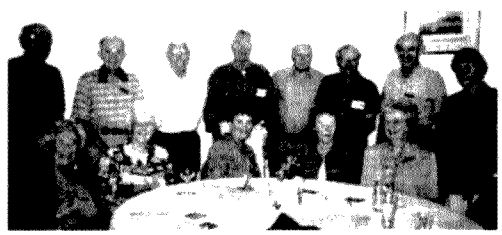
Secretary Paul VK5PH

Committee members Jim VK5JST, Geoff VK5JB, John VK5EMI

It was with regret the committee accepted the resignation, due to poor health, of Alby VK5TAW. He has been an excellent Secretary for a number of years. He will be a hard act to follow. However, Paul foolishly volunteered for the position and we wish him well.

The AGM was followed by Peter Holland, who spoke about the Historical Radio Society, its origins and aims and showed members some of his 'treasures'. There were some sighs at the sight of the "Racal", a very special amateur unit; memories of their youth were brought to mind by some of the other radios.

As always, all visitors to VK5 are welcome to meetings of AHARS held on the third Thursday of each month at the Blackwood High School. You may find your own way to the school or contact Geoff for more information. He is QTHR the callbook and phonebook.



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We're back!

My apologies to all readers of DX Notes for the missing column in the March 2003 edition of AR.

When I think back on the innumerable times I have advised my daughters to make back-up copies of all their schoolwork (to prevent a total loss if/ when their school laptops crash) the inevitable happened, not to them but to me! In the most blatant case of hypocrisy I am ashamed to admit to not following my own advice.

Two days before the deadline for material for the March 2003 copy of AR my PC crashed and all my DX Notes information and files were lost. I will not dwell here on the names and comments rained down upon me from those who must be obeyed (both young and not so young) suffice to say that very few were charitable. Be assured that I have learned the hard way and a back-up copy of all my DX Notes files is generated every time something is added or deleted.

The 160 metre band has been very quiet despite regular monitoring at all hours of the evening. I did manage to hear RK4UWA who was 549 with me on 1823kHz at 18.19z on the 15th of February. I called him a few times but could not get him to answer me, pity. My best DX so far on 160 is Tom W8JI who has given me a 559 a couple of times. Tom has an excellent set-up for 160m so it's probably due more to his stations' abilities than mine. Bob, VK3ZL, in Merino manages to work quite a few stations on 160m and he is always 599++ with me in Montrose and I suspect he has a pretty reasonable antenna. Perhaps I should ask him for some advice on antennas for 160 metres.

Now that we are heading into our autumn and winter months propagation should begin to pick up a bit. As I am always on the look out for information about DX contacts made from VK please have a go at chasing some DX on the bands and drop me a line if you manage to work something interesting.

Remember, a contact with a DX station (whether a rare entity or simply extremely distant) may be passe to some experienced operators. However, please be mindful of the newcomers to the DX game who are just starting out and who will appreciate all the encouragement and support they can get.

Sometimes just knowing that a DX location can be worked from VK on a certain band at a certain time can be a great encouragement to beginners. So please do a bit of DX'ing and drop me a note to let me know what you work so I can write it up. Hear you on the bands.

The DX

3D2, FIJI. Brian, N6IZ, is planning to be active from the island of Namotu (OC-121) using the call 3D2IZ from the 26th of March until the 6th of April. He will be operating mainly CW on all bands 80 – 10 metre. QSL to N6IZ via bureau or direct CBA. [TNX N6IZ and OPDX]

3D2, FIJI. Tad, JF6OJX, will be operating from Mana Island (OC-121) as 3D2JX from the 19th till the 24th of April. His equipment will consist of a FT-897 and various wire antennas. Activity will be on the HF bands, 80-30 metre (where he will listen especially for European stations) and also on 20-6 metre. Tad will also try 160 m if he can manage it. QSL via JN1HOW. [TNX JF6OJX and OPDX]

8Q, MALDIVES. Ivan, 8Q7VR, is on the air from Maldives (AS-013) and will be there until May. QSL via UR9IDX. [TNX RL3AW and 425 DX News]

9H, MALTA. Gaby, OE8YDQ, and Chris, OE8CIQ, will be holidaying on Malta over the 20th until the 27th of April. On holiday, they will be operating on the HF bands 80 – 10 metre using SSB and CW when not 'otherwise occupied'. They intend to use their homecalls/9H unless they are successful in their applications for visitor's callsigns. Equipment will be 100 watt to a vertical antenna. QSL via the bureau or direct CBA. [TNX OE8YDQ and 425 DX News]

9L, SIERRA LEONE. Zbig, SP7BTB, has recently returned to Sierra Leone from a holiday in Poland and is now back on the air again as 9L1BTB. He is active on 160 metres normally after 2130Z (probably an unfavourable path to VK) but just in case listen between 1828-1831 kHz. His activity is also dependent on the town's sporadic electricity supply. His equipment consists of an IC706, Emtron DX1B linear and a dipole 13 metre above ground level. No QSL route given but check QRZ etc. [TNX SP7BTB and OPDX]

9Q, DEM. REPUBLIC of CONGO. Pat, 9Q1A/2, and Nicole, 9Q1YL/2, report that their applications to renew their licenses has been successful so they will continue to operate until July. The pair will pursue the DX from their new QTH in Matadi. [TNX La Gazette du DX and 425 DX News]

9Y, TRINIDAD & TOBAGO. Sigi, DL7DF, will be active as 9Y4/DL7DF while on holiday over the period of the 23rd of March until the 10th of April. He will be QRV on all bands using CW, SSB, RTTY, PSK31 and SSTV. Equipment is a 100 watt transceiver and a linear amplifier. [TNX DL7DF and OPDX]

A3, TONGA. Irina, DL8DYL; Reinhard, DL8YRM; Thomas, DL5LYM; Wolfgang, DL4WG and Ralf, DL9DRA will be on air from the 17th of March until the 5th of April. QSL Manager for the group is DL8YRM. QSL via the bureau or direct CBA. [TNX DL8YRM and OPDX]

D8, SOUTH SHETLAND ISLANDS. Lee, DS4CNB, is operating as D88S from the South Korean Antarctic base 'King Se-Jong' on King George Island (AN-010). He will be there until about November 2003 and is on air quite often. Lee has been worked on all bands from 40 – 10 metre using CW and SSB. QSL via DS4CNB. [TNX DS4CNB and OPDX]

F, FRANCE. Franck, F5JOT; Daniel, F5LGQ and Claude, F6CKH are planning to be QRV from the Chausey Islands (EU-039) from the 19th until the 26th of April. Activite on all bands 80 – 10 metre using CW and SSB with a strong possibility of RTTY and SSTV too. QSL via their home calls. [TNX F6AJA and 425 DX News]

F, FRANCE. Jean-Marc, F5SGI, will be QRV from Groix Island (EU-048) on 80 - 10 metre, CW only, signing TM6ILE. He will be on the island over the period of the 7th until the 12th of April. QSL to his homecall direct CBA or via the bureau. [TNX F5NQL]

How's DX?

H4, SOLOMON ISLANDS. Bernhard (DL2GAC, H44MS) has returned to the Solomon Islands and will be there until late April. He is still recovering from malaria so his time on air may not be as extensive as he would like. Have a listen for him and call to cheer him up. [TNX DL2AGC/H44MS & 425 DX News]

HL, SOUTH KOREA. Seasoned traveler Mirek (ex 7X0DX, 9V1XE, VK6DXI, VK3DXI, 9M8DX) is currently QRV as HL5/VK2DXI from Pohang, South Korea until mid May and will be concentrating on the lower HF bands. QSL via DS5UCP. [TNX HL5/VK2DXI and 425 DX News]

IS0, SARDINIA. Freddy, IZ1EPM, will be QRV from Santa Teresa di Gallura, Sardinia (EU-024) from the 19th of April until the 2nd of May on 40 – 10 metre, leaning towards 30 metre. QSL to IZ1EPM, direct CBA or via the bureau. [TNX IZ1EPM and 425 DX News]

PY0, BRAZIL. Joca, PS7JN, is planning to return to St. Peter and St. Paul Rocks (SA-014) in the first half of April on 40, 20, 15 and 10 metre using SSB and RTTY andother modes/bands depending on equipment availability. No QSL route was given but perhaps it can be found on his web page at http://www.qsl.net/ps7jn [TNX PS7JN and 425 DX News]

VP5, TURKS and CAICOS ISLANDS. Rodger, GM3JOB and Willie, GM4ZNC will be active again as VP5/homecalls from North Caicos (NA-002) from the 5th until the 9th of April, QRV on most HF bands using SSB and CW. QSL to their home calls, either direct CBA or via the bureau. [TNX GM4ZNC and 425 DX News]

ZS, SOUTH AFRICA. Phil, G3SWH; David, G3UNA; Vidi, ZS1EL; Kosie, ZS1SR; Malcolm, ZS1MC; Andrew, ZS1AN and Hester, ZS1ESU will be QRV from Robben Island (AF-064) from the 4th until the 7th of April. The group will be using the callsign ZS1RBN and plan to have separate running 24 hours a day on all HF bands 40 – 10 metre using SSB and CW. QSL to G3SWH, either via the bureau or direct to Phil Whitchurch, 21 Dickensons Grove, Congresbury, Bristol BS49 5HQ, England. [TNX G3SWH and 425 DX News]

J3, GRENADA. Bill, VE3EBN, will be on air as J37LR from Grenada, from the 31st of Jan until the 2nd of April operating on all bands 80 – 10 metre using CW and SSB. QSL via VE3EBN. [TNX NG3K and 425 DX News]

ZK1, SOUTH COOK ISLANDS. June, VK4SJ and Doug, VK4BP are off to two IOTA entities during April and May. They will be callsigns ZK1AYL and ZK1SIM respectively and will be on 40 – 10 metre SSB. Their plans are Aitutaki (OC-083) 27th April until the 14th May and Rarotonga (OC-013) 15th May until the 26th May. QSL to VK4SJ via the bureau or direct to June Sim, P.O. Box 406, Caloundra 4551, Queensland. June notes that electronic QSL's (e-QSL's) will not be accepted. [TNX VK4SJ, VK4BP and 425 DX News]

Special Events

The 'European Year of the Disabled' will be commemorated by the special event callsign II1D. Carlo, IZ1CCE, and other Italian amateurs will put this special event call to air throughout 2003. (Why restrict it to a 'European' event? I think that disabled persons throughout the world would approve of part of this!) QSL to IZ1CCE either via the bureau or direct to Carlo Sobrito, Via I Maggio 9, 10051 Avigliana - TO, Italy. [TNX IZ1CCE and 425 DX News]

Celtic Connections

The GMDX Group brings to light an event entitled *'Celtic Connections'*. This event is designed to encourage on air activity by having radio amateurs all over the world contact amateurs in the geographical areas associated with the origins of the Celtic race.

These traditionally being Galicia and Asturias (Spain), Ireland, Brittany (France), Cornwall (England), Isle of Man, Northern Ireland, Scotland, Wales and Nova Scotia (Canada), [The Celts were Europe for at least 2000 years prior to the discovery of the Canadian East Coast, so how Canada is classed as an origin point is beyond me!].

This is not a contest, rather an 'activity weekend' to allow participants the chance to qualify for the Celtic Knot Award and to promote an interest in Celtic origins. The GMDX Group indicates "the event is to be held on the third weekend of April every year.

Reports on activity will be welcome and certificates of participation will be awarded to all who submit a report. If sufficient interest and reports are received the leading participants from Celtic and non-Celtic areas will be awarded an engraved Quaich" (a small Scottish drinking cup to the non initiated [and don't call me James Bond!])

The 2003 Weekend will start at 0000z on Saturday the 19th and finish at 2400z on the 20th of April.

Activity is encouraged on all HF bands by Full calls, Novices and Club Stations (especially if a special event callsign could obtained) in the following *areas*;

CT Tràs-os-Montes region
EA1 Galicia & Asturias areas of Spain
EI Republic of Ireland
F Brittany area of France, (Departments; 22 - les Cotes d'Armor, 29 – le Finistere, 35 - I'lle et Vilaine, 56 - le Morbihan) and Department 44 - la Loire Atlantique
G Cornwall area of England
GD Isle of Man
GI Northern Ireland
GM Scotland
GW Wales
VE1 Nova Scotia area of Canada

Suggested operating frequencies (kHz)

CW	SSB
1.813 / 833	1.872 / 1.952
3.503 / 013	3.772 / 3.572
7.003 / 013	7.072
10.103 / 013	10.133
14.003 / 033	14.172 / 272
18.073 / 083	18.136 / 162
21.003 / 033	21.172 / 272, 21.133
24.893 / 903	24.936 / 972
28.003 / 033	28.472 / 572, 28.133

Further details can be sourced from: Mr. Drew Givens, GM3YOR, 5 Langhouse Place, Inverkip, PA16 0EW, Scotland, U.K. or from the GMDX Groups web site at www.gmdx.org.uk

Special event— Cuba

Special event callsign hunters will be interested in a project that the Members of the Cuban Federacion de Radioaficionados de Cuba (FRC) are organising. Nine special event stations will be activated over the next nine months to commemorate the 150th anniversary of the birth of Jose Marti, one of Cuba's national heroes.

The stations and special callsigns will be active from various Cuban locations that were significant in Jose Marti's life and are;

CO0J	8 - 9 February
CO0O	8 - 9 March
CO0S	11 - 13 April
CO0E	10 - 11 May
CO0M	14 - 15 June
CO0A	12 - 13 July
CO0R	9 - 10 August
CO0T	13 - 14 September
CO0I	11 - 12 October

QSOs will be confirmed automatically via bureau (no QSL required) and a special award will be issued to those who manage to work all of the nine stations. [TNX CO2QQ & 425 DX News]

The Italian Marathon

Members of the Italian QRP Club (I-QRP) are organising their fourth HF Marathon. "This event is to encourage QRP activity and is open to all licenced amateurs and SWLs. The event will run from 0000z on the 1st of April until 2400z on the 31st of August." QRP operation is a technically challenging facet of amateur radio and the experience of making a contact half the way around the world using only a few watt (or few milliwatt) is unforgettable. For further details you can email Giovanni Zangara, IW0BET at iw0bet@amsat.org [TNX IW0BET and 425 DX News]

DXpeditions

A DXpedition to Waldegrave Island East (OC-???, a new IOTA entity) will be mounted by a team of VK3 amateurs to celebrate the bicentennial of the discovery of the island by Matthew Flinders during his historic coastal exploration of Australia in 1802-03.

The team will consist of Tom Marlowe VK3ZZ, Peter Forbes VK3QI, Keith Proctor VK3FT and Jack Bramham VK3WWW and with David McAuley, VK3EW acting as the 'pilot' station. ACA has issued the team with the special callsign VI5WCP to mark the event.

Waldegrave Island is part of the South Australia State West Centre group and the team will be on air from the 17th until the 22nd of April on all bands 80 – 10 metre using SSB and CW. The commemorative QSL card will reflect the historical significance of Matthew Flinders' discovery. Iwill enhance your QSL card collection.

All the paperwork for access has been processed and a boat has been chartered. The QSL route is via Thomas Marlowe VK3ZZ, P.O. Box 368, Leongatha, Victoria 3953, Australia, include a SSAE or alternatively via the bureau. Direct QSL cards not conforming to above will be returned via bureau. [TNX VK3ZZ]

FO/M, MARQUESAS ISLANDS (OC-027). Silvano/I2YSB, Flaviano/I2MOV, Marcello/IK2DIA, Adriano/IK2GNW, Giuseppe/IK2WXV, Carlo/IK1AOD and Andrea/IK1PMR (all experienced DXers and Contesters) will be QRV from mid April for about two weeks. They have applied for a FO callsign and are awaiting confirmation from the authorities.

They will operate CW, SSB, PSK and RTTY on all HF bands and also 6 metre. A beacon will be on air for propagation checks on 50105kHz. Three separate HF stations will use linear amplifiers and several antennas, with beams used on the higher bands.

More information about the DXpedition QTH, operators' profiles, equipment and sponsors can be found on I2YSB's Web page at: http://digilander.libero.it/i2ysb/ [TNX I2YSB and 425 DX News]

Round up

Jeff, VK6AJ, wrote to let me know that he has successfully received his QSL card from 5A1A (Tripoli, Libya) whom he worked in November 2001. Initially Jeff sent his card and IRC's to the supplied Tripoli address but no reply. Then he discovered that 5A1A had relocated to Germany and decided to try there. Jeff says "12 days later I received his QSL card via air-mail.

"I sent an e-mail to thank him and received a reply saying that he was aware of problems with mail in Libya, but that anyone who wrote to Germany would be sure of a reply. He asked if I would tell the other VKs this. The address is; Assid, Hardehauser Weg 4, 33100 Paderborn, Germany." So there we are, a happy result.

DP1ANF. Oleg, R1ANF, has been issued with the callsign DP1ANF for his upcoming visit to the Edward Dallman Laboratory located on King George Island in the South Shetland group. Oleg is planning to be on air beginning in early February. QSL via RK1PWA. [TNX DL5EBE and 425 DX News].

Roman, UT7UA, will southern wintering at the Vernadsky base (WABA UR-01) on Galindez Island (AN-006). He says he is scheduled to arrive in late Jan or early Feb and will operate as VP8CTR as much as time permits. QSL via DL5EBE. [TNX DL5EBE and UT7UA]

The prefix IQ (India Quebec) is now issued by the Italian authorities as an ordinary club station prefix. For example, IQ4AD is now the permanent callsign for the Parma ARI Branch. As IQ is no longer a special prefix for individual Italian amateurs, those who have held an IQ contest callsign are able to modify their calls. Andrea, IV3SKB (ex IQ3X) can now use IU3Y in major contests, and The Monte Capra Contest Team, formerly IQ4A, can now use IR4A. QSL IU3Y via IV3SKB. [TNX IV3SKB and 425 DX News]

WARD AWARD. The World Amateur Radio Day (WARD) award commemorates world Amateur Radio Day which is celebrated by the IARU on the 18th of April each year. Sponsored by the Polish Amateur Radio journal MK QTC the award is supported by the Polish Amateur Radio Union. It is issued to licenced amateurs and SWLs for contacts between 00.00 and 24 UTC on the 18th of April.

To qualify for the award, stations will need 10 QSOs on the HF bands (or if you are in Europe that day you'll only need 5 QSOs on the VHF bands). Those interested in qualifying should send an application listing the QSO's prior to the 31st of May 2003 to Redakcja MK QTC, ul. Wielmozy 5b, 82-337 Suchacz-Zamek, Poland. The price of the WARD Award is 5 USD or 5 Euro. The full color award is A4 size and is quite colourful and attractive. For further information please e-mail Sylwester Jarkiewicz, SP2FAP, at qtc@post.pl

Sources

This month our thanks go to the following for the information in DX Notes. SP2FAP, IV3SKB, DL5EBE and UT7UA, DL5EBE, VK6AJ, I2YSB, VK3ZZ, IW0BET, CO2QQ, GM3YOR, IZ1CCE, VK4SJ, VK4BP, NG3K, G3SWH, GM4ZNC, PS7JN, IZ1EPM, HL5/VK2DXI, OE8YDQ, DL2AGC/H44MS, F5NQL, F6AJA, DS4CNB, DL8YRM, DL7DF, 9Q1A/2, SP7BTB RL3AW, JF6OJX, N6IZ, La Gazette du DX, 425 DX News, OPDX (BARF80) and The Daily DX.

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Mister Speaker! The President of the Radio Society of Great Britain!

That is almost how Bob Whelan (G3PJT at right) was introduced at a special general meeting of the ACT Division on Friday, March 7, 2003. Bob had come to Canberra to participate in the RSGB Commonwealth Contest from the home of Tex Ihasz (VK1TX) during the second weekend of March.

So as not to miss a golden opportunity to meet with and listen to the progenitor of the UK Foundation Licence (FL), the ACT Division invited Bob to speak to this subject for the benefit of the members. Burdened with a heavy schedule of meetings with the press, and consultations with WIA officials, Bob made himself available on the Friday, prior to the contest

Living in Cambridge with his wife, Rosemary, Bob has been a radio amateur for the last 40 years. But four years ago he decided to do something for Amateur Radio, seeing that the number of aspirant amateurs was dwindling down from a peak in 1982 to an ever decreasing number in 1998. Concluding that nobody from outside the society was going to do something about the diminishing interest in Amateur Radio, he developed the idea of an FL for those who knew nothing about the hobby, did not like mathematics and radio theory, or hated the idea of learning Morse code at speed. Overcoming some resistance to the idea, the RSGB Board decided to be pro-active and began to organise the FL project in conjunction with the Radiocommunication Agency (RA). This effort resulted in the specifications for an FL. Subcommittees were formed to write the text for the FL manual, others concentrated on providing publicity at clubs and schools, and others again worked out the cost of running classes, fees, and supporting those clubs without funds or premises. In the end, the fee for tuition was set at 15 pounds per student. One-third of this amount went to the club, one-third to the RSGB, and one-third to a fund to give support to unfinancial clubs or very small groups of tutors. Once the FL was launched, the results were astonishing. All the texts and instruction manuals were sold within the first three months. Presently, 6100 FL licences have been issued. Of these licence holders, 3150 had no background with AR, and 745 of these were under the age of 21. Three months after getting their licence and developing a taste for ragchewing and DX operations, many of them decided to become members of the RSGB.

A side effect of all this activity is that just about all the second-hand radios have disappeared from the market, as well as Morse keys and buzzers. The RA has made spot-checks to see if the M3 licence holders are outputting more than the maximum 10 watts of RF. They appear to be satisfied with the result of these checks. This is not really surprising, given that one subject in the FL course is tuning, and matching the radio to the antenna. Above all, M3ers are staying with the clubs that taught them

While the FL initiative was being launched, the RSGB board also took the opportunity to commit itself to a new set of objectives for the Society:

1. Improving the public appreciation of Amateur Radio
2. Exploiting the Foundation Licence opportunity
3. Defending the allocated Amateur Radio spectrum
4. Keeping the members interested

All of these were difficult to implement because of a shortage of volunteers. But with a grand gesture on the part of the RA, a Radio Inspector's van was donated to the Society for conversion into an operational Hamshack. Sponsored by ICOM, Kenwood, AMSAT, HSBC Bank, Tennamast, and Waters & Stanton, the AR van was equipped with radios that are able to demonstrate numerous ways to communicate on the amateur bands using analog or digital modes on HF, VHF, UHF, and S-Band for orbiting, amateur satellites. The mobility of the AR van ensures that amateur radio can be taken to remote places such as High School science weeks, summer camps, marathons, car rallies, the Marconi Centenary, and other events with an educational aspect.

Bob added that the RA had issued two special licences, one for use with the AR van that allowed visitors to speak on air (CB4FUN), and the other one for a special event on the grounds of Windsor Castle between May 29 and June 9 of 2002 (GB50). This last event called 'Reaching Out' attracted 20,000 visitors, and was co- sponsored by the Duke of Edinburgh, the patron of the Society.

A further attempt by the Society to educate and inform the public about AR is a permanent stand of amateur radio equipment in the National Space Centre. This stand is used to demonstrate how with relatively simple equipment, an amateur, orbiting satellite can be used to speak to another amateur half way across the world on VHF. Other equipment, including computers, use digital modes and S-band frequencies to communicate via satellites with radio amateurs right across Europe.

Bob made three other suggestions for keeping members interested. (1) Try to offer new and improved services, (2) Recognise and support a wide range of interests. (3) Urge amateurs to switch on their gear and make calls.

Emerging on the RSGB horizon are: Powerline use for communications - too bad if you are a nearby radio amateur, the 5 MHz - 4-year experiment, the outcome of WARC 2003 with difficult negotiation for 7 MHz; and Morse becoming optional, changes in callsign structure - with more characters, and the more positive attitude of CBers toward the FL.

To find out more about the FL, connect to the following Websites: www.gb50.com www.gb4fun.org.uk www.radio.gov.uk www.rsgb.org

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Beyond Our Shores

David A. Pilsy VK2AYD
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UK cell phones get the nod

A press release from the UK Department of Trade and Industry on the 18th of February gives the results of a new study of the emissions from mobile phone masts.

The Government study examined mobile phone masts at 109 sites across the UK: The study showed that readings ranged from hundreds to millions of times below international guidelines. The Government announced it would continue the study of masts in 2003. Telecoms Minister Stephen Timms said: "We are aware of public concerns and it is important to give the public the information they need. These results continue to show that exposure levels of the public are well below recommended limits." The exposure limits are set by the International Commission for Non-Ionizing Radiation Protection.

(GB2RS news)

Singapore 9V– UHF approval

iDA have approved the following UHF spot frequencies for Amateurs in Singapore. 433.425MHz, 433.450MHz and 438.450 MHz. Maximum power 5 watts ERP. The SARTS UHF repeater should soon be in action Input (Rx) is 433.425 MHz and output 438.425MHz (TX). Contact Ian, 9V1WD for more information, email ian9v1wd@singnet.com.sg

(Q-News)

Turkey

Sergei Rebrov, M0SDX, the Ukrainian international footballer who moved to Tottenham Hotspur in an 11-million deal in 2000, has moved to Turkish side Fenerbahçe. Sergei, whose Ukrainian callsign is UT5UDX, is a keen HF contester and has been very active as M0SDX from his home in Essex and from other locations in the British Isles over the last two years. He is now in the process of obtaining a Turkish callsign.

(GB2RS news)

PSK 31 Euro Monitor

Do you want to see if your PSK-31 signal is being heard in Europe? Well now you can without the need to call CQ or arrange a contact. There is now a PSK-31 real time receiver in Germany permanently tuned to 14.070 MHz. You simply log into the receiver's website and watch the display, which shows all signals near that frequency. Just like with your PSK-31 receiving software, you click on a yellow line and start decoding a signal. Apart from doing test transmissions, we anticipate that the facility will be useful for listeners who want to monitor amateur PSK. The receiver used is a TS-450 and the antenna is a 20 metre longwire. http://www.hamradio-portal.com/psk/start.html

(APC News)

More on 5 MHz from Europe

A new on-air source of propagation data is now testing on 5195 kHz and being received with good signals across most of Europe. The callsign, DRA5, is a German commercial callsign because the station is operating outside the normal amateur bands. However, it is run by a team from DARC, the German national amateur radio society, and is co-located with the 10MHz beacon, DK0WCY. Like DK0WCY it transmits the latest solar data, refreshed every three hours, but with the addition of RTTY, bpsk31and qpsk31. Power is 30 watts to a dipole.

http://www.keele.ac.uk/depts/por/psc.htm

(RSGB news)

Real DX Signals

Talk about weak-signal DX! NASA says that after more than 30 years; it appears the venerable Pioneer 10 spacecraft has sent its last signal to Earth. Pioneer's last, very weak signal was received on January 22. NASA engineers report Pioneer 10's radioisotope power source has decayed, and it may not have enough power to send additional transmissions to Earth. NASA's Deep Space Network (DSN) did not detect a signal during the last contact attempt February 7. The previous three contacts, including the January 22 signal, were very faint with no telemetry received. The last time a Pioneer 10 contact returned telemetry data was last April 27. NASA plans no additional contact attempts for Pioneer 10, which is 7.6 billion miles from Earth. At that distance, it takes more than 11 hours 20 minutes for the radio signal to reach Earth. More information is available on the Pioneer 10 Web page

http://nssdc.gsfc.nasa.gov/nmc/tmp/1972-012A.html.

(ARRL N/L)

If you have interesting news from overseas, please e-mail to davpil@midcoast.com.au

Silent Key

Rej Allinson VK2MP

Rej Allinson VK2MP passed away on October 11, 2002 while in hospital preparing for surgery. Rej was a well-known and active member of the weak-signal community on 144MHz, 432MHz and 1296 MHz in south-eastern Australia.

Originally licensed as VK2MP, Rej moved to Canberra around 1970 and became VK1MP where he provided a big signal on two metres AM and CW into Sydney. Rej provided me with my first VK1 contact when I was operating with 10 watts of AM and CW on 144MHz. During the early-mid 1970s Rej stepped up to SSB on two metres and participated in many tests and skeds with stations in Sydney and northern VK3. He subsequently became a regular on the aircraft enhancement circuits opened up in the 1980s. In the late 1990s he moved to Murrumbateman, NSW, about 25 km west of Canberra and was active almost daily on 144, 432 and 1296 MHz as VK2MP. Rej put a fine signal into VK2 and VK3 and occasionally into VK5, VK4 and ZL when conditions were right.

Rej was also active on HF and six metres and was a well-known figure during the summer Es season.

Rej was a true amateur in that his working career in the plumbing trade had nothing to do with radio. He will be greatly missed by all of us.

Our sympathies are with his wife Elizabeth and two children.

Mike Farrall, VK2FLR

ALARA

Christine Taylor VK5CTY
vk5cty@vk5tty or geencee@picknowl.com.au

The Western District Convention

There is a change of venue for this Convention. For the last few years it has been held in Bendigo but this year it has moved to Castlemaine.

It will be on the weekend after Anzac Day. Listen around for details of the venue, but make a note to go if you can. It is always a good 'do' and there will be lots of bargains for everyone. Remember someone else's junk is your treasure.

Go along and meet your friends. Castlemaine is a very central location for the VK3s and VK5s.

It just worked. I don't know why

How often has a mistake led to an important discovery or invention? Many times. We came across one just recently. Because of a mistake in the quantity of a catalyst added to a plastic material a new type of plastic, one that conducts electricity was created.

Not just a little too much catalyst but a thousand times too much produced a silvery film instead of a black powder. Rather than waste the time and effort that had already been expended to get this far in the experiments it was decided to investigate the silvery film instead of to throw it away.

As the tests proceeded various other materials were added to see what happened. In fact, the electroscope being used to test the currents and/or voltages produced was wrecked by the sudden surge in energy with one addition.

The application of a plastic that behaves like a normal plastic substance except that it conducts electricity has many implications.

We should be watching for future developments from the collaboration between Australian, Korean and Japanese scientists in this new field.

(Thanks to the "New Scientist" of 22 Feb for this item)

Further to the weather

As mentioned last month, one of the first topics discussed on the Monday ALARA Nets is the weather. It would seem that the drought has broken in most places (though not all, if the nude rain dances outside Ouyen are anything to go by). It has certainly broken in Queensland. After several years when the monsoons did not bring the usual rains they brought it with a vengeance this year. June reported to the 14.222 Net at the end of March that she had had 26 inches of rain (over 660 mm). Perhaps Shirley VK5JSH could be excused for thinking June meant she had had that much rain so far this year. June meant she had had that much rain in the month of March! That is an unimaginable amount of rain for anyone living in the South, let alone someone born 12,000 miles away in the UK. You are forgiven, Shirley! The other VK4 girls have similar stories to tell, but none top that one

For those of us further down we were delighted to report falls of between 2 and 3 inches (50 and 75 mm), all that is except Marilyn VK3DMS. Although Marilyn does not grow sultanas any more she still has a feeling for those who do. Most of the crop in her area was completely spoiled. What the rain started the humidity that followed finished off.

Whether it is wet or dry the weather never pleases everyone!

The time of the year for Contests

We hope you participated in the VHF fields days in Jan/Feb or John Moyle Memorial Field Day in March and we hope you 'had a go' in the CLARA AND FAMILY CONTEST in March or 'have a go' in the THELMA SOUPER MEMORIAL CONTEST in April.

Some of you may have joined the Canadian YLs in providing radio stations for Girls Guides in their GOTA (Guides on the Air) weekend as well. This is a relatively new activity to most of us although those of us at the ALARAMEET in Murray Bridge may have heard something about it from Norma VK2YL and OM Frank VK3AKG. They spent some time asking about YL participation in JOTA and GOTA. If you haven't done it before think about it next time. You never know when you could be asked.

Luncheons

The VK5 luncheon at "Berties" on the second Friday of each month is still happening although the attendance has been poor since Christmas.

In VK3 there is still a problem with the usual venue but luncheons are still on. Get in touch with Bron VK3DYF or Gwen VK3DYL for information if you are going to be in Melbourne on the second Friday of the month.

In Perth the meeting is on the third Friday. They would also love to see any visitors to their beautiful city. Get in touch with Poppy VK6YF for details.

Dot would love to have a regular lunch in Sydney but there are not enough YLs near Sydney to make it happen. However, if you are ever in Sydney contact Dot VK2DB and she will meet you somewhere or invite you home.

Thank goodness those bushfires are over

The rains have ended the terrible fires we had in January/February and thank Heavens for that. As always some strange stories come out of disasters.

Dot VK2DB and OM John VK2ZOI offered their services to the authorities and were asked to man the local airport where the heli-tankers were refueling. Then the rains came on the day they were to start!! Frustrating if pleasing.

Some of the fire-fighters were reported in the media as eating a recognised brand of fast food rather that other more healthy food. The reason for this was, in part, that the Red Cross and other service organisations were not prepared to make sandwiches etc for people who were being paid by the government (the fire-fighters were trained men who 'worked for the dole' during their university holidays in this way).

Some of them had done it for several years and fought a number of fires during that time. This seems to be a strange sort of discrimination, doesn't it? The fact is that they were being paid through the dole scheme rather that getting their 'normal' pay from their employers while acting as volunteer fire-fighters.

ar

Contests

Ian Godsil VK3VP/VK3JS

Contest Calendar April - June 2003

Apr	5/6	SP DX Contest	(CW/SSB)	
Apr	11/13	Japan international DX Contest	(CW)	
Apr	19	Holyland DX Contest	(CW/SSB)	
Apr	19	TARA PSK31 Rumble		
Apr	19/20	YU DX Contest	(CW/SSB)	
Apr	25	Harry Angel Memorial Sprint	(CW/SSB)	(Mar 03)
Apr	26/27	Helvetia Contest	(CW/SSB)	
May	3	IPA Contest	(CW)	
May	3/4	10-10 Intl. Spring QSO Party		
May	3/4	ARI International DX Contest	(All)	
May	4	IPA Contest	(SSB)	
May	10/11	Volta RTTY DX Contest		
May	10/11	CQ-M International DX Contest	(CW/SSB/SSTV)	
May	16/17	Anatolian WW RTTY Contest		
May	17/18	King of Spain Contest	(CW)	
May	24/25	CQ WW WPX Contest	(CW)	(Mar 03)
May	24	VK/trans-Tasman Contest	(SSB)	(Apr 03)
May	31	QRP Day		
Jun	7	VK/trans-Tasman Contest	(CW)	(Apr 03)
Jun	7/8	ANARTS WW RTTY Contest		
Jun	7/8	WW South America Contest	(CW)	
Jun	14	Asia-Pacific Sprint	(SSB)	
Jun	21/22	All Asian DX Contest	(CW)	

Greetings to all readers and contestants.

By the time you read these notes the WIA Federal AGM for 2003 will have just finished. As some of you will remember, so too has my time as Federal Contests Co-ordinator.

I take this opportunity to say a sincere thank you to all those who have taken part in contests in this country and who have supported me in the preparation of these notes over the years.

A special thanks must go the the Editors of "AR" over several years — for a while Bob Harper and more recently Colwyn Low. Theirs is not an easy task having to marshal information each month and get it ready for publication. Thanks chaps.

My years in this position have been most interesting indeed. When I started I was of the "old school" that set about honing one's skills in order to log those contacts and get them down on paper.

At one time I was roundly taken to task for such an old-fashioned approach and not bringing before the readers modern information to help you to do even better by taking advantage of modern technology.

Whilst at first this produced an adverse emotional reaction in me, nevertheless these criticisms achieved what such remarks ought to achieve — they drove me to explore this "modern technology", and this, in turn, led me to see that once into the world of computerised logging, there was indeed much satisfaction to be gained with less physical drain on one's energies.

Contesting does not rate as the favourite pastime of amateurs in Australia, but it is certainly not dying and almost gone. I do urge you yet again to take your part in the contests, both here in VK during our winter months and in the World-wide events. They are occasions when satisfaction and fun can be had, as well as receiving certificates if your efforts have earned them.

Until there is an announcement about who may take up the position of Federal Contests Co-ordinator, please continue to send any information to me.

Once again, thank you all. I still look forward to hearing you on air in the contests.

73, Ian Godsil VK3VP/VK3JS

Results Seanet Contest 2002 (VKs only)

Place	Call	Section
1st	VK6SWA (Seanet Team)	MO/MB/SM
2nd runner-up	VK8HA	SO/MB/SM
1st	VK8AA/M	SO/SB/SM 7CW
1st runner-up	VK6ADI	SO/SB/SM 14 SSB

Summer VHF-UHF Field Day 2003: Results

Contest manager: John Martin VK3KWA

Call	Name	Locator(s)	6 m	2 m	70 cm	23 cm	12 cm	9 cm	6 cm	3 cm	TOTAL
Section A: Single Operator, 24 Hours											
VK3WRE	R. Edgar	QF31	110	633	930	928	840	700	700	830	5671
VK3AEF	J. Bywaters	QF03	80	555	645	384	-	-	-	-	1664
VK4OE	D. Friend	QG61, 62	-	336	420	360	-	-	-	220	1336
Section B: Single Operator, 6 Hours											
VK3KAI	P. Freeman	QF21,22, 30,31,32	77	324	530	608	650	540	430	540	3699
VK3BRZ	C. Gnaccarini	QF21	-	507	715	432	350	-	-	-	2004
VK3AXH	I. McDonald	QF12	110	441	630	512	-	-	-	-	1693
VK3UH	L. Mostert	QF21	79	246	390	340	-	-	-	-	1055
VK3HV	G. Francis	QF21	79	243	380	-	-	-	-	340	1042
VK3AFW	R. Cook	QF22	107	441	490	-	-	-	-	-	1038
VK5DQ	K. Gooley	PF95	40	138	205	264	-	-	-	-	647
VK5ZUC	A. Russell	PF94, 95	33	213	345	-	-	-	-	-	591
VK3QB	C. Chapman	QF32	101	234	231	-	-	-	-	-	566
VK5JQ	J. Sayers	PF95	38	138	195	184	-	-	-	-	555
VK3KG	P. Elton	QF22	68	282	180	-	-	-	-	-	530
VK5UE	C. Low	PF95	-	123	185	192	-	-	-	-	500
VK5AR	A. Raftery	QF04	21	157	230	-	-	-	-	-	408
VK3BJM	B. Miller	QF22	58	336	-	-	-	-	-	-	394
VK5XE	I. Northeast	PF96	33	102	165	-	-	-	-	-	300
VK4EV	R. Everingham	QG62	-	114	175	-	-	-	-	-	289
VK4LP	J. Lemura	QG62	-	41	40	-	-	-	-	-	81
Section C: Multi Operator, 24 Hours											
VK3ATL	GARC (1)	QF22	198	768	910	928	490	-	-	-	3294
VK2TWR	(2)	QF43	150	693	815	440	-	-	-	-	2098
VK5ARC	SCARC (3)	PF94	224	555	520	-	-	-	-	-	1299
VK5BAR	AHARS (4)	PF95	183	393	415	176	-	-	-	-	1167
Section D: Multi Operator, 6 Hours											
VK3BG	(5)	QF24	112	492	605	616	-	-	-	-	1825
VK3APC	MDRC (6)	QF22	92	417	645	-	-	-	-	-	1054
VK3BSY	(7)	QF21	-	249	-	-	-	-	-	-	249
Section E: Home Station, 24 Hours											
VK3FMD	C. Kahwagi	QF22	-	486	795	800	480	220	220	-	3001
VK3EK	R. Ashlin	QF32	130	522	720	512	340	220	230	230	2904
VK3AUI	G. Sones	QF22	124	297	460	488	-	-	-	-	1369
VK3AFW	R. Cook	QF22	-	417	680	-	-	-	-	-	1097
VK6USB	R. Pipe	PF95	64	171	226	168	-	-	-	-	628
VK3BJM	B. Miller	QF22	36	177	236	-	-	-	-	-	447
VK5AIM	S. Mahony	PF96	24	117	160	96	-	-	-	-	387
VK6HKT	K. Thole	PF95	-	150	225	-	-	-	-	-	375
VK1WJ	W. Jirgens	QF44	46	138	175	-	-	-	-	-	358
VK2CZ	D. Burger		63	-	195	-	-	-	-	-	248
VK3JQ	I. McLean	QF22	46	69	110	-	-	-	-	-	226
VK2JHN	W. Munn	QG61	103	-	-	-	-	-	-	-	103

Check Logs:

Thanks to W. Memphis VK2KWM, P. Pavey VK3VB, M. Millar VK6MX, P. Loveridge ZL1UKG.

(1) Geelong ARC: operators VK3YXK, VK3HFX, VK3BCL, VK3HFY, VK3XLD.

(2) Operators VK2TWR, VK2XKE, VK2IJM.

(3) South Coast ARC: operators VK5KBJ, VK5PCY, VK5HSX, VK5KDO, N. Parr.

(4) Adelaide Hills ARC: operators VK6PH, VK6BV, VK6DC.

(6) Operators VK3BG, VK3AHY, VK2RO, VK3KLN.

(6) Moorabbin & District ARC: operators VK3YE, VK3OR, C. Long.

(7) Ballerina Secondary College: operators VK3TRD, A. Bent, C. Lewis.

Activity in this Field Day was quite high, in spite of the hot weather and fire restrictions in some areas that forced some stations to restrict their operation. A number of stations submitted logs for the first time this year, especially in the 6 hour and home station sections. Thanks to all for supporting the Field Day and helping to increase the activity.

A few months ago there was some e-mail discussion of possible rule changes. There was some concern that the scoring advantage of microwave stations and grid hoppers could discourage others who don't have microwave gear or may not be able to activate more than one grid square. But the logs show that there has been a significant increase in activity, so maybe the rules don't need fixing.

But I would appreciate comments about grid hopping. At present there is no limit to the number of grids that any station can activate, and this means more effort, more driving and lost operating time. Would be a good idea to have a limit on grid hopping - say no more than two squares? There may be many amateurs who can find two different sites within reasonable driving distance, but there are only a lucky few who happen to live within a reasonable distance of a four-grid intersection. A limit of two grids could reduce the pressure and create a more level playing field. It could even lead to more grid hopping stations.

Any comments on this or any other aspects of the rules are welcome. E-mail jmartin@xcel.net.au.

A correction to the results for the November 2002 Field Day: VK3AEF operated from QF04 and the fourth operator listed should be W. Day, VK3SWD.

VK/trans-Tasman Competition - Rules

Contest web-site:
http://home.iprimus.com.au/vktasman

Helpful Hint:
(Particularly regarding "Scoring"): These Rules cover a variety of Operator circumstances, so jot down or highlight those parts that are applicable to you.

Contest Date:
PHONE: (Cat 1, 2 and 5):
Saturday 24th MAY
CW:(Cat 3 and 4):
Saturday 7th JUNE
Time: 0800 UTC to 1400 UTC,
(in 6 one hour stages).

Aims of Contest:

a). to provide a reasonably short event that doesn't impose overly on family or sleep time, while giving 6 hours of constant on-air activity.

b). to have a fair scoring system that:

- compensates for geographical location ; usable band time and the difference in participation numbers between VK's and ZL's, to provide, so far as is possible, a level playing field for all.
- to place main emphasis on VK/ZL contacts, by awarding bonus points for "trans-Tasman" contacts.
- to provide incentive for the clever Operator, by awarding additional bonus points for working groups of "call-areas" in any one hour.

c). to promote/give recognition to QRP operators and SWLs.

General:

a). The Contest is open only to all VK and ZL callsigns.

b). The Contest shall be in 6 X 1 hour stages, and stations can only be reworked after the commencement of each hour. However, stations worked during the 5 minutes before the hour, cannot be reworked until 5 minutes after the hour.

c). Sequential numbers commencing at 001, shall be given and received for all contacts made during the Contest.

(Use of RST numerals is NOT required).

Note: Contest details; Rules and a suitable log sheet are available on the Contest web-site:
http://home.iprimus.com.au/vktasman

Any queries or constructive criticism should be attached to the log, or e-mailed to: vktasman@hotmail.com

Band: 80 metre band.

Frequencies:

Phone: 3.535 to 3.625 MHz.

CW: 3.500 to 3.550 MHz.

Note: It is not in the spirit of the Contest to "park" on a frequency. While this will not be policed, 20 minutes is considered to be the maximum time between QSYs.

Modes: LSB (DSB optional for QRP), CW.

Max. TX Pwr: LSB: 100 watts pep. (QRP 5 watts pep, LSB or DSB).

CW: 100 watts pz. (QRP 5 watts pz).

Categories:

Cat 1.	Single Operator - Phone.
Cat 2.	Single Operator - QRP Phone. (Also eligible to enter Cat1).
Cat 3.	Single Operator - CW
Cat 4.	Single Operator - QRP CW. - (Also eligible to enter Cat 3).
Cat 5.	Shortwave Listener - (SWL).

Multi-operator:

a). Club/Group stations shall be permitted to enter Category 1 only, on the proviso that only ONE Operator is used in each 1-hour segment, to perform ALL functions without assistance. (ie: TX/RX; log and time keeping).

b). Club/Group stations must score at least 100 points more than a Single Operator station, to have outright claim to any prize - (incl. The VK/trans-Tasman Trophy).

If the leading margin is less than 100, a Certificate(s) will be shared equally with the Single Operator Station, but the Trophy will be awarded to the Single Operator Station only.

Callsigns:

a). VK4s north of the Tropic of Capricorn shall add "Central" after the suffix of their callsign, for all contacts.

b). QRP stations shall add "Quebec" after the suffix of their callsign, for all contacts.

Scoring:

a). The final score shall be the sum of the five (5) highest scoring hourly segments, with the lowest scoring hourly segment not counted.

Note: This gives the ZLs the option of working only 5 hours, if they choose not to stay up until 2am to try to improve their score.

It gives VK6s (with 3 hours competition after 7pm), 5hrs to complete a full Log, if they choose not to start until 5pm to avoid poor propagation after 4pm./0800 UTC.

b). VK shall he divided into 3 zones (for scoring purposes):

"East" = VK1, VK2, VK3, VK4 (south of Tropic of Capricorn),VK7 and VK9.

"Central" = VK4 (north of Tropic of Capricorn); VK5 and VK8.

"West" = VK6 and VK0.

c) VK to VK (except VK/East to VK/West) = 3pts

VK/East to VK/West = 3pts + 3 (distance) = 6pts

VK/East to ZL = 5(distance)+1(band time)+5(bonus) = 11pts

VK/Central to ZL = 7(distance)+2(band time)+5(bonus) = 14pts

VK/West to ZL = 10 (distance) + 5 (band time)+5(bonus) = 20pts

d). ZL to ZL = 3pts

ZL to VK/East = 5 (distance) + 5 (bonus) = 10pts

ZL to VK/Central = 7 (distance) + 5 (bonus) = 12pts

ZL to VK/West = 10 (distance) + 5 (bonus) = 15pts

(ie: 5 bonus points awarded for each trans-Tasman contact)

e). During each 1 hour segment, additional bonus points shall be awarded as follows.

VK working 4 X VK call area's (CA's) = 20 bonus points (BP)

VK (East) working 3 X ZL CA's = 30 BP

VK (Central) working 3 X ZL CA's = 40 BP

VK (West) working 2 X ZL CA's = 40 BP

ZL working 3 X ZL CA's = 18 BP

ZL working 3 X VK (East) CA's = 30 BP

ZL working 2 X VK's from VK (Central)/ VK (West) combined = 30 bonus points

Note: "Call Areas" are identified by the numeral in the callsign.

If more than one required "group" of call areas are worked in any hourly segment, bonus points are awarded for each "group".

(eg:VK/East working 3 X ZL call areas, twice in one hour = 60 pts).

f). QRP to Base St'n = 2 bonus points

Base St'n to QRP = 2 " "

QRP to QRP Stn = 4 bonus points to each party.

QRP using personally home-brewed RX & TX = 1 bonus point per contact.

g). SWLs shall score as for Amateur stations, except scores shall be calculated for both stations in each QSO, and included in total score.

To score, the callsigns and contact numbers of both stations in a QSO must be received and logged.

Note: "Participation Factor" (to be applied by Contest Manager): As the number of participants on either side of the Tasman has a direct effect on the ability to score bonus points, a compensating factor shall be applied to all overseas "call-area" bonus points scored by the Country with the lowest number of "participants". - The factor is the "lowest number of "participants", divided by the "highest number of participants". ("participants" being the number of different stations compiled from all Logs received).

eg: 50 ZL's divided by 150 VKs = compensating factor 0.33.

All ZLs overseas "call area" bonus points X 0.33.

Logs: -

a). A separate Log shall be submitted for each Category entered, except that QRP Logs may be used for other eligible Categories.

b). A new log sheet shall be used at the commencement of each hourly segment. with hourly "contact" sub-totals and "call area groups bonus" shown at the bottom. Number each Log sheet (eg: 2 of 6).

c). For each contact, logs shall record callsign of station worked; numbers given and received, and UTC time. To the right, leave columns for "contact" points. At the bottom provide space to record hourly "contact" sub- totals; bonus point sub-totals, and "hourly total". (Calculate scores after the Contest).

d). If six (6) hours are contested, the Log sheet for the lowest-scoring hourly segment shall still be submitted for cross-checking, but shall be indicated as "not included in final score" by writing "LOWEST SCORING HOUR" on top of the relevant page(s).

e). Logs, or log entries that are not clearly legible, in the opinion of the Contest Manager, shall not count.

Log Summary:

a). Logs shall be accompanied by a separate Log Summary showing the Operator's Callsign; Name; Address; email address (if available); Categories entered, and total points score claimed.

b). VK4s in "Central" zone shall identify as such at the top of their Log Summary sheet, by writing "Central" after their callsign suffix.

c). QRP stations claiming points for "personally home-brewed" TX and RX equipment, shall indicate accordingly on their Log Summary.

It will be ssumed that all entrants submitting logs will have contested in compliance with the Rules. - Logs submitted without a "Log Summary" may not be counted.

Lodgement

a). Logs must be received either by post, to:

VK/ trans-Tasman Contest,

28 Crampton Crescent,

Rosanna, VIC. 3084

AUSTRALIA.

or, by e-mail to: < vktasman@hotmail.com in either "Word 2000" (or earlier); or "Text File" (Notepad or Wordpad) formats.

b). Closing Date for receipt of Logs shall be

0700 UTC, 20th June, (Phone Logs and SWL).

0700 UTC, 4th July, (CW Logs).

Operators are requested to submit their logs (even if you don't think you will win). This will justify the effort and expense involved by the Contest Manager, and ensure the on-going success of the Contest.

Awards: VK/trans-Tasman Trophy: Highest Score (ref: "Multi-Operator").

Certificate:	1st	Phone Score
Certificate:	2nd	Phone Score
Certificate:	3rd	Phone Score
Certificate:	1st	QRP/Phone score
Certificate:	1st	CW score
Certificate:	2nd	CW score
Certificate:	3nd	CW score
Certificate:	1st	QRP/CW score
Certificate:	1st	VK
Certificate:	1st	ZL
Certificate:	1st	SWL Score
Certificate:	(Night-owl's award): Top Phone score in final hour	
Certificate:	(Night-owl's award): Top CW score in final hour	
Certificate:	(Wooden Spoon award): Lowest Log score submitted.	

Publication of Rules/Results:

a). Rules will be published in the WIA "AR" and NZART "Break-in" Magazines. Also on Contest web-site; Contest Calender, and possibly on the WIA and NZART web-sites.

b). Results will be published in "AR", "Break-in" and if possible, in "Radio & Communications"

c). The Results will be published on the Contest web-site by the following dates:

Phone mode and SWL:

25th June, 2003.

CW mode:

9th July, 2003.

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Ross Hull Memorial VHF-UHF Contest 2002 - 2003: Results

Contest manager: John Martin VK3KWA

This year Rob VK3EK made a comeback in the seven day section and narrowly toppled Glenn VK4TZL, but Glenn won the two day section. Congratulations to both - each of them has now won the contest twice. Congratulations also to all other entrants.

One good sign this year was an unusually high number of first-timer logs. I hope this is a sign that activity is on the way up again. But we still have a long way to go before we get back to the same level of activity that we had years ago. There are plenty of stations out there with DX capability, but the contest has been in the doldrums for some years now. Maybe it is time for some radical changes. I'll try anything that would stand a chance of encouraging more stations to get on the air. Any suggestions?

Ross Hull Contest 2002 - 2003: Results

Call	Name	6 m	2 m	70 cm	23 cm	12 cm	9 cm	6 cm	3 cm	TOTAL
Section A: Best 7 Days										
VK3EK	R. Ashlin	113	876	1010	616	290	140	170	170	3385
VK4TZL	G. McNeil	1645	885	735	96	-	-	-	-	3361
VK3AFW	R. Cook	35	891	750	-	-	-	-	-	1676
VK3AEF	J. Bywaters	75	426	585	128	-	-	-	-	1204
VK3KAI	P. Freeman	10	216	215	72	70	70	70	110	833
VK2TG	R. Demkiw	261	252	220	-	-	-	-	-	733
VK3HV	G. Francis	69	189	210	16	20	20	20	60	604
VK4ACB	W. Millwood	106	165	145	104	-	-	-	-	520
VK3ZUX	D. Johnstone	21	203	280	-	-	-	-	-	504
VK2CW	G. Smith	-	75	-	-	-	-	-	-	75
VK5HKT	K. Thole	-	45	15	-	-	-	-	-	60
VK2TRA	R. Archer	-	21	-	-	-	-	-	-	21
VK2CZ	D. Burger	Check log								
Section B: Best 2 Days										
VK4TZL	G. McNeil	1368	246	205	32	-	-	-	-	1851
VK3EK	R. Ashlin	61	435	575	280	100	80	80	100	1711
VK3AFW	R. Cook	35	426	445	-	-	-	-	-	906
VK3AEF	J. Bywaters	45	198	320	88	-	-	-	-	651
VK3KAI	P. Freeman	7	165	165	40	30	30	30	70	537
VK3HV	G. Francis	32	99	135	16	20	20	20	50	392
VK3BG	E. Roache	9	21	165	104	-	-	-	10	309
VK2TG	R. Demkiw	56	135	105	-	-	-	-	-	296
FK8CA	A. Gouillard	282	-	-	-	-	-	-	-	282
VK3AUI	G. Sones	27	84	105	64	-	-	-	-	280
VK4ACB	W. Millwood	83	84	70	24	-	-	-	-	261
VK6ADI	B. Burns	83	-	-	-	-	-	-	-	83
VK3JS	I. Godsil	16	21	35	-	-	-	-	-	72
VK2CW	G. Smith	-	24	-	-	-	-	-	-	24
VK5BWA	M. Mitchell	10	-	-	-	-	-	-	-	10

Ross Hull Contest: List of Winners, 1950 - 2003

'50 - '51	VK5QR	R. Galle	'68 - '69	VK5ZKR	C. M. Hutchesson	'86 - '87	VK3ZBJ	G. L. C. Jenkins
'51 - '52	VK5BC	H. Lloyd	'69 - '70	VK3ZER	R. W. Wilkinson	'87 - '88	VK5NC	T. D. Niven
'52 - '53	VK4KK	A. K. Bradford	'70 - '71	VK4ZFB	E. F. Blanch	'88 - '89	VK5NC	T. D. Niven
'53 - '54	VK6BO	R. J. Everingham	'71 - '72	VK5SU	J. W. K. Adams	'89 - '90	VK3XRS	R. K. W. Steedman
'54 - '55	VK4NG	R. Greenwood	'72 - '73	VK5SU	J. W. K. Adams	'90 - '91	VK3XRS	R. K. W. Steedman
'55 - '56	VK3GM	G. McCullough	'73 - '74	VK5SU	J. W. K. Adams	'91 - '92	VK3XRS	R. K. W. Steedman
'56 - '57	VK3ALZ	I. F. Berwick	'74 - '75	VK5SU	J. W. K. Adams	'92 - '93	VK3XRS	R. K. W. Steedman
'57 - '58	VK3ALZ	I. F. Berwick	'75 - '76	VK5SU	J. W. K. Adams	'93 - '94	VK3XRS	R. K. W. Steedman
'58 - '59	VK3ALZ	I. F. Berwick	'76 - '77	VK4DO	H. L. Hobler	'94 - '95	VK3XRS	R. K. W. Steedman
'59 - '60	VK4ZAX	D. R. Horgan	'77 - '78	VK3OT	S. R. Gregory	'95 - '96	VK2FZ/4	A. Pollock
'60 - '61	VK3ARZ	W. Roper	'78 - '79	VK4DO	H. L. Hobler	'96 - '97	VK2FZ/4	A. Pollock
'61 - '62	VK5ZDR	M. J. McMahon	'79 - '80	VK3ATN	T. R. Naughton	'97 - '98	VK2FZ/4	A. Pollock
'62 - '63	VK4ZAX	D. R. Horgan	'80 - '81	VK6KZ	W. J. Howse	'98 - '99	VK3XPD	A. P. Devlin
'63 - '64	VK5ZDR	M. J. McMahon	'81 - '82	VK6KZ	W. J. Howse	'99 - 2000	VK3EK	R. G. Ashlin
'64 - '65	VK3ZER	R. W. Wilkinson	'82 - '83	VK6KZ	W. J. Howse	'00 - 2001	VK4TZL	G. R. McNeil
'65 - '66	VK3ZDM	J. R. Beames	'83 - '84	VK6KZ	W. J. Howse	'01 - 2002	VK4TZL	G. R. McNeil
'66 - '67	VK5HP	J. H. Lehmann	'84 - '85	VK3ZBJ	G. L. C. Jenkins	'02 - 2003	VK3EK	R. G. Ashlin
'67 - '68	VK3ZER	R. W. Wilkinson	'85 - '86	VK3ZBJ	G. L. C. Jenkins			

Gridsquare League Table February 2003

Happy reading, Guy VK2KU

Congratulations to Mike VK2FLR on not only maintaining his top position in both 144MHz tables (terrestrial and EME), but also for achieving 100 gridsquares in both tables.

We also welcome some new callsigns to some of the tables. A number of stations have chosen to include a separate entry for the Digital (and SSB) modes, and it will be very interesting to follow the development in Digital modes over the coming months. Certainly the Digital mode JT44 has been responsible for a rapid growth in EME scores.

There has been considerable movement in the microwave gridsquare totals. Could we please have some entries from VK5, where there is much activity on these bands.

Finally the informal competition to head the 432 and 1296MHz tables is very keen, and the leaders have the narrowest of margins.

As usual the tables are available in both Word 6/95 and HTML formats on the web page of the NSW VHF DX Group at www.vhfdx.oz-hams.org - click on the "Gridsquares" button.

Gridsquare Standings at 25 February 2003

144 MHz Terrestrial

VK2FLR	Mike	102
VK2KU	Guy	90
VK3FMD	Charlie	79
VK2ZAB	Gordon	73 SSB
VK3BRZ	Chas	68 SSB
VK2KU	Guy	66 SSB
VK3EK	Rob	62 SSB
VK2DVZ	Ross	60 SSB
VK3KAI	Peter	59
VK3XLD	David	54 SSB
VK3TMP	Max	53
VK2EI	Neil	51
VK3ZLS	Les	51 SSB
VK3BDL	Mike	50
VK3CY	Des	50
VK3BJM	Barry	45
VK3WRE	Ralph	44 SSB
VK2DXE	Alan	43
VK3KAI	Peter	43 SSB
VK7MO	Rex	42
VK2TK	John	41
VK3CAT	Tony	39
VK3KEG	Trevor	39
VK4TZL	Glenn	35
VK2KU	Guy	29 Digi
VK2TK	John	29 SSB
VK4KZR	Rod	29
VK7MO	Rex	29 SSB
VK6HK	Don	28
VK4DFE	Chris	26 SSB
VK3HZ	David	25
VK3YB	Phil	23
VK3ZUX	Denis	23 SSB
VK2TG	Bob	22 SSB
VK3KME	Chris	22
VK7MO	Rex	21 Digi
VK3TLW	Mark	19
VK6KZ	Wally	19
VK3AL	Alan	18 SSB
VK3KAI	Peter	18 Digi
VK2LRR	Leigh	16 FM
VK6KZ/p	Wally	16
VK2TK	John	13 Digi
VK3DMW	Ken	13
VK2DXE/p	Alan	10
VK3ANP	David	10
VK2EI	Neil	9 Digi
VK7ZSJ	Steve	7
VK2TWO	Andrew	5
VK2CZ	David	1

144 MHz EME

VK2FLR	Mike	105
VK3CY	Des	66
VK2KU	Guy	52
VK3KEG	Trevor	4
VK3FMD	Charlie	3
VK2DVZ	Ross	2
VK7MO	Rex	2

432 MHz

VK2ZAB	Gordon	50 SSB
VK3BRZ	Chas	48 SSB
VK3XLD	David	46 SSB
VK3FMD	Charlie	41
VK3ZLS	Les	40 SSB
VK2KU	Guy	34
VK3EK	Rob	33 SSB
VK2DVZ	Ross	29 SSB
VK3BJM	Barry	29
VK3BDL	Mike	26
VK3KAI	Peter	26 SSB
VK3TMP	Max	25
VK3WRE	Ralph	25 SSB
VK3CY	Des	23
VK3KEG	Trevor	21
VK3HZ	David	16
VK7MO	Rex	15 SSB
VK3CAT	Tony	14
VK4KZR	Rod	14
VK2TK	John	13 SSB
VK3TLW	Mark	13
VK3ZUX	Denis	12 SSB
VK6KZ	Wally	12
VK4TZL	Glenn	11
VK3AL	Alan	10 SSB
VK3ANP	David	10
VK3YB	Phil	10
VK2TG	Bob	9 SSB
VK4DFE	Chris	9 SSB
VK3KME	Chris	8
VK6KZ/p	Wally	8
VK2FLR	Mike	6
VK2CZ	David	3
VK2TWO	Andrew	3
VK2DXE/p	Alan	2
VK2KU	Guy	2 Digi
VK7MO	Rex	2 Digi
VK3DMW	Ken	1
VK3KAI	Peter	1 Digi

1296 MHz

VK3XLD	David	32 SSB
VK3BRZ	Chas	31 SSB
VK3FMD	Charlie	27
VK3ZLS	Les	26 SSB
VK2ZAB	Gordon	25 SSB
VK3EK	Rob	20 SSB
VK2KU	Guy	19 SSB
VK3KWA	John	19
VK3WRE	Ralph	16 SSB
VK3KAI	Peter	14 SSB
VK2DVZ	Ross	13 SSB
VK3BDL	Mike	12
VK3BJM	Barry	12
VK3TMP	Max	11
VK7MO	Rex	10 SSB
VK4KZR	Rod	9
VK2TK	John	8 SSB
VK3TLW	Mark	8
VK3AL	Alan	7 SSB
VK6KZ/p	Wally	5
VK3BVP	Shane	4
VK3YB	Phil	4
VK6KZ	Wally	4
VK3KEG	Trevor	3
VK2DXE/p	Alan	2
VK3CY	Des	2
VK3HZ	David	2
VK2CZ	David	1
VK3DMW	Ken	1
VK4TZL	Glenn	1
VK7MO	Rex	1 Digi

2.4 GHz

VK3BRZ	Chas	11 SSB
VK3XLD	David	11 SSB
VK3WRE	Ralph	8 SSB
VK3FMD	Charlie	7
VK3KAI	Peter	7 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	4
VK3BJM	Barry	3
VK4KZR	Rod	2
VK3TLW	Mark	1
VK4TZL	Glenn	1

3.4 GHz

VK3FMD	Charlie	8
VK3WRE	Ralph	6 SSB
VK3KAI	Peter	5 SSB
VK3XLD	David	4 SSB
VK6KZ	Wally	4
VK3EK	Rob	3 SSB

5.7 GHz

VK3FMD	Charlie	10
VK3WRE	Ralph	9 SSB
VK3KAI	Peter	7 SSB
VK3XLD	David	5 SSB
VK6KZ	Wally	4
VK3BJM	Barry	2
VK6BHT	Neil	2

10 GHz

VK6BHT	Neil	9
VK3FMD	Charlie	8
VK3WRE	Ralph	8 SSB
VK3KAI	Peter	7 SSB
VK3XLD	David	7 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	5
VK3TLW	Mark	3
VK2EI	Neil	2
VK3BJM	Barry	2

24 GHz

VK6BHT	Neil	3
VK2EI	Neil	2
VK6KZ	Wally	2

474 THz

VK7MO	Rex	1

Additions, updates and requests for the guidelines to Guy VK2KU, **vk2ku@hermes.net.au**, or by mail (QTHR 2002).

Next update of this table will be in May 2003.

Stations who do not confirm their status for more than 12 months may be dropped from the table.

Spotlight on SWLing

by Robin L. Harwood

The Middle East continues to be the primary trouble with the Americans being determined to press ahead with a war to settle the Iraqi issue despite the consequences. Clandestine broadcasting and communications operations were dramatically increasing every day. Do not be surprised if an American or international administration taking over in Iraq, will quickly establish a shortwave station.

I have often referred to a clandestine broadcaster being observed between 2000 to 2100 on approximately7070 and speculated that it was not coming from Iraq but from a nearby locality. The operation has been spasmodic although bubble jammers are always there.

However recent monitoring does indicate that it indeed may come from Iraq after all. The carrier is under modulated with a spurious signal 1 kHz lower. This is a characteristic of Baghdad's senders. I would not be surprised if these senders vanish in a similar fashion to those of the Taliban in Kabul in October 2001.

Many of the clandestine operations are emanating from the Kurdish regions of Iraq not controlled by Saddam Hussein. The Americans operate powerful senders in the south from Kuwait and the Gulf States, especially on MW.

A new station appeared on 1584 kHz at 1900 calling itself "R Tikrit" Originally the station appeared to favour the Iraqi Government but after a few days, the programming changed to be anti - Saddam.

The British successfully used this strategy in WW II. Stations would appear on a frequency and appear to sound genuine but would very cleverly slip in disinformation. This is part of the Psychological Warfare Unit. This unit has been operating senders from converted Hercules aircraft flying at high altitudes with multiple transmitters on MW, HF and FM.

They were reported to be using 9715 and the odd channel of 11292 and have been heard in Europe but rarely here. 9715 is always occupied by major broadcasters and would not be propagating well whilst I presume few receivers would be tuning in on 11292 on USB. Presumably this was for the Iraqi troops but lately programming has swung away from the troops to the general Iraqi populace.

Iran is also extremely nervous about the current situation. They also have dramatically increased their Arabic broadcasts. I hear them well on 9935 kHz at 2030. I also note that English programming directed to Australia has now moved to 9870 from 9780 at 2130. The latter channel suffered heterodynes from a floating Yemeni station, nominally on 9780.

Another neighbour of Iraq is also easily heard on shortwave. Jordan is on 11810 in Arabic and is heard with call-in programs. Reports state the station has been heard in English earlier. Kuwait is heard on 9855 at 2100 yet is easily heard on 15495 and 15505 in parallel from 0200. An English release has been monitored further down the 19 metre band at 0500 yet is much weaker.

The Solomon Islands to our north east have been unsettled for some time yet it rarely makes worldwide news.

There have been political assassinations and other violent activities, making it a very dangerous place indeed. The station in Honiara is easily heard here on 5020 from 0700. It broadcasts in local languages and English and after the daily programming ceases, the sender remains on-air, relaying either Radio Australia or the BBC World Service. The station has remained operational despite no staff salaries paid or capital works undertaken.

The crisis in East Asia continues after the Korean Democratic Republic (DPRK) abandoned the Nuclear Non-Proliferation Treaty and expelled IAEA inspectors.

They also did not renew the visa of the only authorised ham radio operator, who has now departed the DPRK, with his gear. Tensions are very high as I am writing this column, with American bombers now being stationed in Guam. South Korea now has a new president and is pressing for a diplomatic solution.

Other nations within the region are also pressing for the same result, urging the DPRK and the Americans to engage in direct negotiations. You can follow developments from the region from China Radio International in English from 0900 to 1055 on 11730 or 15210 kHz or on 9760, 11760 or 15415 at 1200.Prior to 1200, the VOA comes in well in English but is lost under the dominant CRI signal.

The British evangelical Christian broadcaster, FEBA, has ceased broadcasting from their Seychelles base. It will now be using commercial senders from the Merlin organisation in the UAE or from the former Soviet Union. The three 100 kW senders are being sold to an American religious broadcaster- High Adventure Ministries and will be relocated to Liberia, Kentucky and a third as yet undisclosed location.

Well that is all for the time being. All the best with your monitoring-

73 de VK7RH

ar

HF Predictions

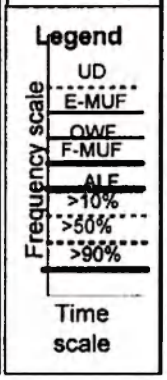
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

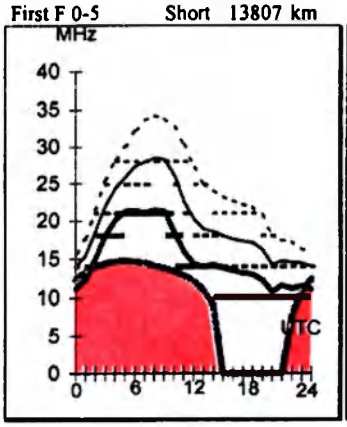
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

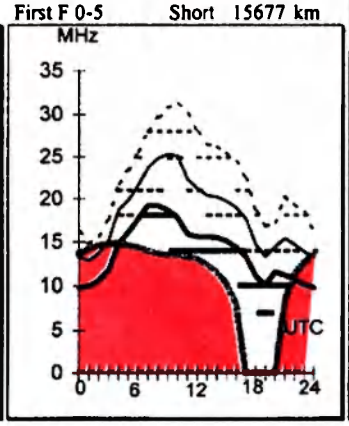
April 2003
T index: 75



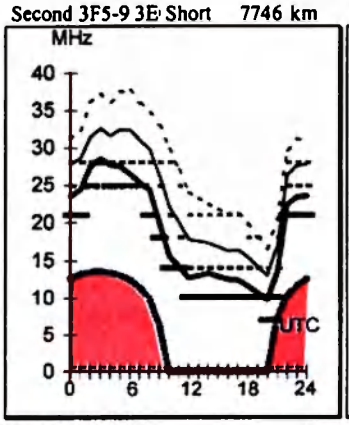
Adelaide-Moscow 318
First F 0-5 Short 13807 km



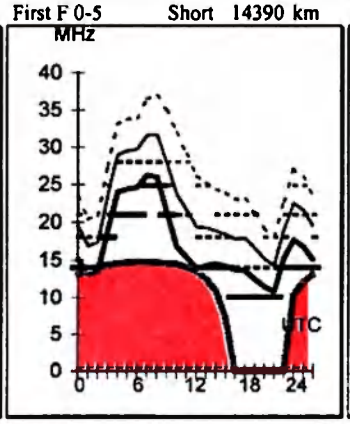
Brisbane-Berlin 321
First F 0-5 Short 15677 km



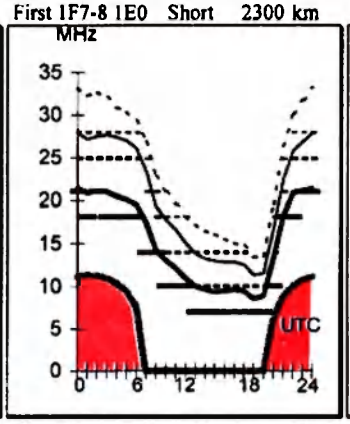
Adelaide-Osaka 357
Second 3F5-9 3E Short 7746 km



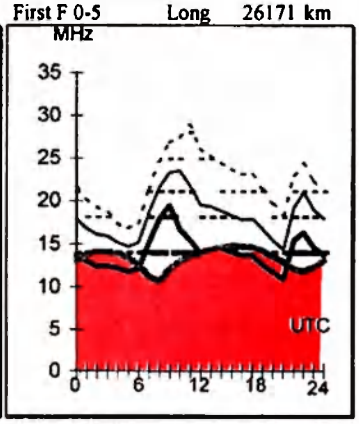
Brisbane-Cairo 288
First F 0-5 Short 14390 km



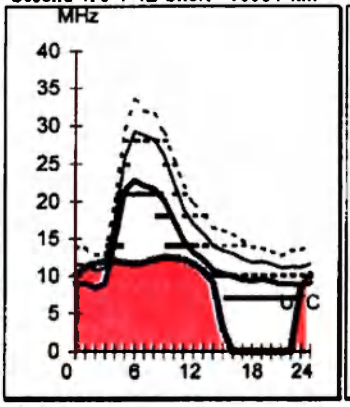
Canberra-Auckland 102
First 1F7-8 1E0 Short 2300 km



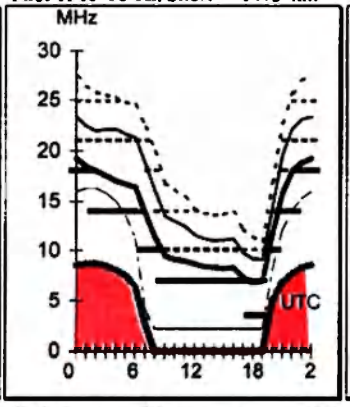
Darwin-London 145
First F 0-5 Long 26171 km



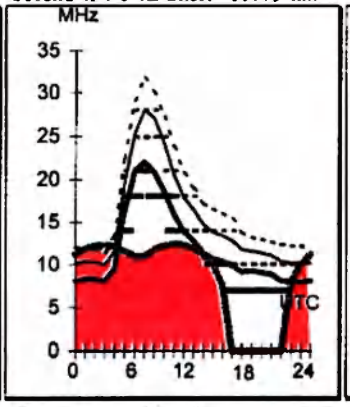
Adelaide-Pretoria 238
Second 4F5-7 4E Short 10064 km



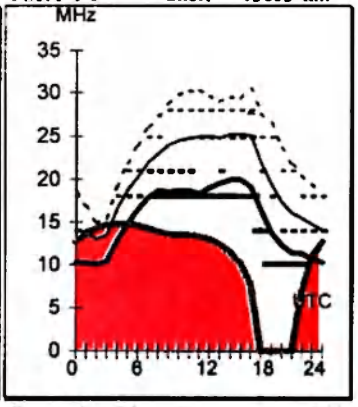
Brisbane-Noumea 70
First 1F15-18 1E Short 1473 km



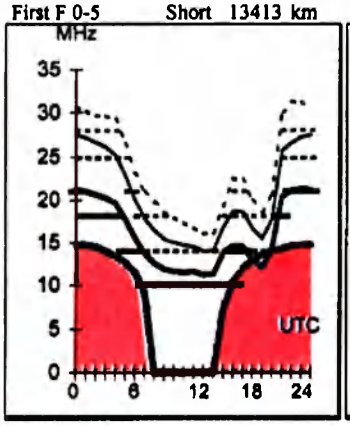
Canberra-Capetown 219
Second 4F4-6 4E Short 10779 km



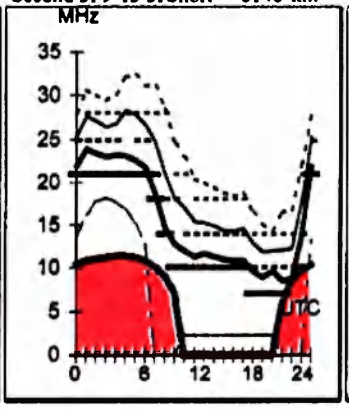
Darwin-London 325
First F 0-5 Short 13853 km



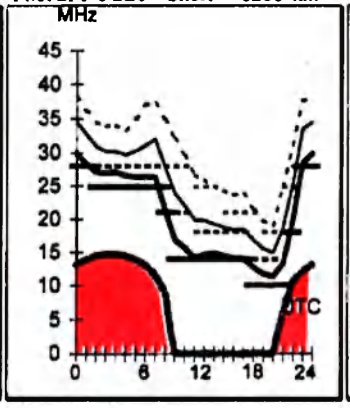
Adelaide-Seattle 51
First F 0-5 Short 13413 km



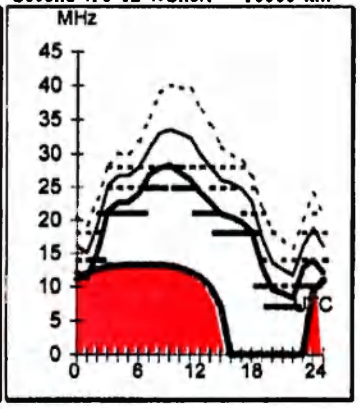
Brisbane-Singapore 293
Second 3F9-13 3I Short 6146 km



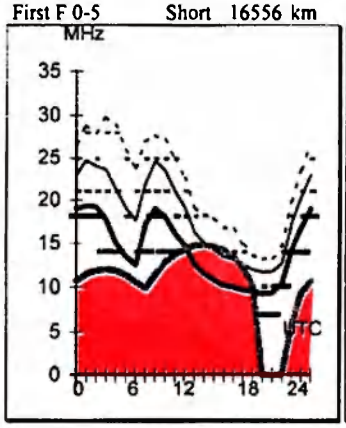
Canberra-Manila 327
First 2F1-6 2E0 Short 6286 km



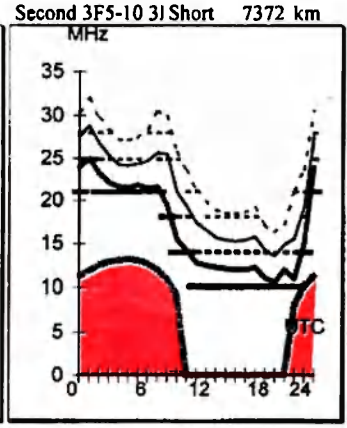
Darwin-Riyadh 295
Second 4F5-12 4I Short 10000 km



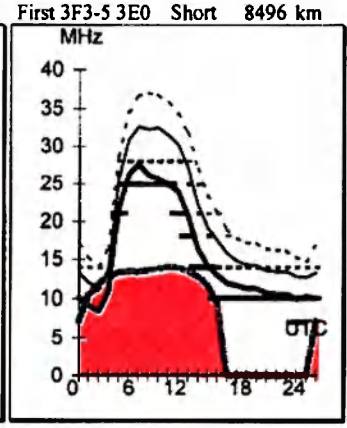
Hobart-Dakar 209
First F 0-5 Short 16556 km



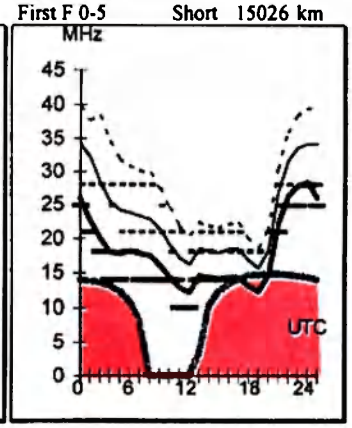
Melbourne-Bangkok 312
Second 3F5-10 3J Short 7372 km



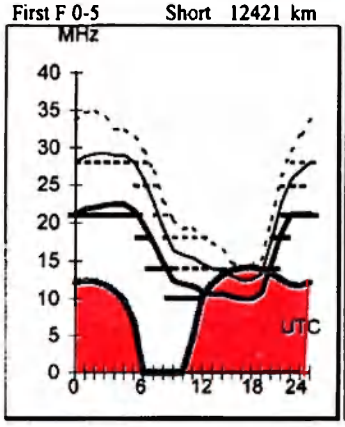
Perth-Harare 257
First 3F3-5 3E0 Short 8496 km



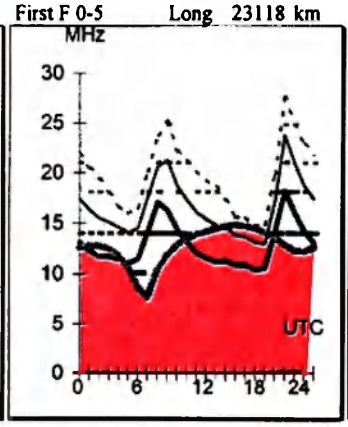
Sydney-Miami 86
First F 0-5 Short 15026 km



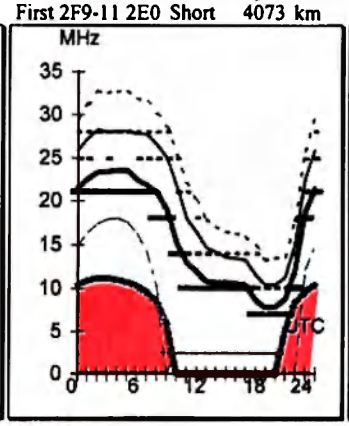
Hobart-Lima 133
First F 0-5 Short 12421 km



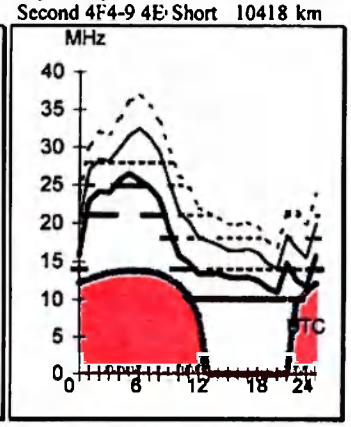
Melbourne-London 131
First F 0-5 Long 23118 km



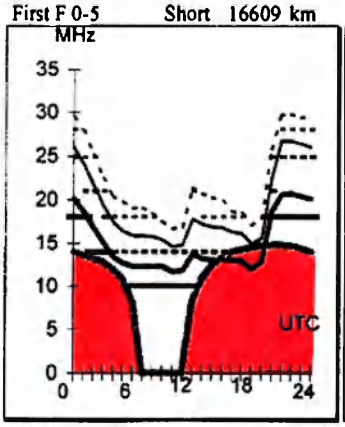
Perth-Port Moresby 59
First 2F9-11 2E0 Short 4073 km



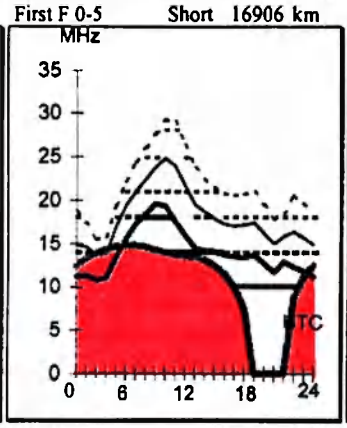
Sydney-New Delhi 302
Second 4F4-9 4E Short 10418 km



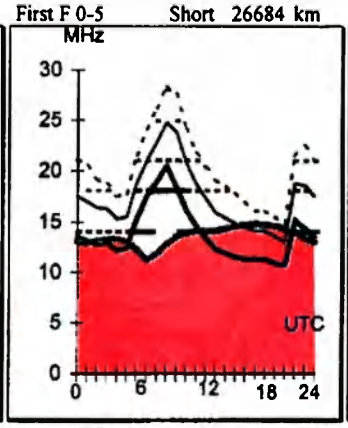
Hobart-New York 80
First F 0-5 Short 16609 km



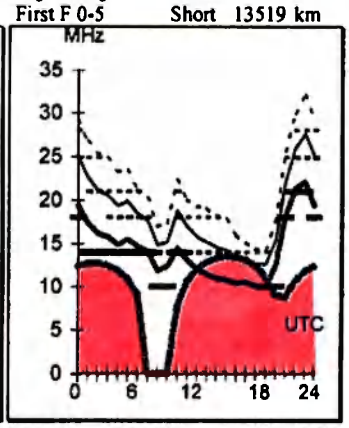
Melbourne-London 311
First F 0-5 Short 16906 km



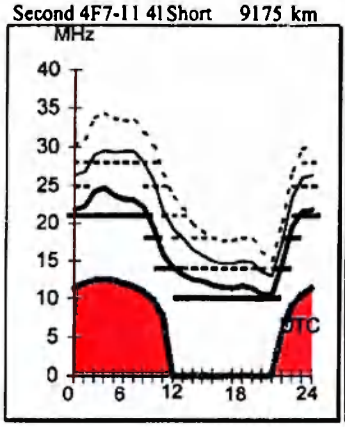
Perth-Rome 123
First F 0-5 Short 26684 km



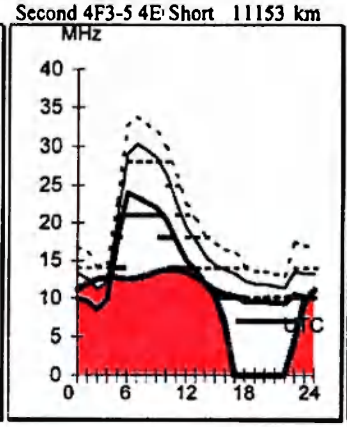
Sydney-RiodeJaneirc 164
First F 0-5 Short 13519 km



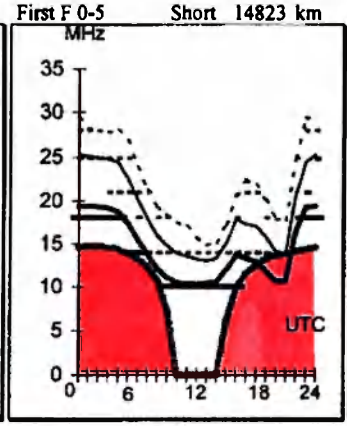
Hobart-Seoul 344
Second 4F7-11 4J Short 9175 km



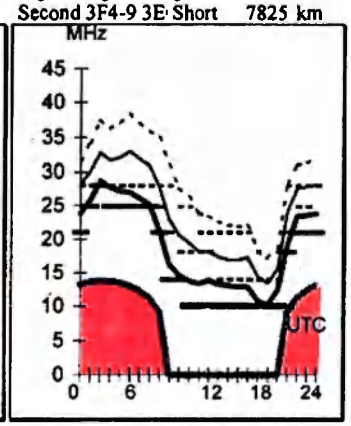
Melbourne-Lusaka 241
Second 4F3-5 4E Short 11153 km



Perth-Vancouver 50
First F 0-5 Short 14823 km



Sydney-Tokyo 350
Second 3F4-9 3E Short 7825 km



AMSAT

Bill Magnussen VK3JT

Portable Operation with AO-40

For over 20 years, around Christmas and New Year some friends and I took part in a mountain-topping expedition to various peaks in the Victorian Alpine National Park. The activity was mainly centred around portable satellite operation. We had a ball.

Perhaps that's why a message from Scott Townley, NX7U posted on the AMSAT bulleting board recently caught my eye. He described in some detail his portable setup for working with AO-40. I contacted Scott and he agreed that I could "pick the eyes out of it" and print some highlights in this column.

Scott began,

"I've wanted to put together a "permanent" portable station for AO-40 for some time, and today looked like as good a day as any for the shakedown cruise". He then went on to describe the gear which consisted of a Yaesu FT-100 (about 20 W on 70 cm) on the uplink into a 9 el vertically polarized yagi. His downlink equipment comprised a Kenwood TM-255A, a 60 cm x 90 cm "BBQ-grill" dish and a fully modified AIDC3733 down converter. Scott mounted the antenna system on a 3 metre tripod and used the world famous "Armstrong" azimuth control. He was able to achieve a small amount of elevation control from the ground. Scott described [and I well remember similar incidents from our expeditions] hay-wiring things together due to lack of a specific RF or DC connector. He continues, "The location was better than home. A clear, flat shot to the east for several hundred feet. At home I have many 20' trees and a 6' cinderblock wall to deal with.

1 Biggest surprise: hearing AOS about 4 minutes before NOVA called it. And I'm further west than my home QTH (where I calculated AOS). I never hear AO-40 at home at AOS; usually takes 2 degrees of elevation or so. Diffraction?

2 Biggest problem: the FT-100 doesn't like to transmit on 70 cm. Never realised this before as it has hardly ever been used to TX on 70 cm. Seems to be some kind of thermal-related issue. Argghh

Other Notable Things:

3 The elevation nulls of the antenna (ground effect), which I can hear easily on my 2' CP dish at home, were extremely/much more evident on the horizontally polarized BBQ.

4 The TM-255 detects SSB very well; for my ear much better than the FT-726R at home. No audio DSP was in use at either location.

5 I need a bit more uplink power, but I already knew that.

6. Need to implement better ground-level elevation control.

Satellite activity before the RUDAK window was quite heavy. The BBQ seemed to hear well. Heard my first ZS stations, and worked a new country (HA). Also matched my best DX with Vitaly, UU9JJ. So I guess you could say that there was not too much performance penalty for the portable setup!"

Scott Townley NX7U

On reading Scott's account it occurred to me that AO-40 is a much more operator-friendly satellite than any of the earlier phase-3 birds for portable work.

In a way this has been forced upon us by some equipment problems on AO-40. More people than ever before have been urged to move up into the microwave region. It's turned out to be much less painful than many imagined. The main advantage being much smaller and therefore lighter antenna arrays.

Mode-B or Mode-J operation on previous high orbit birds required large, heavy 2 m arrays which taxed the portable rotating system somewhat. As well, they imposed heavy requirements on the mounting structures, all of which had to be carted up the mountain.

How much easier a tiny, light aluminium dish and a 435 MHz or even better still a 1269 MHz yagi that you can hold in one hand. A simple home made collapsible tripod would be more than adequate to hold such an antenna array.

Scott's observation of "below-the-horizon" access is also worthy of note. This was a feature that we also found during our mountain-top expeditions. It was common to hear the satellite seconds or even minutes earlier than predicted. It can be explained, as Scott postulated, by forward refraction of the satellite signal over the horizon, helped of course by the ideal, super quiet location!

My own AO-40 gear has never been permanently installed at the masthead. I get it out and have a go from time to time. Now, after reading Scott's motivating message, I find myself thinking seriously of making it specifically portable and setting it all up on mountain tops just like in the early AO-10 and AO-13 days.

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000 UTC with early check-ins at 0945 UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900 UTC with early check-ins at 0845 UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034
Graham's email address is:
vk5agr@amsat.org

"Satgen" Writer John Branegan G4IHJ Silent Key

Most readers will already be aware that we lost a satellite stalwart on February 9th when John Branegan G4IHJ died. The news came just a day too late to include in last month's column.

John's "Satgen" bulletins had a great impact on anyone who had a connection with the satellite field either amateur or professional. They were a regular talking point in my own round table contacts and luncheons with amateur radio satellite friends.

The bulletins were widely distributed via amateur radio satellites, amateur packet radio and the internet. I first came across them via packet radio. They spanned some 12 years from 1989 to 2001 and totalled 682 Satgens in all. A monumental effort on John's part. No matter what your area of interest in satellites, you could always find something to engage your mind in the subject matter that John discussed. On a few occasions I wrote to John to further clarify a point or to add my own experiences. He must have received a huge amount of similar mail but he always replied promptly and at length. Like many others I tried to download every Satgen but due to the vagaries of packet radio, a couple of computer crashes and other life matters intervening, there were many gaps in my collection. If you want to 'top-up' or complete your collection [or just see what all the fuss is about], you can download a complete set from:

http://www.amsat.org/amsat/articles/satgen/chron.html

The information in the Satgens is timeless. It will go on educating newcomers and enriching old timers for as long as radio amateurs are interested in satellite communications. John has left us a lasting legacy. Thanks OM.

PCsat Mailbox Activated

Bob Bruninga announced recently that the mailbox on PCsat had been activated. This prompted a flurry of activity and reports rolled into the AMSAT bulletin board regarding its operation. At the time of writing it still appears to be operating, subject of course to PCsat's periodic eclipses depriving it of sunlight. The mailbox acts in every way pretty much like a normal packet radio mailbox. If you connect you should see something like the following.

```
*** CONNECTED to MAIL-1
[KPC9612P-8.4-HM$]
67330 BYTES AVAILABLE
THERE ARE 16 MESSAGES NUMBERED 1-17
Test of PBBS
ENTER COMMAND: B,J,K,L,R,S, or Help
(The help file looks like this).
B(ye) PBBS WILL DISCONNECT
J(heard) CALLSIGNS WITH DAYSTAMP
J S(hort) HEARD CALLSIGNS ONLY
J L(ong) CALLSIGNS WITH DAYSTAMP
AND VIAS
L [x [y]] [;] LIST MESSAGES x THRU y YOU
CAN READ
L <|> call LIST MESSAGES FROM OR TO
CALL
LB LIST BULLETINS
LC [cat] LIST CATEGORIES
LL n LIST LAST n MESSAGES
LM(ine) LIST UNREAD MESSAGES
ADDRESSED TO YOU
LO [+|-] LISTING ORDER
LT LIST TRAFFIC
LTn DISPLAY LOCATION TEXT n=1-4
K(ill) n DELETE MESSAGE NUMBER n
KM(ine) DELETE ALL READ MESSAGES
ADDRESSED TO YOU
R(ead) n DISPLAY MESSAGE NUMBER n
RH n DISPLAY MESSAGE n WITH HEAD-
ERS
RM(ine) READ ALL MESSAGES AD-
DRESSED TO YOU
S(end) call SEND MESSAGE TO callsign
S[B|P|T] call SEND BULLETIN, PRIVATE, or
TRAFFIC
```

Activation of SAUDISAT-1C SO-50 over Australia

From Graham Ratcliff VK5AGR, After a request to the group responsible for SO-50 to activate the satellite when in view of Australia, a network of ground stations has been setup to do just that.

This manual activation will continue until software gets uploaded to SO-50 to carry out the process automatically.

Therefore, in the short term SO-50 will be active whenever there is a ground station available to activate it which should be the case for most of the passes in the evenings and some of the passes in the morning local times depending on ground station availability.

The satellite operates similar to UO-14's FM Mode J transponder. It has a 2m uplink on 145.850 MHz which has to have a 67 Hz subaudible tone to key up the downlink on 436.800 MHz. Once the transponder has been activated by the ground station network the transponder stays activated for 10 minutes after which time a ground station would have to reactivate the satellite.

So do not be all that surprised if the transponder suddenly switches off 10 minutes or so into a pass. Stay tuned - it may take a moment for a ground station to re-activate the bird.

Details of SO-50 SAUDISAT-1C

Uplink: 145.850 MHz (67.0 Hz PL tone)

Downlink: 436.800 MHz

Launched: December 20, 2002 aboard a converted Soviet ballistic missile from the Baikonur Cosmodrome.

Status: Operational. SO-50 carries several experiments, including a mode J FM amateur repeater experiment operating on 145.850 MHz uplink and 436.800 MHz downlink. The repeater is available to amateurs worldwide as power permits, using a 67.0 hertz tone on the uplink.

When is July not July?

The importance of date formats is something that can't be overstressed. It is of particular importance during the early days of each month.

This is a problem that's been with us for decades but the advent of packet radio, satellite "store and forward" techniques and lately internet email has made it commonplace for radio amateurs to correspond with people of like mind on bulletin boards and by various other computer based means.

Given the almost instant nature of internet mail, messages can be exchanged in minutes and amateur radio satellite message forwarding is pretty slick too. I can recall exchanging 4 message "overs" using "store-and-

continues on 53

Over to you

Bloody Fine Gentlemen

In March AR, Peter Cossins, (VK3 BFG) writes that we should all use the NATO phonetics. I don't agree!

We are an amateur group and some of us prefer our own, and there is a good argument in favour of this.

Of course the main purpose of phonetic spelling or should I say the 'soul' purpose of it is to minimise error, and a number of official phonetic alphabets have existed over the years, and even now NATO is not in universal use.

The Australia wide telephone network seems to prefer S for Sam and F for Freddy not Sierra and Foxtrot. Some of us are old enough to remember the old army Ac Beer Cor alphabet, and the hotel in the Melbourne suburb of Toorak is still widely and affectionately known as the "Toc Aich".*(alas no longer; its now probably apartments or a dress shop-ed).*

Understandably the military has always needed a standard phonetic alphabet, and it is nice for us to be able to make use of it; but we are not tied down to it; nor should we be.

We as an amateur group can communicate sometimes more effectively than some professional groups, mainly because of our ingenuity. In giving call signs, if there is a known phrase of expression that can be used instead of official phonetics, it can be more effective..... and yes fun! And there are some funny ones around.

The Maritime Mobile net has always been known as the Mickey Mouse net, and there are many well known hams world wide using their personal phonetics like W3 push button, and my friend Alex VK3 Just Got Home. Of course the phrase must be familiar to the person being called, for example the call sign VK3 Fletcher Jones would not be understood outside our shores.

For the fun of it, let us compile a list of funny phonetics of FUNETICS if the editor agrees.

Peter, why don't you use "VK3 Bloody Fine Gentleman" ?

Bob Slutzkin VK3Sweet Kisses (not quite 3 Silent Key yet)

The views expressed in these pages are not necessarily those of the WIA

Bushfires

The article in March edition of Amateur Radio on the involvement of radio amateurs in the Victorian bushfires, and its accompanying photographs, was excellent.

It was essential to accurately document this historic event, and the WIA journal was the ideal place in which to publish a report of this importance. Copies of that AR magazine are now being sent to the "decision-makers" in various government agencies and other organisations to help make them better aware of the role of amateur radio in providing emergency communications. It can but do the cause of amateur radio enormous good for many years to come.

Congratulations to Jim Linton VK3PC who wrote the article against an almost impossible deadline, to you as the Editor for giving it as many pages as it clearly deserved, and the production team for their professional design work on the cover and layout of the article.

John Patterson VK3ATQ.

Thank you to anonymous donor

I have been building up a collection of old radios, and some weeks ago I added an FT200 to the collection. This radio looks virtually brand new, with only one faulty component that I have been able to replace. One problem though - no PA valves. I was able to fit a well-used pair of valves but needed a replacement pair.

I mentioned this to only a couple of people, but the word must have spread somehow. A week or so later I received a box in the mail with a spare pair of PA valves in it. No note, no return address, just a postmark in Pakenham (postcode 3810).

Since I don't know who this anonymous donor was, I hope that he might be a reader of "AR". If so, I'd like to thank him very much for his generosity.

Cheers,

John Martin VK3KWA

Foundation Licence

I read with interest the report by David Pilley on the UK Foundation Licence and the progress that has been made in expanding the hobby of amateur radio in the UK (AR February). I strongly believe that a similar scheme should be adopted here in Australia. I personally could sign up at least three members of my family and friends who would be interested in using amateur radio but feel the barriers presented now are either too great or simply irrelevant to their intended involvement.

Neville Chivers VK2YO in the same edition seems to be against this "watering down" of the ranks, but this only begs the question "Who do we want in our ranks"? Those against lowering the barriers seem to have an idea that we are a technical elite that should not be messed with. In today's world most of us are far from the technical elite. I entered the ranks of amateur radio over twenty years ago and although I maintain a sound knowledge of the technical aspects of the hobby and enjoy constructing equipment I would hesitate to even point the soldering iron at a modern solid state transceiver. The hobby is not what it was when it was first formed and it has definitely gone beyond what some might see as the golden days when we all built our own gear and talked nothing but technical stuff over the air.

As a family we regularly take part in camping, off road activities and WICEN support to State and Rally Australia events. Often amateur radio becomes the communication medium of last resort when everything else goes down, but is hobbled by a lack of operators. How much better would the hobby be if more people could participate at a level that suits their interest? Not everyone is a keen technician that must know how it all works, what they must know is how to operate correctly, be safe around electrical equipment and not cause interference. This is what the Foundation Licence appears to address. If the spark of interest is kindled then higher licence grades will follow. If not then they will continue to be involved in the hobby at an operator level that will generate use of our bands and enlarge the amateur radio community.

Nigel Dudley VK6KHD

The elusive page 16

Recent reader's letters have prompted me to put in my two pennyworth.

I have been licensed for nearly 40 years (G3SCD since 1963) and came to live in VK3 in 1999. I have seen the rise and fall (sometimes the reverse) of many clubs and organisations and have been a member of the RSGB for all of this time.

Naturally, in support of Amateur radio and all the principles it stands for I joined the WIA. Soon it was apparent that the near universal whinging of the decline of the hobby was rotting the system and the contents of the magazine '*Amateur Radio*' and many reader's letters support this trend.

Amateur radio is not dead, neither is CW but times change, younger folk have different ideas and priorities and accept what in past times would have been thought of as daily miracles, as part of normal life: Satellite TV, the internet, mobile phones and all the forms of digital communications we take for granted now.

To ensure continuance of the hobby, the first step now would seem to be to recruit new blood. The many changes to the amateur licence structure in many countries cause controversy and I am not necessarily an advocate of these changes. But one can not fail to be impressed with the quoted figures from the RSGB who recorded 5500 new licencees in UK in 12 months - apparently due to the latest form of restricted all band licence, the M3 call prefix.

The success or otherwise of the AR magazine being on the bookstalls has not yet been fully accessed but in my humble opinion it would not attract many serious subscribers:

In Australia, the only competitor I know of is a well produced, quality printed Radio magazine which admittedly may be struggling for survival- but it contains a variety of articles and adverts to appeal to a wider section of electronic/radio hobbyists. Yes, adverts do greatly enhance a magazine. And the cover price is the same.

Looking at AR, critically, but not facetiously, for example in the October issue 2002 the inside front cover page (a valuable advertisement spot I am sure) there is a full colour description of the new call book on CD. No price, but see Nov issue for details. In that issue - (I can't wait!) It again extols the virtues at (too much) length the bottom lines suggests you order one from "your division" - details on page 16.

Turning to page 16 I find yet another half page advert with division addresses. BUT not a price in sight!

In December issue the same inside cover advert proclaims the same information and suggests a QSY to page 16 again- where Andrews's Communications have a more interesting advert, no mention of the CD of course. The same was repeated in February issue. Again not a price in sight.

Are you trying to make it difficult?

I may have missed something but I could not find any further reference to the CD in that or any other issue. I can manage without it.

The survival of virtually any magazine is dependent on its advertisers: Surely those two full colour pages mentioned would have been better sold to a trader.

I note also the variations of the member subscriptions for the different states: Why? And considering the WIA is desperate to gain strength, the sub "without the magazine" would seem to be excessively high. A nominal $10 or similar would surely be an encouragement for non-active/relatives of amateurs to show their support. It is time for the WIA to unite into a Federal organization not a state related one and move into the 21st century!

David Dunn, VK3DBD/G3SCD

AMSAT continues

forward" with Ron VK3AHJ in Melbourne via KO-23 as a test, all during one pass.

Now here comes the fly in the ointment. Here in Australia we are probably more aware than most of the fact that there are two common flavours of date format in use around the world. Month-Day-Year is exclusively used in the USA whilst Day-Month-Year appears to be in favour with much of the rest of the world.

Most software writers are aware of this and where applicable give the user the choice of which date format is preferred somewhere in the set up procedure. Now, dates and times are usually vitally important in any discussion related to satellite work. It seems that Americans in particular are either unaware of this duplicity or they refuse to acknowledge it. Time and time again one sees dates written as [eg.] 2/7/03 or 5-6-03. This leaves the reader in a complete quandary as to whether 2/7/03 represents 2nd July or 7th February. The possible ambiguity continues until the 13th of each month and can be a real nuisance and a source of much hair-pulling.

You find yourself scanning the rest of the message for clues as to which of these dates is actually meant – often with no definite result. I must admit that my own reaction is usually to discard the message and forget about it. The tragedy is that the confusion is easy to overcome by using [say] 2nd July 2003 or better still the generally agreed standard of 2003 Jul 02 or 2003-07-02. I prefer the alpha-numeric version as it is utterly unambiguous. This format also lends itself to the inclusion of a further time stamp, again in the same diminishing order; 2003-07-02 17:45:30.

That way we have Year-Month-Day Hour:Min:Sec and there can be no confusion in anyone's mind as to what exact date and time that represents. It seems we have been plugging away on this one since back in the 1950s HF DX days and not making much headway.

It's a worry and it often generates multiple unnecessary clarification mail along the way. The best we can do is be aware of it and act accordingly in all our own mail postings. The matter was brought to my attention by a message on the AMSAT-BB from Matt VK2DAG appealing for clarification in just such a case of unclear date format. Thanks Matt.

ar

Hamads

FOR SALE ACT

• **Yaesu FT-1000** with MD-1 mic and BPF-1 filter $1400. **SP-5** speaker $100. **FT-411** 2 m h/h $120. **TH3 jnr ant** new in box $500. **7.7 m lattice mast** (Nally) $200. **Hi-Mound HK708 CW key** $25. All items ono and purchaser to collect. John VK1CJ Phone 02 6251 1816.

WANTED ACT

• **Valve socket for AMPEREX 5868 valve.** Socket is Super Giant 5 pin. Rob VK1DE QTHR. Phone 02 6241 5191.

FOR SALE NSW

• **Yaesu FT-920** HF and 6m transceiver 100 W, auto ant tuner and many features, very good order, handbook, mic, cables, carton, $1700. David VK2BDT Phone 02 4827 5036.

• **Tectronix oscilloscope type S35A** with plug-in module B dual channel type CA with manuals $100. Scope mobile type 500/53A $50. Rod VK2CN QTHR. Phone 02 4944 8393

• **AWA BS-15A FM txcvr**, 240 V base station on 77 MHz, 2 speaker phones, S/N 8R62094 $95. Tony VK2BBJ. Phone 02 4360 2234.

• Tunable Audio **DSP Filter MFJ-784B**. Independent Hi and Lo pass brick wall filters, or Centre and BW for CW, 4 Data modes, SSTV/Fax. Auto/manual notches, DSP Noise Reduction. As new and in perfect order (value $500), sell $275. Guy VK2KU, QTHR. Phone 02 4759 2670 or vk2ku@hermes.net.au

• **60ft aluminium lattice tower kit** [ATN] partly constructed. Could be transported in New England area for small addition. $500. Roger VK2FGE QTHR. Phone 02-67-727840,or rchubb@ceinternet.com.au.

• **Kenwood TS-930S** HF tcvr $800. **Kenwood SP-930** matching Speaker unit $75. **Kenwood TM-2550A** 2 m tcvr $250. **Yaesu FT-101** tcvr $200. **Yaesu FT-707** HF WARC tcvr $350. **Yaesu FP-707** PSU $125. **Yaesu FC-707** ATU $100. **Heathkit SB-200** linear $425. All units good condition.VK2DM QTHR. Phone 02 4946 7674 or alpammac@bigpond.com

• **KTI XI-0** 1.6m C Band Satellite Dish (disassembled). Dual Polarity LNFB.Dish Actuator **Drake ESR4240E Receiver.AP54240E** Antenna Positioner. Handbooks for all equipment, $500 the lot. John Toland. VK2XKX, 101 College St. Lismore 2480. Phone 02 6621 2933 or jtoland@nor.com.au.

• **3 m Satellite Dish, Chaparral MC-115 Rx**, 3' Actuator, **C-Band Feed & LNB**, $300. 1' & 2' Actuators, $70ea. **1.2 m Channelmaster dish**, $100. Various Feeds and LNBs, $Ask. **NTSC-PAL Converter**, $50. Various decoders, $Ask. Several analogue Sat. Rxs, $Ask. "Sat Finder", $50. 2 x WeatherFAX I/Fs, $50ea. **"SATFAX" Software**, $50. **FM-828 A**, $80. **HP-7550 Plotter**, $150. **NEC 3D Monitor**, $60. **2 x Video Blasters**, 25 ea. **Grandtec VGA-Video Converter**, $50. **30 Pin RAM sticks**, $Ask. roger.woodward@bigpond.com, Phone 02 9547 2546.

WANTED NSW

• Copies of **ARRL and RSGB Amateur operators' handbooks** circa 1968 to 1970 also **Single sideband for the Radio Amateur (ARRL)** of about the same era. Will pay reasonable prices for a copy of each in good condition. Pat Brennan VK2ABE. PMBrennan@bigpond.com.au, PO Box 158, Tamworth NSW 2340

• **Valve tester Palec ET4** in mint condition, no faults, including all books, manuals. May consider other type(s), not for restoration, just use. Stanley Dogger, 116 Tunnel Rd, Stokers Siding 2484. Phone 02 6677 9292 AH.

FOR SALE VIC

• **Yaesu FT-301-II** 7C090192, **FV-301** EXT VFO, **FC-301** ATU, **YO-301** monitor scope. **YP-150** dummy load Fan-cooled, **10 m-16 m 4 el Yagi** complete. Make offer. VK3CRZ Phone 03 9379 3423

• **Nally tower 26/42 ft** $500, to be removed by buyer. **Emtronics HB-35C** antenna $200. **Daiwa rotator** $200. **2 m Ringo antenna** $15. **Galv antenna post 3.2m** (2m X 50mm)/1.2m X 37mm) $20. Laurie VK3DPD QTHR. Phone 03 9818 6009.

• **Kenwood TS-120S** HF tcvr, works very well, $200. **Yaesu FP-707** 20 amp P/S GC $125. Yaesu 2m hand helds **FT-23** $125, **FT-411** $150, both GC. **Yaesu FT-101ZD** HF tcvr EC $325. **Yaesu YD-148** desk mic EC $50. **D/Smith 30 watt 2m amp**, as new $30. Ron VK3OM QTHR. Phone 03 5944 3019.

• **LC meter, model LC-6043**, as new $58. **6146B** tubes $47.50 each. John VK3AJL QTHR. Phone 03 9481 6771.

• **ICOM 736** (yes 736)!). 100 W HF transceiver in full working condition $1200. Also, **Hustler Multiband Vertical** $300. Deceased Estate. Chris VK3CGB Phone 03 5728 6585 or email thebretts@hotmail.com

• **ICOM IC-281H** Mobile 2m transceiver s/n 001702 with manual (& home brew Slim Jim antenna). $320. **Diamond F-23A** antenna - 2m 5/8 wave 3-element vertical. $95. Plus misc. info. Any offer considered. David VK3DNG QTHR 03 9859 4698. Email: darodda@jeack.com.au

WANTED VIC

• **Advance Millivoltmeter Model 77B.** A circuit and/or manual is wanted for this VTVM. BWD CRO Model 502. A circuit wanted. Brian VK3WYN QTHR. Phone 03 5664 1251

FOR SALE QLD

• **Antenna, ATN 13-30 Log Periodic**, suited for 13-30 MHz, with Antenna Rotator medium duty, preselect controller, with 30 m of cable and tower top thrust bearing. Please contact Karl, Phone 07 3823 4919 or email: vk4cws@iprimus.com.au.

FOR SALE SA

• **HF-Linear-Amplifier CE-5000E**, made by Amplifier Systems, Northridge, CA, S/N 10-98697, single tube 3 CX 3000 A7, 5kW cont. out, 13dB @ 3-30MHz, 3 phase power, 44" X 25" X 24", nearly new in original transport crate, heavy and therefore to be collected by buyer from its Gold Coast storage. If you are serious, have a ute, and have spoken to ACA, please ring: Harro VK5HK Phone 08 8323 9622 or fax 08 8323 9659.

• **Yaesu FT-290R** 2 metre all mode transceiver with power supply, mic, manual, S/N. 3.281747. $200. Peter Russell 50753. Phone 08 8255 1618.

• **Kenwood TS-50s.** All mode, all band, HF Transceiver. Exc condition, inside and out. Most of its life in the shack, but great for portable work. Supplied with: mobile bracket, standard hand mic, original manual, original packing, schematic sheets, DC lead, and extra technical information. s/n 50701378. $850 ono. John VK5EMI Phone 08 8278 1269. Email: dellio2@bigpond.net.au.

About hamads....

- Hamads may be submitted by ***email*** or on the ***form on the reverse of your current Amateur Radio address flysheet.*** Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or printed clearly, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

• **ICOM IC-40s** for sale (Adelaide). Brand new, still in box (replaced stolen item) now unwanted. NEW price $480.00, will sell for $400.00. Contact Paul on Mobile 0407 177 369 or email paulgo@lhug.com.au.

WANTED SA

• **Valvas 6146 and 12BY7**, new or known good used. **Eproms 2732**. Eddie VK5ZE, QTHR.Phone 08 8266 7688.

• **Yaasu FR-101** receiver. Good price offered. Peter Russell 60763. Phone 08 8255 1618

FOR SALE WA

• **Yaasu FT-757GX11, FC-757AT, FP-700** power supply $1000 complete. **TE-33** still in box $600. VK6PDE. Phone 08 9626 2710.

FOR SALE TAS

• **Icom communications receivar R-71A** 0.1 MHz-30 MHz SSB CW FM AM, 120 V 240 V with manual Serial No 03460 $600. QTHR VK7ZAL.

WANTED TAS

• ONE NEAR DEAD **FNB-26 battery pack** in a good uncracked case. Send details to Mike VK7KMH QTHR or Phone 03 6425 6380

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

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432 DUBUS March 15/16 2003 Contest

Conditions seemed quite stable and only minimal Libration fading during my Moon rise on both days. Polarisation was about 45 degrees into Europe for the most part on 15th but very pronounced 90 degrees shift on the 16th. There were short periods of deep fading but these seemed rare. Overall, although there was solar activity and Aurora evident on HF, 70 cms was for me, about "normal to good."

Activity was very good into Europe and I was kept very busy as evident by the log. Unfortunately the same could not be said for the USA where there was only one station on for both days of my Moon rise. Operating practices were just excellent and a very enjoyable activity weekend. I managed to work 3 new Stations during the period and renew acquaintances with several "oldies".

Although activity was very much down into the USA (and that is not an over statement!) I managed more QSO's and multipliers than last year. Final claimed score. 44 QSOs x 22 multipliers = 96800 pts (operating time about 5 hours total)

15th March 2003

1255 UA3PTW 55N 56N : *1259* KL6M 55N 55N : *1305* SM3AKW 55N 56N : *1309* RA3LE 55N 56N : *1341* UT3LL 33N O *1347* DL7APV 55N 55N : *1359* OZ4MM 55N 44N : *1407* F2TU 55N 55N : *1416* SP6JLW 55N 55N : *1421* VK4AFL 55N 55N *1427* DL4KG 54N 55N : *1432* DJ6MB 55N 55N : *1446* HB9Q 55N 55N : *1450* DL9KR 57N 57N : *1456* SM2BYA 53N 55N

1500 OK2BDQ 55N 55N : *1507* PA3CSG 55N 55N : *1513* DJ3FI 55N 44N : *1523* S52CW 55N 55N : *1529* F6KHM 55N 55N 1536 OZ8OL 55N 58N : 1542 OE3JPC 55N 55N : 1552 OE5JFL 55N 56N : 1556 DF3RU 55N 57N :

1600 G4RGK 54N 55N *1607* I5CTE 54N 55N : *1611* 1N3AGI 54N 55N : *1617* EA3DXU 55N 55N : *1622* G4ALH 53N 54N : *1637* PA2CHR 54N 55N : *1645* DL8OBU 53N 53N : *1652* DK3WG 55N 58N

16th March 2003

O812 JH6AHB 53N 55N : *O817* JR9NNC 53N 44N : *1529* SK0CC 53N 53N : *1600* DF9RJ 53N O : *1628* PA0BAT 43N : F6HYE 55N 44N : *1642* G3LTF 55N 55N : *1700* G3LQR 54N 55N : *1705* SM2CEW 55N 55N : *1716* ON5OF 55N 56N : *1723* DL2OM 53N O : *1730* YU1EV 53N 55N

There were many repeats not listed above as we "chewed the fat" during rare slack periods! Very enjoyable and thanks to all those that came on .. I don't think I missed anyone that may have called.

73 Doug (VK3UM) ... no I have not forgotten 23cms!

VHF/UHF Column Sub Editor

David VK5KK is currently having great difficulty putting the VHF/UHF column together due to work commitments. He is looking for assistance in collating the column. If you would like to help out please contact David at David.Minchin@tnbaust.com

Editor VK5UE

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

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Secretary	Deane Walkington	VK1DW
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(PO Box 432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
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Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

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Web: *http://www.wia.org.au/vk4*

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VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
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web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

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e-mail: *vk6@wia.org.au*

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VK7 Division Tasmania
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Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http://www.wia.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Mike Jenner	VK7FB
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga. VK1 Home Page *http://www.vk1.wia.ampr.org*

Annual Membership Fees. Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.

Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 In both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au

Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" formal from the VK6 WIA website

Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

RSGB President visits Australia

Bob Whelan G3PJT and VK1MJ station

Bob Whelan G3PJT, Ernie Hocking VK1LK and Mike Jenkins VK1MJ

With the number of aspirant radio amateurs in the UK dwindling fast, the RSGB and the Radiocommunications Agency (RA) got together and created the Foundation Licence. Its purpose is to attract a new and young generation of radio amateurs and prepare them for HF operations, and open the door to the use of digital modes and the microwave segments of the amateur bands.

RSGB's President, Bob Whelan G3PJT, is currently visiting VK. He has met with VK1 and VK6 members and operated the station of VK1MJ in the RSGB Commonwealth Contest (CW) over March 8/9th. He has talked profusely about the UK Foundation Licence when given the chance

For more details, see VK1 Notes, page 30

The Versatenna in use – Stationary Mobile or Portable

With this antenna "installation" and 5 (five) watts from the mobile rig-an RH212- Victor VK4WST had solid QS0s from his QTH in Cleveland (adjacent Moreton Bay- Queensland) to the Gold Coast via repeater VK4RGG on Mt Springbrook; a distance of approx. 8Okms-also to Manchester U.K; South Australia and USA via repeater VK4RBN and VK4FIL's Echo-Link. It really does work!!

By the way, the driven elements were shortened to 480 mm and the reflectors to 520 mm to allow operation in the 146-147 MHz section of the band with a low SWR.

A description of this installation on the air caused some hilarity!

Victor has since mounted the Versatenna on the folding pole of a defunct sunshade and used it on the antenna mount fitted to the tow bar. Stationary mobile--of course!

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The magazine for AUSTRALIAN Amateurs

May 2003
Volume 71 No 5

Amateur Radio

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FEDERAL CONVENTION: Report & Pictures

Dawn breaks on JOHN MOYLE FIELD DAY

- *Drew Diamond VK3XU:* A 3 – 30 V : 2 A DC Power Supply –with design notes
- *Malcolm R Haskard VK5BA:* CODAN HF Transceivers Part 2
- *Lloyd Butler VK5BR:* A Crossed Field Loop Antenna for 3.5 MHz

ISSN 0002-6859

Brenda gets Life

Brenda Edmonds VK3KT, fittingly receives the inaugural Institute Award of Honorary Life Membership.

Brenda has served the WIA for more than twenty years at State, Federal and International level and was also Federal Education Officer for 21 years.

The education task means that she is extremely well known and respected throughout the country.

Brenda's nomination was the first put forward by the Honours Committee which was formed last year to assess recommendations for Institute Awards.

The award was greeted with universal and enthusiastic acclamation.

Brenda is still very active in the WIA and is always there when things need to be done, be it high profile like policy forming or the invisible bits of ordinary stuff that make the place run. For instance even the mundane, necessary and thankless task of proofreading this publication falls in part to Brenda.

Well Done.

John Moyle Field Day

And a great time was had by all...

'Shack away from home'

Some had shacks away from home. Jim VK3AEF at work at Tarranginnie, all nicely organised in his slip-on 'trailer-shack'

Another view of the VK3 AEF 'Trailer-shack' with Bill VK3LY (Ex VK3SWD) at the controls.

More on inside back cover

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Editorial

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Hamads and advertising material deadline 18th day of preceding month

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Our Cover this month

"Calling CQ over the mist – VK2SRC at Mt.McKenzie". See pages 18 to 20 for how hams across the country participated in the John Moyle field Day

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

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Wireless Institute of Australia

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National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

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Editorial Comment

Colwyn Low VK5UE

Some important decisions made

Well, the WIA Federal Convention has come and gone. Its decisions will influence Amateur Radio in Australia for a very long time. We the Radio Amateurs of Australia and the Australian Communications Authority over the next 12 months or so will make decisions that will see Amateur Radio flourish or die. The convention worked hard to come to agreement on what real changes had to be made to the Hobby we have all been part of, some for several decades, to ensure it will continue. What was realised was that we have to look at to-day's world and pick up the parts of modern communications technology and its use that is the realm of Amateur Radio. It could be that all of this is the area in which Amateur Radio should be active. Maybe we need to call it Non Professional Communications instead of Amateur Radio.

The deliberations of the Convention are summarised in this issue. The main thing I sensed, from the afternoon I was there, is that it has at last been realised that the WIA is a national body and all the State Divisions sink or swim together. It is no longer possible for any Division to stand alone. So it seemed to me the WIA is beginning to act as a Federal body with State Divisions rather than a Federation of State Divisions. After all approximately 75% of member's subscriptions fund the federal WIA driven activities, which service all Amateurs. In some cases that is all Amateurs, not just WIA members. So please when the surveys being distributed by your State Division are received think very carefully about how you answer the questions and remember that maybe the world you got your licence in, is not the world the new recruits to Amateur radio grew up in or live in. Just reflect on how technology in every day use has changed and how education levels in the community have changed.

You will also be aware that Amateur frequency allocations at VHF and UHF are being closely looked at by other services. It is hard to justify holding MHz of spectrum if an Amateur signal is rarely heard on them. HF frequencies have a world wide usage so there are many more possible operators but the VHF and UHF bands have limited coverage within Australia so a reallocation will not affect those off shore. We need to make more use of our allocations to ensure we keep some of them. Think about it, maybe contests do have a place in most Amateurs' activity, if only to stake claims to spectrum space. I had seen a plea before World Amateur Radio Day for every Amateur to make ONE contact. Later I thought it should have been ONE contact on EVERY BAND they had equipment for. May be next year we have an Activity Day on World Amateur Radio Day.

So my closing comment is are we doing enough to keep our frequencies and are we doing enough to interest others in Amateur Radio. One phone call I had this week with a non licenced but communications interested person was that a simpler Entry Level licence would have them try for the licence and they had about 20 friends who would be with them. Then they could set up wireless communication links for their computers. Now that would get some VHF and UHF bands humming !!

73 Colwyn VK5UE

CHANGES TO AMATEUR RADIO MAGAZINE ADMINISTRATION.

The addresses for the submission of material to Amateur Radio Magazine have been changed from this month. The Editor will still receive all material for regular columns and Over To You letters. The Secretary, Publications Committee will receive and acknowledge all Technical and General Articles, All Hamads and all advertising material will be sent to Newsletters Unlimited. The addresses for each of these is given in the column on the left-hand side of page 1.

Ernie Hocking VK1LK
Email: president@wia.org.au

The WIA and a new Foundation Licence

As many of you will have already heard the 2003 WIA AGM was something of a watershed for amateur radio in Australia.

Throughout this issue of AR you will find a number of articles about the AGM. These include a summary of the convention as well as a summary of the current WIA financial position so I will not cover these issues again here. From my perspective the single theme throughout the AGM was the need to revitalise the hobby in order to ensure that it has a successful future. This theme has an impact upon membership, finances, and the ability of the WIA to continue to provide a high standard of service to amateurs here in Australia. In what follows I will set out what I see as the next steps that will unfold as we move to the introduction of an entry level licence aimed at encouraging new interest in the hobby. In trying to predict the future I will however sound a note of caution since in practice the exact sequence of events and the final outcome will be driven by a number of factors outside of our control. The approach I have adopted is to look back as if I was writing in May 2004.

Looking back at the implementation of the Australian Foundation Licence.

"The extensive consultation with the amateur radio community indicated a very high level of support for a licence closely aligned with the UK model. Based on the consultations, the WIA developed a comprehensive proposal outlining the full business case for the introduction of an entry level licence which was presented to the ACA in June 2003. Included in the proposal were suggestions that:

- a radical new approach using a Project Based Learning and assessment process to gain certification of the achievement of proficiency be adopted, and
- that the new licence be known as the "Communicator Licence" in order to reflect the nature of the licence (noting that access to a full experimentation licence was reserved for the existing full call licence).

The timing of the proposal was important since it clearly demonstrated to the ACA the intention of the WIA to seek the new licence before the start of the 2003 World Radio Conference. In June 2003 the ACA also decided to fully devolve all aspects of the examination and education system for amateur radio to the WIA.

Upon returning from WRC 2003 the ACA was faced with a need to implement a number of outcomes. These outcomes included:

- the removal of Morse code testing requirements for the amateur radio licence,
- the adoption of the recommendation to allocate 300kHz to all amateurs in the 7MHz band, and
- a variation to the callsign allocations to permit 4 letter callsigns.

Aware of the WIA proposal for a new entry licence the ACA called a meeting in order to discuss the best approach to resolving all of the issues with a single revision to the legislation. By late August 2003, "in principle" agreement had been reached on the form of the new licence, the new LCD, and changes to the existing amateur radio licences to make them consistent with the outcomes of WRC2003.

AMATEUR RADIO DREAMING:

Wouldn't it be wonderful to look back in 10 years and see one of these new amateurs receive the award of 'Young Australian of the Year' and in her acceptance speech publicly credit amateur radio with having provided the incentive to move into a science career.

Based on this agreement the WIA executive undertook a major letter writing campaign to Government and Industry seeking support for the implementation process. As a result of the campaign significant funding along with practical support was forthcoming. This permitted a number of amateurs to participate on a full time basis in the development of the material and processes required to make the new licence operational in time for the 2004 AGM. Although a major task, the WIA team brought to bear the considerable experience and skill available to it and decided to make the 2004 AGM a flagship event timed to coincide with the launch of the first "Communicator Licence" course. In order to recognise the valuable contributions of Government and Industry it was also decided to link the event to a major amateur radio conference and exhibition. To top the events off the Minister for Communications was invited to attend the final day of the conference in order to present the newly qualified amateurs with their licences. The WIA president when interviewed at the conclusion of the conference was heard to say "Wouldn't it be wonderful to look back in 10 years and see one of these new amateurs receive the award of 'Young Australian of the Year' and in her acceptance speech publicly credit amateur radio with having provided the incentive to move into a science career."

So that is the vision. It is ambitious but achievable. It will be very interesting to look back in 12 months and ask to what extent the vision was achieved. In the meantime I would urge all of you to provide your input into the consultative process that is being conducted over the next month.

So I'll wish you all 73 and look forward to hearing your comments, either directly or via the divisions. All the best in amateur radio

Ernie Hocking VK1LK
Email: president@wia.org.au
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the single theme throughout the AGM was the need to revitalise the hobby in order to ensure that it has a successful future. **Ernie Hocking VK1LK, WIA President**

WIA looks to the future

A blow-by-blow observation of the proceedings of the WIA Federal Convention, 2003 **by David Jones VK4OF, Federal Councillor, VK4.**

WIA President, Ernie Hocking VK1LK, welcomed all to the convention, and opened proceedings by thanking the VK5 Division in general, and their President Trevor Quick in particular, for all the logistical help that they had offered in order that the Convention could actually occur. This even extended to personally collecting visitors from the airport, driving them to the Hotel, and returning them to the airport at the end of the Convention.

Ernie commenced his opening address for the Friday afternoon general session with a review of just where the Amateur Radio Service really is in Australia, noting a reduction in new amateurs, and noting what other sister societies had done to arrest this decline, with particular reference to the UK and NZ models. The Friday afternoon was to be devoted to the future of AR in Australia, with no set agenda, and no set topics, but addressing licensing and education as key elements.

Foundation licence has been a positive experience in UK

Ernie noted particularly that the RSGB had done some very important things to improve the public perception of the ARS, and that we should consider these issues as well. To make it easier to understand, we all watched the video address by the visiting President of the RSGB, Bob Whelan. Bob noted the following points considered important by the RSGB:

1. improving the public perception of AR by taking AR to the people in a variety of ways
2. exploiting the opportunities offered by the introduction of a Foundation Licence.
3. actively defending our spectrum ... which aids in preventing the sale of spectrum allocated to the ARS, and
4. keeping the members interested. Since the introduction of the Foundation Licence, most clubs have seen a resurgence in activity among older members, because something new is happening every day.

As a result of the introduction of a Foundation Licence, Bob Whelan noted that the RSGB had seen:

1. a dramatic increase in the volume of retail sales of amateur equipment,
2. the successful candidates staying with the club which sponsored them so that the club actually grew,
3. that with course providers not being the exam invigilators, and with the exams generated as needed on site, the papers necessary for application for licence for successful candidates were immediately available to the potential new amateurs,
4. the RSGB saw an increase in activity in the more dormant members of the club, and
5. an increase in the number of older members upgrading to full licence standard.

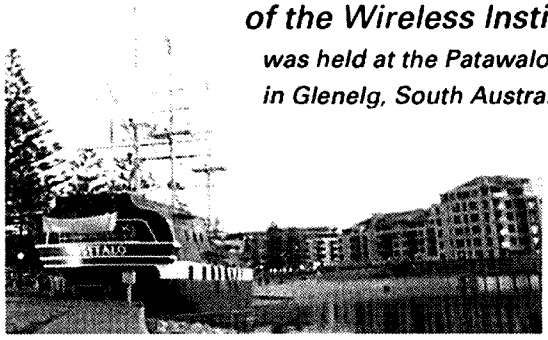
So all things considered, the British experience was very positive. Their outcomes would weigh heavily in our discussions, both internally and externally with the ACA.

ARS: a holistic approach?

Ron Smith chaired an in-depth discussion on looking at the ARS in Australia, and showed that just changing licence grades would not be enough. As an example, if we added further grades, and took on licensing, we may need a

The convention, which is the Annual General Meeting of the Wireless Institute of Australia,

was held at the Patawalonga Hotel and Motor Inn in Glenelg, South Australia, at 14.40 local time Friday 3rd April. All divisions were represented by a minimum of one Councillor, most divisions had two or three members, and in VK4's case, a Councillor, two Alternate Councillors and an Observer.



The Friday afternoon was a general informal and discussion session, with the formal proceedings to commence on Saturday morning, and concluded Sunday afternoon.

whole new administrative structure to handle it. This holistic approach set the scene for the remainder of the weekend.

After much discussion, the Convention determined our objective to be to increase the number of persons participating in the hobby of Amateur Radio, and that the likely scenario would be the adoption of a licence structure based closely on the RSGB system, being an Entry Level Licence with access to most bands, all modes and using low power, and an Unrestricted Licence. We then closed the proceedings for Friday, April 4th.

Highlights of Saturday, April 5th

- **Address by Treasurer, David Pilley, VK2AYD.** David addressed the matters raised, some in brief and some in detail, so that we could all look at the big financial picture.
- **WIA Publications.** Ernie noted that more and more people these days are relying on electronic means for delivery of material. Discussion included the costs of doing so, vs the reduction in hard copies required, and hence the possible increase in costs to those who remain with hard copy as a result of a smaller print run. It was also agreed that:
  - — VK3 will conduct a trial run by sending the AR .pdf file to members as a test for three months, and would monitor and record aspects such as take-up, costs etc.
  - — the good work of Jim Tregallis be made available. Jim has saved all technical articles for the last five years to CD, and made it searchable. The Exec will implement this aspect.
  - — the Exec would progress the matter of having a summary of all AR magazines for the year, with articles, on a searchable CD, and that this would be available for sale.
- **Divisional Reports.** VK3 and VK4 had circulated copies of their Annual Reports for the Convention, and the other divisional representatives worked from prepared notes.
- **Review of Strategic Plan.** We were introduced to Brian Clarke from VK2. Brian is the convenor and Chair of the Strategic Planning Committee, established by president Ernie. The next hour plus was devoted to a review of our Strategic Plan, and a recognition that we have to plan to encompass more aspects than ever before. This excellent lecture-cum-invocation to hard work lasted more than an hour, and Brian concluded by asking for volunteers to join the committee, preferably a minimum of one per division.
- **AR magazine.** Colwyn Low, the Editor of AR Magazine. The Q and A session that followed was most informative, and helped councillors as well as the Editor.

Further unpresented divisional reports then followed.

- **The implications of Divisional motions.** VK2's motion regarding an entry level licence was first on the agenda. Ernie reminded us all of the conclusion of the Friday session on this matter, best summarised by VK4, which noted support for an entry level licence, with access to most if not all bands, all modes and low power, with no home brew transmitters.

This led to the adoption of the motion that you all heard on divisional broadcasts on Sunday 5th April. This motion was later rescinded on the Sunday in order

General Views of the sessions

The convention Dinner on Friday night at 'The Buffalo'. (Delegates paid their own way)

President Ernie VK1LK thanks AR editor Colwyn VK3UE after the Q & A session on Amateur Radio magazine

to allow the ACA Liaison Team the scope to negotiate a licence condition that supported the initial principles, being access to most if not all bands, with low power, and all modes, but was not so prescriptive as was the initial motion.

The outcome would be that if the WIA's proposals are accepted, the Novice licence would disappear, and the holder of any existing licence would be upgraded to an unrestricted licence. There would be only two classes ... the new restricted entry level, and an unrestricted class that would be the same as our current full licensee. This was easily rationalised on the basis that it takes a person who is starting from scratch, some 16 weeks to prepare for the Novice theory licence, yet only 20 weeks to prepare for the full theory.

- Press the ACA for speedy implementation of any outcomes from WRC 2003, to be held in Geneva in June.
- A motion was put regarding the circulation and/or publishing of the exam question banks. This was not seconded and was allowed to lapse, based on information from Education Officer Ron Smith.
- Final items involved planning for the 100th Anniversary of the Foundation of the WIA, in Sydney in 1910. This included a very special event callsign, not just from the VI block, but one befitting the first centenary of any society in the world that represents the Amateur Radio Service. And with that, we closed proceedings for the Saturday, concluding at 1730 hrs.

Brenda Edmonds VK3KT is presented with her Life Membership by President Ernie VK1LK

Highlights of Sunday April 6th

- Brenda Edmonds VK3KT honoured. Sunday started with yet another deviation from the agenda ... but this one, a very positive and universally supported one. Last year, we agreed to establish an Honours Committee, to assess nominations for Institute Awards, and the first nomination received was that of Brenda Edmonds, VK3KT, for Honorary Life Membership. Brenda's CV reads like a who's who, as one would expect from someone who has served at divisional, federal and international level for more than twenty years. And while she was doing these things, she was also Federal Education Officer for over 21 years. Have a look on the web site for presentation photos. Heartiest congratulations Brenda on a job well done.
- Revisiting of the motion on the Entry Level Licence. Substantial debate followed, culminating after lunch with the adoption of an amended motion that was previously foreshadowed, that is, to seek an entry level licence, with low power and access to all modes and a majority of bands and allocations, as distinct from the previous motion which sought access to all bands as a point of policy.

  This may sound simple, and you may ask why these things take so long, but you have to accept that the WIA is democratic. Most importantly, it seeks to ensure that all sectors of the amateur community will have time to comment on the formal proposal that will be put to the ACA by the WIA/ACA Liaison Committee, and that the proposal we adopt and choose to put forward is manageable by the Committee.
- Presentation of the Annual Financial Report, the Profit and Loss Statement, and the Auditors Report. From these documents, it was clear that the WIA has to budget for a deficit next year, unless as a minimum, fees rise in accordance with CPI. It was resolved that the federal fee for the 2004 year commencing January 1st, 2004, would be $61.85, which is significantly less than the CPI adjusted figure which received support.
- Annual Reports. We spent several hours receiving, reviewing and finally, adopting all the Annual Reports of the various ex-officios of the WIA. There are some 26 of these reports, and while some are a single paragraph, some are more than fifty pages. Nothing is overlooked, no recommendation ignored. We sincerely thank all the ex-officios for their dedication and hard work.
- Two memorable Silent Keys of the year, Bill Gronow, an Honorary Life member from VK3, and Rowland Bruce, a former Federal Councillor from VK5. All members stood in their places in silence for one minute as a mark of respect for these wonderful servants of the Institute and the ARS.
- Elections for President and the directors of the Institute, resulting in President Ernie Hocking VK1LK being returned, with David Pilley VK2AYD, Don Wilschefski VK4BY and David Jones VK4OF being appointed as directors, and with Peter Naish VK2BPN being re-appointed Honorary Secretary. Appointment ballots for all the ex-officio positions were then conducted as necessary.
- Place and timing of next year's Federal Convention. In keeping with the concept of bringing the WIA to the people, it was generally agreed that the next Convention be in either Canberra or Brisbane, and the two divisions noted would advise a tender in the near future.

- Awards. Almost last on the list was the consideration of Institute Awards, as notified. It was unanimously agreed that the Higginbotham Award be presented to Drew Diamond VK3XU, the Technical Award be presented to Dale Hughes VK2DSH, the Ross Hull Award to Glen Neilson VK4TGL, the Ron Wilkinson Award to Doug Mac Arthur VK3UM, and Honorary Life membership, as mentioned, to Brenda Edmonds, VK3KT. Congratulations to all recipients.

And we finally concluded with the usual thank-yous at 16.22 local on Sunday, after what had been a tremendously satisfying federal convention, excellently chaired, and constructively supported by all participants. From my own perspective, this rates as by far the most enjoyable yet also productive of all, and I have been to more than a dozen. I think the reason for this is a maturing of the Institute from one of seven separate shareholders often arguing from their own perspective, to that of one of collective wisdom, and it is this that will carry the WIA and the Amateur Radio Service it represents forward into the future

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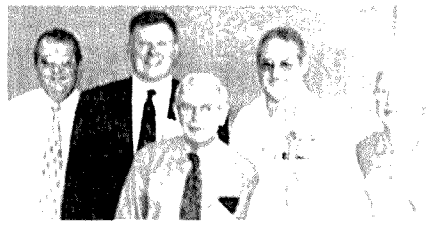
The 2003 Executive



L to R: Don Wilschefski VK4BY, Ernest Hocking VL1LK, Peter Naish VK2BPN, David Jones VK4OF, Brenda Edmonson VK3KT, David Pilley VK2AYD

Editor's note:
This report is prepared from David's participation and notes. The official report is of course the Council's minutes of the Convention.

The Federal WIA Accounts

David A. Pilley VK2AYD, Federal Director
davpil@midcoast.com.au

As you have read elsewhere in "AR", the Federal WIA Convention was again a cordial and successful meeting.

How are my subscriptions spent?

I am sure the question has passed through your mind at some time and we hope this overview will provide you with some of the answers. The WIA is not un-similar to our own government. The Federal WIA is the body that bats for you to keep your frequencies and represent you both nationally and internationally. It in turn is supported by the State Divisions who take care of the problems and challenges we are faced with within the States. Each State Division has a Federal Councillor and collectively these Councillors, after discussion with their officers and members, together make decisions and represent you at the Federal Convention.

The year 2002 was not a good year financially. It closed on a loss and the budget for 2003 is not very encouraging either. Membership declined from 4,071 in 2001 to 3,936 in 2002. A drop of 3.3%. However if we look at 1998 we had nearly 5,000 members. Not good!

Our financial position at 31 December 2002 was

Assets	$244,578
Liabilities	$175,470

This shows the Net asset (or Equity) of the Federal WIA as $69,108 which is not a large amount for such a prestigious Institute.

Before discussing the Profit and Loss be aware that approximately 25% of your subscription is passed to the State Divisions to administer their local needs. The Profit and Loss Statement shows how the federal componenet of your subscription is used (about 75% of the full WIA Subscription).

In brief:

Income:	$AUS
Membership subs	177,576
Call book and Exams	23,640
Other incomes	55,184
	256,400
Expenses:	
"AR" Magazine	136,206
Convention	11,552
IARU/Intl	10,937
Office staff etc	49,201
Call book and Exams	12,359
Utilities	12,258
Audit & Bank charges	6,392
Insurance	6,901
Other expenses	13,146
	258,952
Net Income (Loss)	(2,552)

Some explanations are in order.

"Other incomes" include such items as Advertising in "AR", Sales of "AR" at Newsagents and Interest. We desperately need more advertising in "AR".

"Other expenses" are general office expenses such as printing and stationery, etc.

"Utilities" are Rent, Telephone, etc.

The Budget presented for 2003 also showed another loss. During the year we will be funding representatives to the WRC2003 and the Region 3 IARU conference. It all costs money. During the Convention there were suggestions of only running "AR" 6 times a year (we have already reduced copies from 12 to 11, December/January being combined). This was defeated, as the thought of receiving information that was 3 months old would not sit well with the members. For the year 2004 it is anticipated that subs will rise by about $4 a year, equal to the CPI index. But this isn't the answer. Our membership is less that 25% of the total Amateur population in Australia. We need more members and we ask you, can you help? National and International representation is essential to our hobby and we can't do it efficiently on a shoestring. Our President and the Executive are open for discussion any time.

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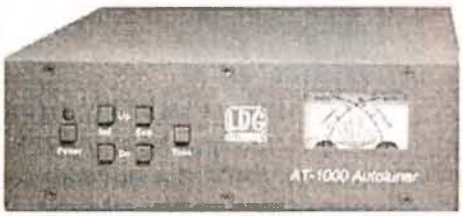

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A 3–30 volt, 2 ampere DC Power Supply

– with design notes

Drew Diamond, VK3XU,
45 Gatters Road,
Wonga Park, 3115.

No matter how many dc power supplies are built or acquired by the radio/electronics enthusiast, there always seems to be some new application that demands a higher (or lower) voltage or current. Generally, a voltage range of perhaps 3 to 20 V dc at up to 1 A is sufficient to power the majority of contemporary devices and circuits, and our popular electronics magazines have addressed this need more than adequately.

Increasingly however, and particularly when working with power MOSFETs and similar devices, radio experimenters have found need of a supply of perhaps 25 or 30 V dc. For such work, a current-limit capacity of 2 A should find greater use in the amateur's workshop. The prototype has the following performance:

Voltage Range: 3 to 15, and 15 to 30 V dc.
Current Capacity: Up to 2 A at voltages less than 2 V of maximum.
Load Regulation: Less than 10 mV variation from no-load to rated load.
Ripple and Noise: Less than 10 mV_{p-p}.
Output Protection: Current-limit, short-circuit and reverse polarity.

Circuit

Considerable experimental effort has gone into the development of the prototype model. Initially, in an attempt to reduce cost and complexity, ordinary LM350-T (plastic) and -K (TO-3) 3-terminal regulators were tried. These make excellent fixed or narrow range adjustable voltage regulators. However, when they are used to deliver a greater range of voltages at currents up to (say) 2 or 3 A dc demand, they are considerably less than ideal for a general-purpose bench supply. In order to hold power dissipation within specification, circuitry internal to these devices makes it impossible to obtain anything like the maximum current at the low end of a chosen voltage range. Secondly, and more significantly, when the regulator's current-limit is reached, there is a sudden substantial fall in output voltage (fold-back), which, when developing certain circuits (amplifiers for instance), renders it impossible to sneak up on, or probe the load circuit's boundaries.

In this application therefore, the cheap, popular, easy-to-obtain 723 regulator IC is used. The 723 remains one of the most versatile perennials for power supply work. Without an external pass transistor, the chip alone can only supply 150 mA to the load, and so a preferred 2N3055 is used as series pass element.

Internally generated 7.2 volt reference at pin 6 is dropped to 2.2 volt and applied to the error amplifier non-inverting input (pin 5), thereby setting the minimum output voltage at about 2.7 volt. The error signal, from the voltage divider comprising a 100 Ω, 4.7 kΩ (15 - 30 V range only), 5 kΩ pot and 820 Ω resistor string connected between (+) and (-) output terminals are applied to the inverting input (pin 4). A workable formula for estimating the divider resistor values necessary for other output voltages is shown on the circuit.

The voltage developed at pin 2 with respect to pin 3 determines the current availability (or "limit"). When the positive voltage at pin 2 approaches about 0.5, the supply will go into the constant-current mode, and will not give any greater load current. The current sense resistor is set at 0.25 Ω (4 x 1 Ω ohm in parallel) in order to produce 0.5 V at 2 A.

For the 3 - 15 V range, the rectifier is configured by S2a as a "two-diode-centre-tapped-winding" circuit, and in the 15 – 30 V range, the full 30 V ac winding of the mains transformer is used with a "four-diode-bridge configuration", which yields a no-load voltage of 21 and 42 V dc respectively. Power dissipation in the series pass transistor is thus kept within reasonable limits (the highest normal dissipation being about 2 A X 18 V = 36 W with the output set for 15 V at 2 A on the 15 - 30 V range). S2b configures the voltage divider string to give an output voltage of 3 - 15 V by shorting the 4.7 k resistor.

A reverse connected 6 A diode is fitted across the output terminals to absorb "kick-back" energy from inductive loads, and a second diode is wired in series with the positive output lead to prevent external voltages from reaching the regulator and pass transistor (should mains power be removed whilst charging batteries for instance) which may otherwise damage these devices.

High frequency stability is obtained by inclusion of the 470 pF capacitor between pins 4 and 13, and a 4.7 µF between pin 3 and pin 7. The (+) and (-) terminals are by-passed with a 100 nF monolithic capacitor to discourage external HF signals from entering the supply.

Let me now discuss the choice of the major components in turn; power transformer, rectifier diodes, filter (or reservoir) capacitor(s), pass transistor and heat-sink.

Power Transformer

According to Ref 1 (p8-4), transformer secondary winding RMS current is 1.2 x dc load current for the "two-diode-centre-tapped" circuit, and up to 1.8 x

dc load current for the "four-diode-bridge" circuit. In this instance the secondary measures 1.3 times the load current. Having decided upon a load current capacity of 2 A, our transformer must therefore have a current rating of 1.3 X 2 = 2.6 A.

Because of the number of variables, the exact formula to calculate the needed secondary voltage (Ref 1, p8-4) is rather unwieldy, and takes in factors such as rectifier diode drop, AC mains tolerance and ripple voltage (but neglects winding losses). Never the less, some empirical hints are offered here.

An achievable (and generally accepted) ripple voltage across the filter capacitor under load (discussed later) for low-voltage/moderate current supplies (like this one) is about 3 V_{p-p}, and for the regulator/pass transistor to function we need a "headroom" or reserve of about 3 V (ie. the instantaneous raw input dc voltage should always be at least 3 V higher than the wanted dc output voltage). On the 3 - 15 V dc range the filter capacitor will charge to 1.4 x 15 = 21 V no-load. With a 2 A load the ripple "trough" may in practice dip as low as 17 V instantaneous, which is only 2 V higher than the required output voltage, so a 15 V (15-0-15) winding should be just adequate under correct mains voltage conditions and at about half the rated output current. However, when the output is set just a volt or two below 15 V dc (or 30 V dc), full rated current is obtainable.

Briefly, we need a winding V ac RMS that is equal to the maximum regulated dc output voltage, but only about half the rated current will be available before "ripple break-through" occurs. When the output is set for just a volt or two (say 13 or 28 V dc) below maximum V dc the rated current may be had. An 18-0-18 V ac winding would offer a greater margin in this instance (particularly for mains "brown-outs"), but then a more costly transformer would be required, and power dissipation would also be greater.

Looking through some electronics catalogues we find a generic type 2170; 0-15, 0-15 V ac rated 6A. We must be careful here, because the transformer's power rating is 100 VA, and 30 X 6 = 180 VA. Hence the 6 A rating applies when the two 15 V ac windings are connected in parallel (15 x 6 = 90 VA). The 2170 is therefore a 3 A transformer when the windings are connected in series, which nicely suits this application.

Rectifier Diodes

As noted above for the transformer current rating, diode current will be about 1.2 times the load current for the "two-diode" configuration, and up to 1.8 times the load current for the "four-diode" circuit. 3 A diodes would therefore be marginal, and so 6 A diodes, or a 6 or 10 A bridge is indicated. The cost of four 6 A/400 V diodes is about the same as a bridge. However, individual diodes are a help in any future troubleshooting task, as a carefully applied, calibrated finger tells us if any one of the diodes appears faulty (they should all be about the same temperature).

Filter Capacitor(s)

Peak to peak ripple voltage (V_{p-p}) may be calculated from;

$$V_{p-p} = \frac{I}{2 x f x C}$$

Where I is the load current in amperes, f is the frequency, which in our case is 50 Hz and C is in farads (Ref. 2, p46). Re-arranging the formula in order to calculate the capacitance required for 3 V_{p-p} at 2 Ampere load current we get;

$$C = \frac{I}{2 x f x V_{pp}}$$

To express the C term in microfarads, the right-hand side is multiplied by 1,000,000.
Substituting we get;

$$C(uF) = \frac{2000000}{2 x 50 x 3} = 6666\ \mu F.$$

Therefore, as a good 'rule-of-thumb' for low voltage/moderate current power supplies operating from 50 Hz mains we need (in round figures) about 3300 µF/A of load current at 3 V_{p-p} ripple.

Filter capacitor ripple current is about twice the load current (Ref. 1, p 8.6). From catalogue data, one choice may be an 8000 uF/80 V/105 degree C/3.5 A capacitor. We must keep in mind however, that capacitance tolerance for an electrolytic is rather broad. Furthermore, it would be wise to share the ripple current between two capacitors, rather than rely on just one (belt and braces). A more prudent and cheaper option would be two 4700 µF/50 V/105 degree/2.3 A capacitors in parallel. Any larger capacitance than this would be extravagant, and may actually increase secondary current unnecessarily.

Pass Transistor

The worst case "normal" power dissipation is where the output is set for 15 V and the load current is maximum (2 A). The voltage across the pass transistor is 18 V, and so the power dissipated is 2 x 18 = 36 W. The worst abnormal load is a prolonged accidental short-circuit, where the supply goes into current-limit, and almost the full output of the rectifier appears across the pass transistor. In this case the power is 2 x 33 = 66 W. We therefore need a transistor capable of handling (with suitable heat-sink) a power dissipation of at least that, and preferably a bit more for safety margin. The popular and readily available 2N3055 in a TO3 case is rated 115 W, 15 A, 200 degrees C, 100 V, and would be quite satisfactory in this application (but see cautions in Ref. 4).

Heat-sink

A power transistor mounted upon a heat sink is in effect a collection of thermal "joints"- all connected in series. The effective thermal resistance from the actual transistor junction (where the heat is generated) to outside ambient air is the total of the thermal resistance from Junction to Case (jc), the thermal resistance from Case to heat-Sink (cs), and the thermal resistance from heat-Sink to Ambient (sa). The junction temperature is therefore

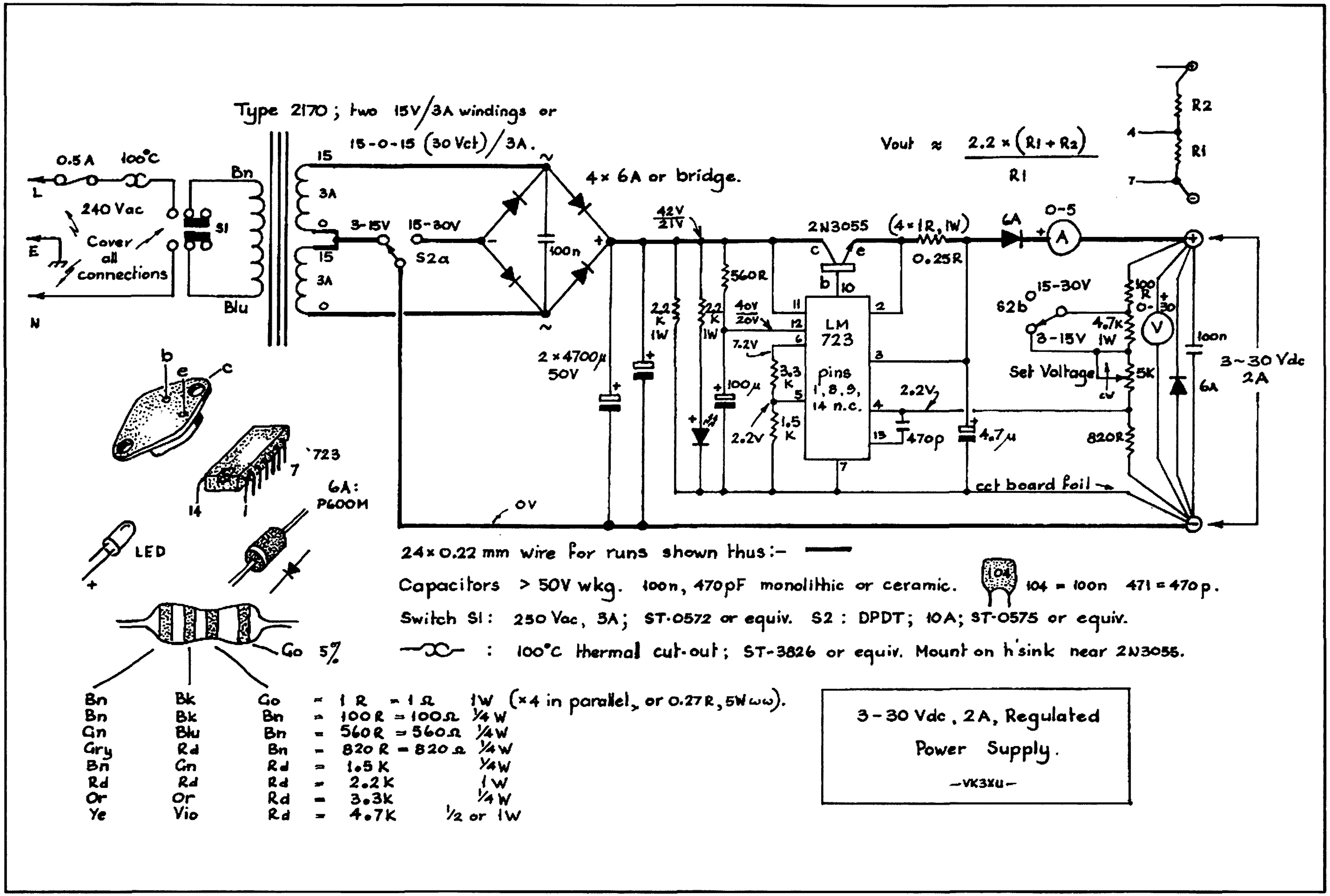
Tj = Ta + [(jc + cs + sa) X P] (Ref. 2, p313)

where P is the power being dissipated and Ta is the maximum expected ambient temperature. The 2N3055 must dissipate a maximum power of 36 W under worst normal load, as noted above. My workshop (and yours too, I bet) can reach 45 degrees C. Thermal resistance from junction to case (jc) is typically 1.5 degrees C/W. A TO3 transistor mounted with a silicone washer will have a thermal resistance (cs) of typically 0.3 degrees C/W, and a type HH-8566 heat-sink has a thermal resistance of 2.2 degrees C/W. Substituting;

45 + [(1.5 + 0.3 + 2.2) X 36] = 189 degrees C

which is just inside the typical 200 degree maximum temperature for a 2N3055.

According to this calculation, a prolonged accidental short-circuit load



Type 2170; two 15V/3A windings or 15-0-15 (30 Vct)/3A.
0.5A
100°C
240 Vac
Cover all connections
S1
Bn
Blu
3-15V
15-30V
S2a
4× 6A or bridge.
100n
2 × 4700µ 50V
42V 21V
560R
2.2 K 1W
40V 20V
7.2V
100µ
2.2V
3.3 K
1.5 K
2N3055
LM 723
pins 1, 8, 9, 14 n.c.
(4×1R, 1W)
0.25R
2.2V
470p
4.7µ
6A
0-5
S2b
Set Voltage
4.7K 1W
5K
820R
100 R
0-30
100n
3~30 Vdc 2A
cct board foil
0V
Vout ≈ 2.2 × (R1 + R2) / R1
R1
R2
'723
6A: P600M
LED
Go 5%
24×0.22 mm wire for runs shown thus:-
Capacitors > 50V wkg. 100n, 470pF monolithic or ceramic. 104 = 100n 471 = 470p.
Switch S1: 250 Vac, 3A; ST-0572 or equiv. S2: DPDT; 10A; ST-0575 or equiv.
: 100°C thermal cut-out; ST-3826 or equiv. Mount on h'sink near 2N3055.
Bn Bk Go = 1R = 1Ω 1W (×4 in parallel, or 0.27R, 5W ww).
Bn Bk Bn = 100R = 100Ω ¼W
Gn Blu Bn = 560R = 560Ω ¼W
Gry Rd Bn = 820R = 820Ω ¼W
Bn Gn Rd = 1.5K ¼W
Rd Rd Rd = 2.2K 1W
Or Or Rd = 3.3K ¼W
Ye Vio Rd = 4.7K ½ or 1W
3-30 Vdc, 2A, Regulated Power Supply.
—VK3XU—

Figure 1

will cause the dissipation to exceed the heat-sinking capacity. In practice however, because the heatsink is attached to the rear aluminium panel of the chassis, significant additional heat-sink capacity is obtained. At 35 degrees C ambient my 2N3055 case only reaches 95 degrees C at worst normal load, and 144 degrees C for a prolonged short. For extra safety however, a 100-degree C thermal cut-out switch has been fitted to the heat-sink.

Construction

The homemade ventilated aluminium case/chassis of the prototype measures 200 x 200 x 85 mm, 1.3 mm thickness (Photo 1). Any metal box of similar or larger size would serve.

Most components are accommodated upon a "Paddyboard" style (Ref. 3) main circuit board measuring 80 x 130 mm- foil upwards. Layout is not at all critical, and just about any preferred wiring style should do. The 723 chip is fitted into a 14-pin DIL socket, which is soldered upon a substrate- tracks upwards, made from a 25 mm x 7-strip Vero off-cut (visible in Photo 2). The 'lands' of the substrate must be divided down the middle with a single junior hacksaw cut. The pins of the socket poke through the Vero, so a similarly sized rectangle of plain circuit board should be super-glued between- foil side down of course.

For best flexibility (you may need to power a negative rail device, or series this supply with another), the output "floats" (neither output terminal is grounded), so the main circuit board should be insulated from chassis with fibre or nylon spacers and/or washers.

To achieve excellent regulation, the voltage divider resistors and pin 7 of the 723 should be wired away to the output terminals, as shown on the circuit. There are rather a lot of wire and component connections needed right at the terminals, and it is suggested that a 25 x 45 mm scrap of circuit board- divided with a hack-saw cut, be fitted to their mounting studs.

Ordinary hook-up wire heats up a bit when carrying 2 A, and so heavier wire should be used for those runs shown upon the circuit with thicker lines. To prevent accidental contact, all wiring connections on the mains primary side of the transformer MUST be adequately covered with close-fitting spaghetti or heat-shrink tube.

The heat sink should be attached to the rear panel with fins running vertically for best effectiveness. The 2N3055 is attached with suitable mounting hardware, including silicone washer. Your drilled holes should be de-burred so as not to puncture the washer. If you choose to include the thermal cutout, this part should be mounted upon the heat sink inside the box and immediately above the 2N3055.

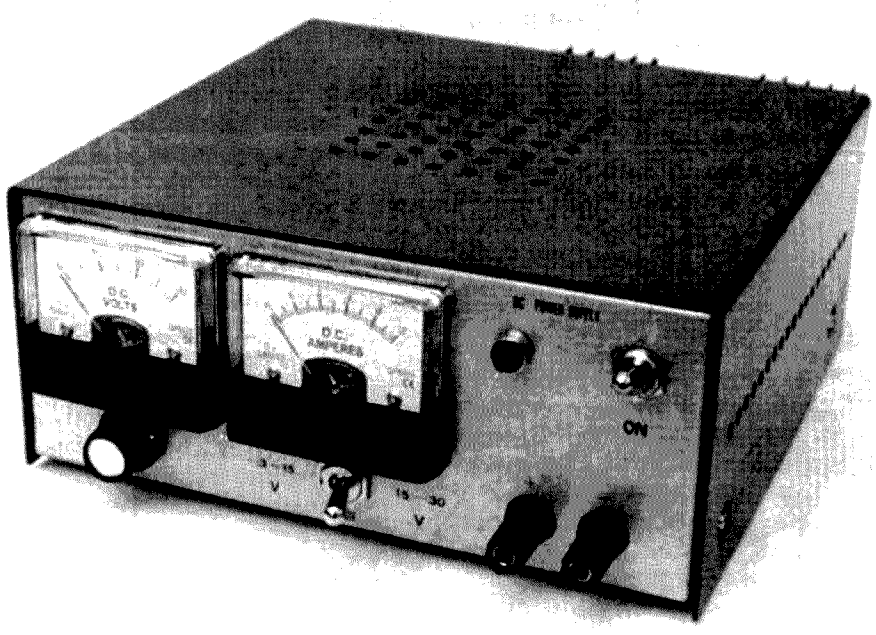


Photo 1. View of the finished power supply

Operation

Check the accuracy of all wiring, parts placement and their polarities. With your multimeter on highest ohms range, test between any terminal and chassis to confirm that no 'stray' grounds have occurred. Remove the 723 from its socket, and then apply mains power. Carefully measure the voltage across the filter capacitor, which should read about 21 V dc with S2 in the 3 - 15 V position, and about 42 V dc in the 15 - 30 V position.

All being well, switch off, wait for the filter caps to discharge (the LED panel lamp will extinguish), and then insert the 723 into its socket. Upon power-on it should be possible to adjust the output voltage through each range.

Obtain some suitably rated wire resistors and apply these as dummy loads upon the output. As noted above, you should be able to draw 2 A (or perhaps a bit more) below 13 V and 28 V output voltage setting. Observe no perceptible drop in output voltage when a load of less than 2 A is applied, proving that the regulator is functioning correctly.

Parts

Without wishing to imply any kind of prejudice, it happens that the prototype was built mainly from Jaycar parts. However, all of the components specified, or close equivalents, are collectively available from our familiar electronics suppliers, including Altronics, DSE., Jaycar and Electronic World.

Metering of a bench supply is strongly recommended. Unfortunately, a more ideal 0 - 3 A meter is not known to be available, and so a QP 5014 (5 A) was used, along with a QP 5022 0 - 30 V dc meter. The type 2170 transformer and HH 8566 heat sink have already been mentioned. The 4700 uF/50 V electro's are RE 6245.

There have been reports of poor power-supply performance with some makes of 2N3055s (eg. Ref. 4). However, devices marked "MOSPEC"- supplied by Jaycar and others have given no trouble in this and several other of my PSU's.

Summary

The experimental radio amateur and/or electronics enthusiast often needs to power various circuits and components during development and repair work.

From experience, it is suggested that a power supply unit with a voltage range of 3 to 30 V dc at up to 2 A should operate the greater portion of contemporary devices.

In addition to offering a tested model, the writer has attempted, by using practical design formulas and guidelines, and working with readily available parts, to explain how each of the major components were chosen, so that a builder may confidently alter the circuit to suit some other application, or parts availability.

References and Further Reading

1. Voltage Regulator Handbook; National Semiconductor Corp.
2. The Art of Electronics; Horowitz & Hill, 2nd Ed., Cambridge University Press.
3. "'Paddyboard" Circuit Construction'; Diamond, AR, Feb. '95.
4. "RS 20 Power Supply- Errata and Notes"; J. Tregallas, VK5JST, AR, Feb. 2003.

ar

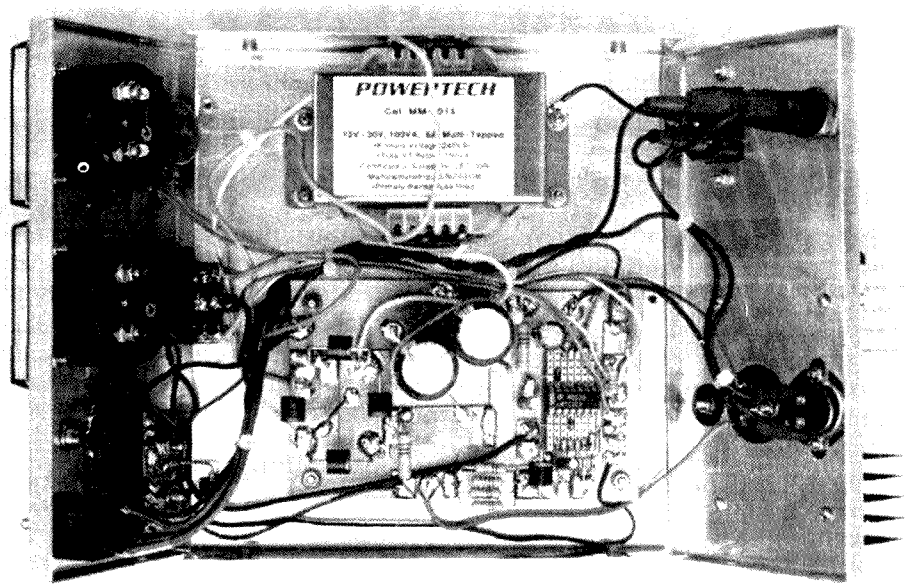


Photo 2. Interior view showing the component layout

The EH Antenna *Update*

(Refer AR April 2003)

The article published in April AR was prepared in September 2002 and theory included was that as known at that date. A lot of water has passed under the bridge since that time and a lot of controversy has since taken place concerning how it actually works.

For a start, I had observed an anomaly in the original theory of how the H field was developed from the E field displacement current. I have placed an article on the Internet describing a new theory on how I believe this is developed, refer http://www.qsl.net/vk5br/EHAntennaTheory.htm. In brief, I believe that whilst the E field is developed in a differential mode across the cylinders, the H field is developed from the displacement current of a secondary E field in a longitudinal or common mode between the cylinders and reference coax shield common.

More recently it has been observed that there is a field around the outside of the coax running a distance down the coax. Here is the source of the controversy. Some think that much of the radiation is due to current running in this outer shield. Experimental work is continuing to resolve this issue. We will try to keep readers up to date.

Lloyd Butler VK5BR
9-4 03

CODAN HF Transceivers

Part 2

by Malcolm R Haskard (VK5BA)
RSD 1244 Bassnet Road, One Tree Hill, SA 5114.

Codan HF transceiver types (3)

As with most electronic products, where new models are needed every two years or so, a surprising range of transceivers was produced, emphasis always being placed on compactness and performance. Popular types came out as series, later improved versions either a Mark 2 or with a letter added after the four digit type number to signify a change. Significant upgrades included the use of thick film daughter boards, separate control heads, eventually all essential controls truncated to fit on the back of the microphone, frequency synthesis, microprocessor/software control, double conversion receivers, and remote interrogation from another location to ascertain the condition of a set. At least two attempts were made to produce "homestead" style sets (types 7303 and X-2), that is, sets whose appearance fitted in with modern home styling, while the new generation transceivers (NGT) begin to appear a little like a "mobile" phone in styling. In the last decade the transceivers allow attachments, so that facsimile, data transmission, email and such can be sent over the HF link. Table 1 provides a listing of known transceiver sets, while Figure 4 gives examples of several different set styling.

Type No	Use (4)	Style (5)	Comments
6104	P	A	First set. Valve type construction. SS receiver, 455kHz IF, 5 channels, ceramic filters. Two valve transmitter, 8 watt RF. AM only.
6104A	L		As above but 12 channels and in a larger case
6104B	A		Special light weight version of above for light aircraft
6104C	P		Single channel version of above
6104 Mk2	P	A	As 6104 except PCB receiver type 6415 used, 455kHz IF mechanical filter
6201	S		200kHz -18MHz receiver, transmitter 2-9MHz, marine AM set, 455kHz IF, 50 watt RF , Receiver DF loop
6319	M		1.6 - 10 MHz, 1 channel, AM set, 455 kHz IF, 25 watt RF.
6319A	M		As 6319. Minor modifications to the transmitter valve output stage.
6332	P	A	Battery pack. Whip antenna. Type 6415 single PCB SS receiver, 455kHz IF, mechanical filter. Two valve transmitter, 8 watt RF. AM only, 5 channels.
6332A	P	A	As 6332 but 10 channels
6605	B		Base station for EFS (CFS).
6619	P	A	1.6-10 MHz, AM set, 10 channel, 455kHz IF, mechanical filter, Valve output stage, 25 watt RF. B/C receiver built in.
6717	H		1.6 - 10 MHz, Single channel, AM, hand held, 455 kHz IF, mechanical filter, 1 watt RF, internal battery
6801	L	G	Fully solid state. 1650 kHz IF, Output impedance 50 ohm. SSB (normally USB) and AM (H3E). 80 watt RF.
6801-P	B	G	As 6801 but made especially for PNG P & T
6801 Mk2	L, S	G	2-16 MHz. 10 channel. Fully solid state. Thick film modules used. 1650kHz IF. Output impedance 50 ohm. SSB (normally USB) and AM (H3E), 100 watt RF.
6801-S Mk2C	S	B	Marine version 6801 Mk2
6802	B	B	As above, 6801 Mk 2 receiver and exciter, modified transmitter output, 100watt PEP. RTTY and Fax operation
6803	B	B	As 6802 above, but with remote control facilities
6924	P	G	2-10MHz, 10 channel. Fully solid state. 1650kHz IF, 25 watt PEP, SSB (normally USB) and AM (H3E)
6924 Mk2	P	G	2-13MHz, 10 channel. Fully solid state. 1650 kHz IF, 30 watt PEP, SSB (normally USB) and AM (H3E), output impedance 50 ohms (as well as in-built antenna tuner)
6924B	P	B	Same as 6924 Mk2 but new styling
6924C	P	G	2-13 MHz, 25 watt PEP, 10 channel, ruggedised waterproof transceiver
7005	B	G	10 channel, AM and SSB, similar to 6801 Mk 2
7007	B	G	3 channel, AM only transceiver, styling similar 6801
7303	B	G	2-11 MHz, 5 channel, Fully solid state, 1650 kHz IF, 50 watt PEP, SSB (normally USB, and AM (H3E), output impedance 50 ohms, push button operation
7307	B	P	Same as 7515, but in a special plastic case for "Homestead" use - School of the Air and RFDS. Emergency call fitted as standard.
7515	L	G	2-11 MHz, 6 channel initially then increased to 10, fully solid state, 1650kHz IF, 50watt PEP, SSB (normally USB and AM (H3E), output impedance 50 ohms
7727	L	G	Same as 7515 but increased RF power - 100 watt PEP
7727-C	L	G	As 7727 above but cosmetically upgraded. Also available with remote control box and speaker
7727-T	L	G	As 7727 but with remote control
7727-TB	L	B	As above, but cosmetically different again having a digital channel display. Remote control box and separate speaker.
7924-B	P	G	2-13 MHz, 10 channels, solid state, 1650 kHz IF, 25 watt PEP output, SSB (Normally USB) and AM (H3E), ruggedised, water proofed, carry bag, sealed internal battery.

Type No	Use (4)	Style (5)	Comments
7924-C	L	G	As 7924-B above. Option of a hand crank generator.
8121	S		2-13.2 MHz, 10 channels, 60W PEP, AM compatible only on 2182 kHz
6332	H	Y	1.6 - 8 MHz, 2 channel, 1watt PEP. Hand held set.
8626	L	B	2-18 MHz, 99 channels, 20 standard, dual conversion receiver (IFs 46MHz and 1650kHz), frequency synthesis, digital display, SSB, 100 watt PEP
8626-B	L	S	2-24 MHz transmit, receive 250 kHz to 30 MHz, scanning up to 15 channels, SSB, 125 watt PEP, up to 99 channels with 20 standard, 50 ohm impedance, touch membrane controls, available with separate control head type 8630
8626-S	S	S	A marine version above, 2-18 MHz transmit, receive 1.6 -18 MHz, SSB but AM (H3E) on 2182 kHz.
8628	L	S	2-24 MHz transmit, receiver 250 kHz - 30 MHz, up to 500 channels, receiver scanning up to 15 channels, SSB, transmit power variable 25 to125 watt PEP, 50 ohm impedance, touch controls back lit liquid crystal display, available also with separate control head type 8531
8528-S	S	S	As above but marine version. Can have separate control head type 8531S, PEP of 125, 200 or 400 watt
8528-I	L	S	International version of the 8528, having improvements in performance through new software. Identification plate carries a "K" prefix on the serial number.
8727	L	S	2-16 MHz, 10 channels, SSB, 125 watt PEP. Also available separate control head type 8730.
X-2	L	K	2-18 MHz, 10 programmable channels, LSB and USB, speech (Also 9105) processing, audio tones indicate important operating conditions/faults, output variable 25 to 125 watt PEP, dual RF output to match whip or dipole antennas.
9313	L	S	Cut down version of the 8528 for the local market. Synthesised 15 channels, SSB, 100 watt PEP, 2-24MHz transmit, 0.25 - 30 MHz receive, control head type 9320, membrane switches, liquid crystal display
9323	L	B	As for type 9360 except transmitter 100watt PEP and on Australian 27 MHz CB band 10 watt PEP. Control head option is type 9330.
9360	L	S	Synthesised, 400 channels, 10Hz resolution, microprocessor control, SSB, 50 ohm impedance. Receiver 0.25 - 30 MHz, 46MHz and 455 kHz IFs. Transmitter 2-26.5 MHz, 125watt PEP, CW or single tone approx 50% PEP. Control front panel or microphone keypad. Available with control head type 9365. In-built remote diagnostic facility.
9390	S	S	Marine version of the 9360. With Type 4404 power amplifier increase PEP to 400 watt (Type 9390-H). Control head available type 9391.
9480	L	S	Cut down version of 8528 for international market. Synthesised 15 channels with voice scanning, SSB, 2-24 MHz transmit, 100 watt PEP, optional control head type 9482, comprehensive LCD display, new automatic emergency digital calling
9780	L	S	As for type 9360. Supports non-voice applications.
HF1000	A	B	2-14MHz, SSB, 10 channels, 1650 kHz IF, 100W PEP, aviation transceiver, control head panel or rack mounting, digital channel readout
HF2000	A	B	2-16MHz, SSB with AM (H3E) option, 28 channels, 1650 kHz, 100W PEP, aviation transceiver, control head panel or rack mounting, digital channel readout
HF4000	M	B	2-23MHz, 256 channels, marine transceiver, SSB with AM (H3E) on 2182 kHz, digital frequency readout, 150, 200 and 400 watt PEP
2010	L		1.6-30 MHz, 125 watt PEP, SSB and AM (H3E) up to 400 (NGT xx) channels, operated from a remote desk console, supports non voice operations, receiver will tune down to 250 kHz. As a mobile unit needs junction box type 2030 Note; If the xx letters are - AR = Australia (100 watt), SR = System Radio, VR = Voice Radio (15 channels).
NGT	R		2-30 MHz, 500 or 1000 watt PEP, NGT SR remote control, SSB, AM, external control, up to 400 channels

Table 1 Codan transceiver set types and a brief description of them

Notes

3. For detail on other Codan HF products see, Haskard, M R (2002) Radio Waves, "Codan - the era after Traeger Part 2", No. 82, October 2002, Historical Radio Society of Australia, Melbourne, Australia.
4. Use—
   - B = Fixed base use
   - H = Hand held
   - L = Land use both fixed and mobile
   - M = Mobile vehicle operation
   - P = Portable. Has in-built antenna tuning unit
   - S = Marine use
5. Style—
   - A = Grey with military style knobs
   - B = Black painted with white lettering and black knobs
   - G = Green painted (light front panel and dark case) and tear drop knobs. Some of the later sets were painted a very dark blue
   - K = Polycarbonate case, khaki grey front panel, blue top cover
   - PCB = Printed circuit card
   - R = Rack mounted
   - S = Case silver-grey with black or blue panel
   - P = Plastic case with push button switches and tear drop knobs
   - Y = Yellow polycarbonate case/ Black panel with white lettering

continued page 17

G. & C. COMMUNICATIONS

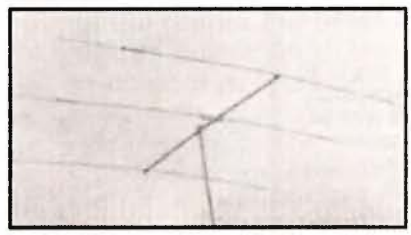
Authorised dealer for ✔Kenwood ✔Icom ✔Barrett RFDS ✔GME Electrophone ✔Uniden ✔RF Industries

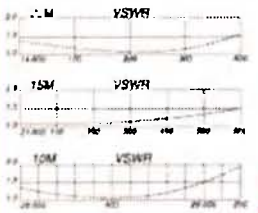
TE-33 3 element tri-band yagi antenna

The most popular tri-bander!

Storm proven in Pacific islands.

Excellent performance.





Wide bandwidth, high gain, low SWR, high F/B ratio. Marine grade S/S h/ware. 6063T83 aluminium tube and specially machined heavy duty aluminium brackets.

FULL RANGE OF EMTRON HF ANTENNAS

IC-T90A

50MHz, 144MHz, 430MHz multi band with 0.495-999.990MHz wide band receiver

5W output on 50MHz, 144MHz, 430MHz

Li-Ion battery

Rugged, compact, Water resist.

Intuitive keypad, DTCS, CTCSS, pocket beep.

555 memory channels (14 high speed)

IC207H

Amateur 2m/70cm FM mobile t/ceiver.

Compact dual band unit with detachable control panel (OPC-600 cable required)

Frequency coverage (Unit: MHz)

VHF: Tx: 144-148 Rx: 118-174 *

UHF: Rx/Tx: 440-450

* Guaranteed 144-148

Output power:

VHF 50 W, 20 W, 10 W, 5 W selectable

UHF 35 W, 20 W, 10 W, 5 W selectable

SPECIAL LIMITED STOCK of these three items. POA

IC-718

Front speaker
Optional DSP
IF shift
RF gain control

Ample CW features
VOX operation
Flexible Filter
High Frequency

Stability (option)
101 memory channels
Simple opertion
Selectable antenna
digital S/RF meter
USB, LSB, CW, RTTY, AM modes all built in

IC-R5

It's here

Small body – Big specs

Big Features

Wideband Receive
0.150-1309.995 MHz
You'll miss nothing

1250 Alpha-numeric channels
Dynamic Memory for easy naming and recocognition

Easy power
AA's, DC, charge while listening

Computer friendly
plug into PC for more features

27 Mhz and UHF CB Radios

HF and UHF Linear amplifiers

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Conclusions

The growth of Codan from the original three who founded the organisation to a staff of over 350 in a period of forty years is a remarkable achievement. Annual turnover now exceeds one hundred million dollars and the Codan name has become a household name, as much as Traeger. Much of this success has been due to hard work in ensuring that products produced were reliable no matter what environment or circumstances. In a small way their contribution to the Australian outback and the electronics industry in general has been recognised by the winning of the Electronic Industries Association Gold Cup and in 1990 Austrade's International Business Achievers Award.

Acknowledgements

In preparing this paper I wish to acknowledge the assistance of Codan Limited and particularly Ian Wall and Jim Bettison, Founding Directors, and Neil Abraham (VK5ZJA), RF Design Manager. Also my grateful thanks for help from Kingsley Hannaford, former Managing Director of Codan; Frank Choate, former employee of Eilco; Peter Leonard, Managing Director of Lencom Antennas Pty. Ltd.; Alan Salisbury, General Manager of Transceiver Services; John Mitchell (VK5JM) former agent for Codan; Steve Ruedger (VK5RU), Andy Gluis (VK5AAQ), Paul Lawson (VK5SL), Ross O'Brien, Rob Gurr (VK5RG), John Mewett, Ron Worden (VK5RW).

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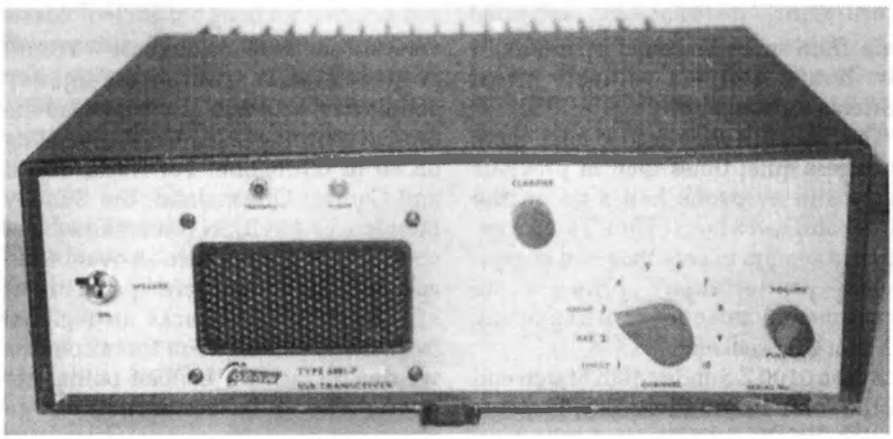
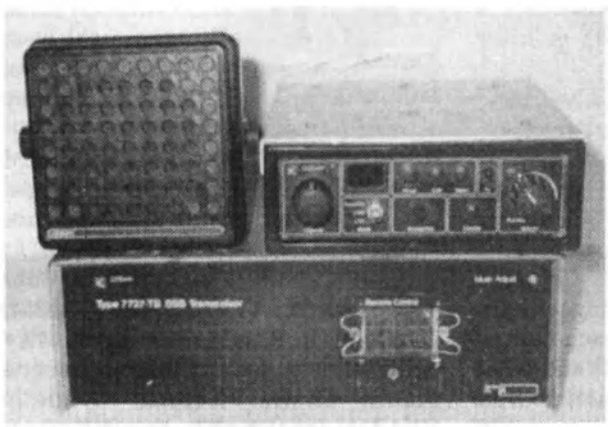


figure 4a



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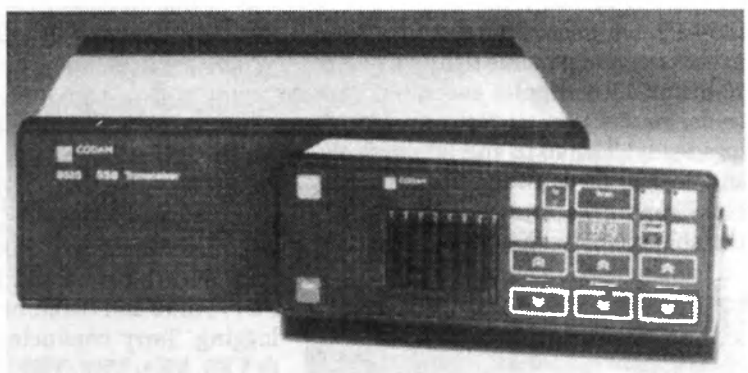

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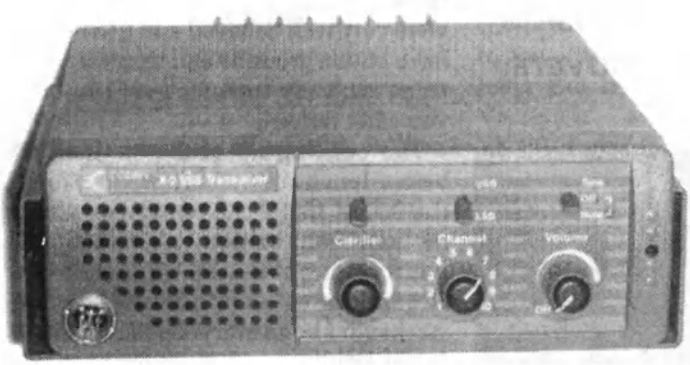


figure 4d

figure 4e

Figure 4. Models showing changes in transceiver styles. Types a) 6801, b) 7727-TB having separate control head, c) 8525 with separate control head, d) the X-2 or 9105 and e) 2010 (NGT) mobile version with junction box

The John Moyle Field Day *across the country*

The editor has put this together from material supplied and extracted from Club Newsletters.

TARCinc

The TARCinc had to relocate their chosen site twice because of road works, rain etc. The final location was at Bluewater Scout Hall to operate VK4WIT portable for the 2003 John Moyle Field Day.

The venue changes certainly made sure that the station crew went well prepared and the first groups of hardy operators showed up at the venue during Friday March 14th. They decided to start the setup on Saturday March 15th to see how quickly they could get a two band portable station up and running.

Saturday March 15th - it took 1 hour from scratch to set up transmitters, lug in batteries and portable lighting, launch 20 m and 15 m dipoles and run coaxial feeds, conduct on-air tests and get the logs ready! The 40 m and 80 m dipoles and coaxial feeds were put in place by class members and newbies to the portable scene (with a bit of roustabout help from more seasoned operators) a few hours later – a valuable bit of portable training!

The HF bands were in good form, there were less quiet times than in previous years and everyone had a go on the radios and had a heap of fun. There were in-field repairs to antennae and coaxial feeds undertaken plus some experimental antenna work happening all over the weekend.

By the 0100 Z Sunday 16th March end of the John Moyle Field Day, portable station VK4WIT had racked up a total of 168 contacts (before dupe checking) and had contacted VK4, VK2, VK3, ZL1, VK7, VK5, VK1 and VK8. Most contacts were made on 20 m, then 40 m, followed by 80 m then finally 15 m.

The stuff that John Moyle Field Day Contests are made of - one of the TARC Class Members, Terri, with help from her daughters Rose Marie, Mary Anne and Sarah racked up a page of contacts on 20 metres. With Rose Marie calling out "CQ John Moyle Field Day Contest", Mary Anne and Sarah helping with the logging, Terry conducted each contact to VK8, VK1, VK2, VK4, VK3 and WA6! with increasing confidence as time wore on.

To make sure that we could also contact non field day stations (because we were out there making sure we could contact stations under emergency conditions) VK4WIT also contacted the Sunday morning GNARLY Net operating on 80 m throughout Far North, North and Central Queensland, the Sunday morning VK4 WICEN Net (although net control didn't let us have an over he did acknowledge us) and participated in part of the QNEWS callbacks on regional frequency 7070 kHz. For these contacts we did not ask for contact points nor pester the nets concerned to go elsewhere to make such contacts. We were just there making sure that contact could be made - just in case!

The station was also visited by some Scouts, Rovers and Venturers, who were on camp at nearby Camp Tarmaroo. Funny, they all said 'JOTA' when they saw the portable station!

Who attended ? Here is the traditional roll call, but forgive me if I forget anyone, not everyone logged into the attendance sheet -

Bob/VK4AAH, Tony/VK4TJS, Bob/VK4WJ, Gavin/VK4ZZ, Iain/VK4IGM, Terri Johnson, Rose Marie Johnson, Mary Anne Johnson, Sarah Johnson, Jeanette Mann, Sheila/VK4PAL, Lyndall/VK4ZM, Ian/VK4ZT, Ken/VK4HAI, Roger/VK4CD and Louise, Phil/VK4HSV & Felix VK4FUQ.

The caretakers of Camp Tarmaroo and the Bluewater Scout Hall said that we were very well behaved and a delight to have on the grounds and that we could come back any time for free! (An offer you can't refuse!)

The packing up of the station just before lunch on Sunday seemed to go the fastest that I can remember, under an hour from station to sweep-up! A hearty lunch in the shade of the Dreamlander capped off a great weekend. I hope everyone had as much fun as I did!

(Gavin/VK4ZZ, itching to go portable again!)

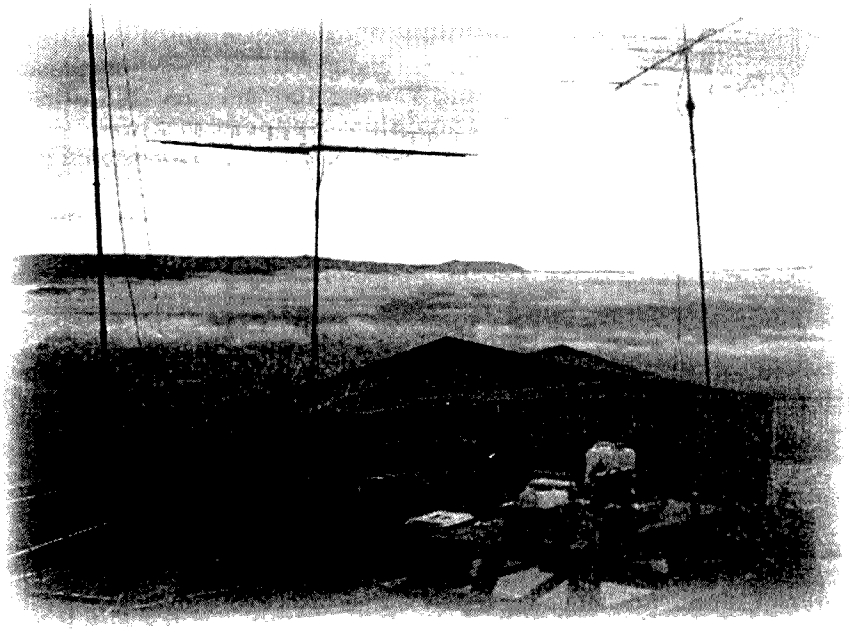
See pictures on inside front and back covers

Calling CQ over the mist –

VK2SRC at Mt.McKenzie

by Chris Meagher VK2LCD

It was two days before the start of the 2003 John Moyle contest, and the sky wasn't looking too good for hanging out the washing, let alone conducting a field radio operation. However the Bureau of Meteorology website was forecasting fair weather, so final preparations went ahead for the much anticipated Summerland Radio Club excursion.



Last year we operated from Girard's Hill, West of Drake. Unfortunately that site fell under the 100km mark for a large part of the club member home stations and had a marginal outlook to the east. When it was suggested we go further west, it made sense, and when a suitable site was offered we grabbed the opportunity. The location is Mt.McKenzie, near Tenterfield, birthplace of the Federation. At 1297 metres, it overlooks the town and has a shelter, toilet, BBQ and viewing area, constructed as a joint project by local groups and the National Parks. Access was arranged by club president and local, Bruce VK2KAP. Two of the team did a "reccy" and picked out the right spots, reporting excellent outlook from northwest around to east.

Our aim was to reach into VK4 coast and tablelands as well as getting good coverage of the local VK2s. This time, we would be going for increased directivity on 2 m, using dual 9-element quads, powered from a THP HL-110 V linear. For 6 m, an Icom 746 would run into a 6-element yagi, and for 70 cm, a long beam also using a THP amp. HF would be a relatively small operation using 40 W into a G5RV, tree-slung inverted-V style. Power would be from batteries, 'the monster' home-brew charger, and a small Honda generator.

The day saw three of the group meeting at Casino, gateway to the mountains, in bright sunshine. Beautiful scenery unfolding as we rolled on out west, chatting on the Parrots Nest repeater until we went out of range, then simplex, the lead car warning of dangers ahead as we climbed into the range. A stop at Tenterfield for breakfast, linking up with one more of the party, and on through a landscape of granite boulders to the summit. Soon all the operating team has arrived: Carl VK2XL, Rod VK2HRW, Mark VK2UMA, Rob VK2KGK, and Chris VK2LCD.

With the start two hours away, there's a rush of setting up rigs, batteries, and the SES arrives with a porta-pole, generator and tent. VHF was set-up at the lookout, with HF 50 metres away on a rise to the south, to avoid the break-through that occurred last year. 0100 UTC and VK2SRC portable is on the air, albeit with the tent still being set-up. Everything was working except for a high SWR on 70 cm, causing a swap to a vertical, and uh-oh! major noise problem on HF from the inverter powering the home-brew amp; a swap to a 12 V linear, oh dear a bad power connection. Fortunately Bruce has his new Alinco DX70 still in the box, and out it comes for a serious workout.

Conditions on VHF were not too good early, the contacts came slowly, then late in the day it picked up and Rod VK2HRW was kept busy working well into VK4; the gain of the dual quad was excellent, we were bending the needle on some stations in Brisbane, with about 80 W running on 2 metres FM. 40 metres opened up early and later there was good activity on 80 metres, very little static and lots of chat to old and new acquaintances on the low band.

The team worked solidly into what was an unexpectedly mild night, powered by fish and chips delivered by Bruce from Tenterfield. Late in the evening we were treated to a moonlit view of the town lights and distant glows across the border, and then a spectacular sight of thick fog flowing in from the west, tumbling and churning in a white ocean over all but the highest peaks of Bald Rock and Girraween. Operating in this scenery was magic, and there was more to come with a serene sunrise over the mist.

Contacts fizzled out as we went into the last segment on Sunday morning, but a bit of whip cracking got some of the locals in for a final call. A welcome diversion was the arrival of a big group of local classic car enthusiasts, with some immaculate old Rovers a highlight.

At the end we had logged around 280 contacts, 2 metres providing the biggest total. Carl's superb home-built phased

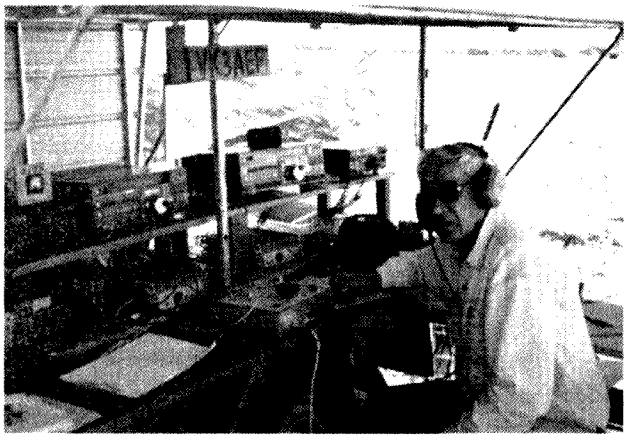
John Moyle Field Day

VK3AEF on the plains at Tarranginnie

Jim Bywaters VK3AEF
105 Macpherson St. NHILL Vic 3418

I have been part of VHF-UHF Field days for a number of years now. So for the John Moyle Field Day 2003 our VHF-UHF station was located at Tarranginnie 10 km west of Nhill (QF03sq)

The operators were Bill VK3LY, Brian VK3AQX and Jim VK3AEF. Lionel VK3BUN gave assistance with antenna erection and removal. We operated four bands 50 MHz, 144 - 146 MHz, 432 - 439 MHz and 1296 MHz. The two Yaesu 736R are linked by an audio and sequence control box, which gives instant access to the four bands with cross band facilities.



Jim VK3AEF at work (play?) at his own station

The main mast is a 6.5 metre aluminium lattice. This mast is erected and guyed first and a round 100 mm aluminium support with antenna attached is then winched into position. It is then latched to the mast from the ground. This mast has three bands 2 x 10 element for 144 MHz, 4 x 16 element for 432 MHz and 4 x 32 element for 1296 MHz. Home brew power dividers are used. The home brew two metre dish was also used on 1296 MHz. The results on 1296 MHz were not conclusive, the yagis appeared to have the edge on receive, with the dish getting better reports on transmit. The 7 element for 50 MHz is on a separate mast. A linear amp was used on all bands. (Water-cooled 2c39 on 1296 MHz)

Antenna rotation is driven by windscreen wiper motor. The 100 mm aluminium support is mounted on a Holden front wheel hub. An old ring gear has been shrunk on to the edge of disc brake casting. The bike chains drive a ten-tooth disk, which gives a pulse for each degree moved, this gives a digital read out to the operator. — Hope this makes sense

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Calling CQ over the mist *continued*

quads made a big difference, and generated much discussion on what would the likely effective radiated power if all four quads had been used, at around 20dBd gain. This year we did much better on 6, with a more reliable set-up. Operator Rob praised the effectiveness of the DSP on the Icom on the marginal contacts. We also used 500 mW Uniden CB handhelds to communicate between the VHF/UHF tent and the HF van, helping a great deal in co-ordinating contacts.

Packing up was quick and soon we were on our way. Again, good chat in the convoy, plus the added game of 'spot-the-lost-element' (fallen off LCD's beam on the way up). Unfortunately it wasn't recovered. Looking back as we rolled on down from the tablelands toward Casino, we could see a mean storm brewing over the area we had left.

The feeling amongst the crew was that our operation was much improved, but there are still lessons to be learnt. Some antenna refinements could be made, and a better power supply arrangement than the wild assortment of batteries, leads and clips which somehow remained intact for the duration. Solar power might also be considered. Next year, we will try to be neater and mistake free with our logging, won't we! Re the rules, as the HF operator, I felt that the scoring system could offer more incentive for distant contacts. This year, despite entering as all-band, all-mode, all our contacts were on phone. Next time might see a key getting some use, (though some solid practice will be in order) and maybe we could get some digital modes going. Also, we only worked FM on two and seventy, and more distant contacts might await on SSB. I must say, as a novice, what a pleasure it was to be able to work 40 metres, what a great band.

We were indeed fortunate that the weather came right just for the occasion, capping off a terrific weekend for a great Summerland Club team, who doubled the score over last year. We all had a terrific time, and gained more valuable experience for portable ops. Thanks must go to Neil and the Tenterfield SES, the local authorities for allowing us to use the beautiful and well cared-for site, and thanks to all those stations that called us. This year we have an inaugural award (as yet untitled) for the highest number of John Moyle contacts to VK2SRC portable from a SARC member, which goes to Leith VK2EA, with 16 contacts, narrowly pipping Kris VK2MRN with Ian VK2IGS coming in third.

Days after the contest, my mind was still on the mountain. There is something about working from a summit, particularly on a moonlit night, that enhances that magic feeling of signals reaching across vast distances, bringing voices of friends and strangers to your table. For anyone considering going portable for the John Moyle 2004, get a group together and go to your favourite picturesque location, we'll be calling you CQ from the mountain.

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Gil Sones VK3AUI
230 Moore Street, Box Hill South Vic 3128

Compact 100 Watt Z-Match Antenna Tuner

A compact Z-match antenna tuner, built for use with an IC706, was described in *QST*, January 2003 by Phil Salas AD5X. The tuner uses two small broadcast radio style dual gang condensers and a toroid coil to make a compact tuner as a companion to an IC706.

The circuit of the tuner is shown in Fig 1. Capacitors C1 and C2 are dual gang broadcast radio variables with a maximum capacitance per section of between 385 and 440 pF per section. The coil is wound on a T157-6 AA toroid. The winding of L1 consists of a main primary 22 turn winding tapped at 5 turns and 11 turns using #20 enamelled wire with a secondary winding , also of #20 enamelled wire, of 8 turns centred around the 5 turn tap.

The tuning gang capacitors are mounted on a piece of perforated Phenolic board which allows C1 to be above ground. Insulated shaft extensions are used so that the adjustment of the capacitor above ground is trouble free (no RF bites). The insulated extensions could be made from plastic rod and either brass or tubing couplers depending on what you have to hand. The toroid coil is mounted to the gang capacitor C2 using hot melt glue and the wire leads.

The capacitors could be sourced from hamfests or, if really desperate, you could try the source used by Phil AD5X, Fair Radio Sales, www.fairradio.com.

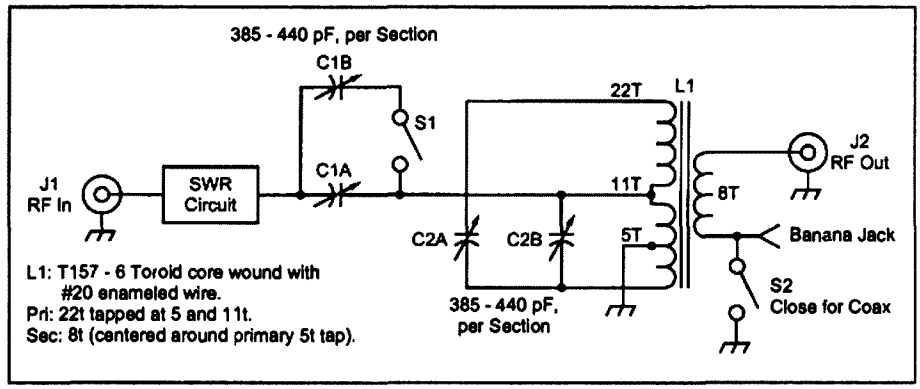

Fig 1. Compact 100 watt Z-match tuner.

The cost of airmail postage would need to be considered but should not be too high if you have to get them this way. A look around locally would probably turn up suitable capacitors. Old broadcast radios beyond repair may be a source.

The unit was built with a built-in SWR bridge which is shown in Fig 2. The basic SWR bridge sensor is shown in Fig 2A with LED indicators forward and reverse. To have an indication of the level of the reverse voltage you can replace D1 with the LED bargraph shown in Fig 2B. This allows the SWR to be indicated but does require a DC supply to be provided. The inductor L2 uses an FT37-43 toroid with a 10 turn bifilar winding of #26 enamelled wire. The inner of the coax runs through the toroid as a single turn winding between the RF in coax connector J1 and capacitor C1. Capacitor C3, a 20 pF trimmer, is adjusted for minimum reflected with the SWR circuit temporarily terminated in a 50 ohm load at the point normally connected to gang capacitor C1.

The RF output connections for the antenna connection consist of a banana plug jack and an SO239 connector. If you are connecting a balanced line, the inner of the coax socket will accept a banana plug.

The original of this tuner was built in a 5.25 x 3 x 5 inch aluminium box.

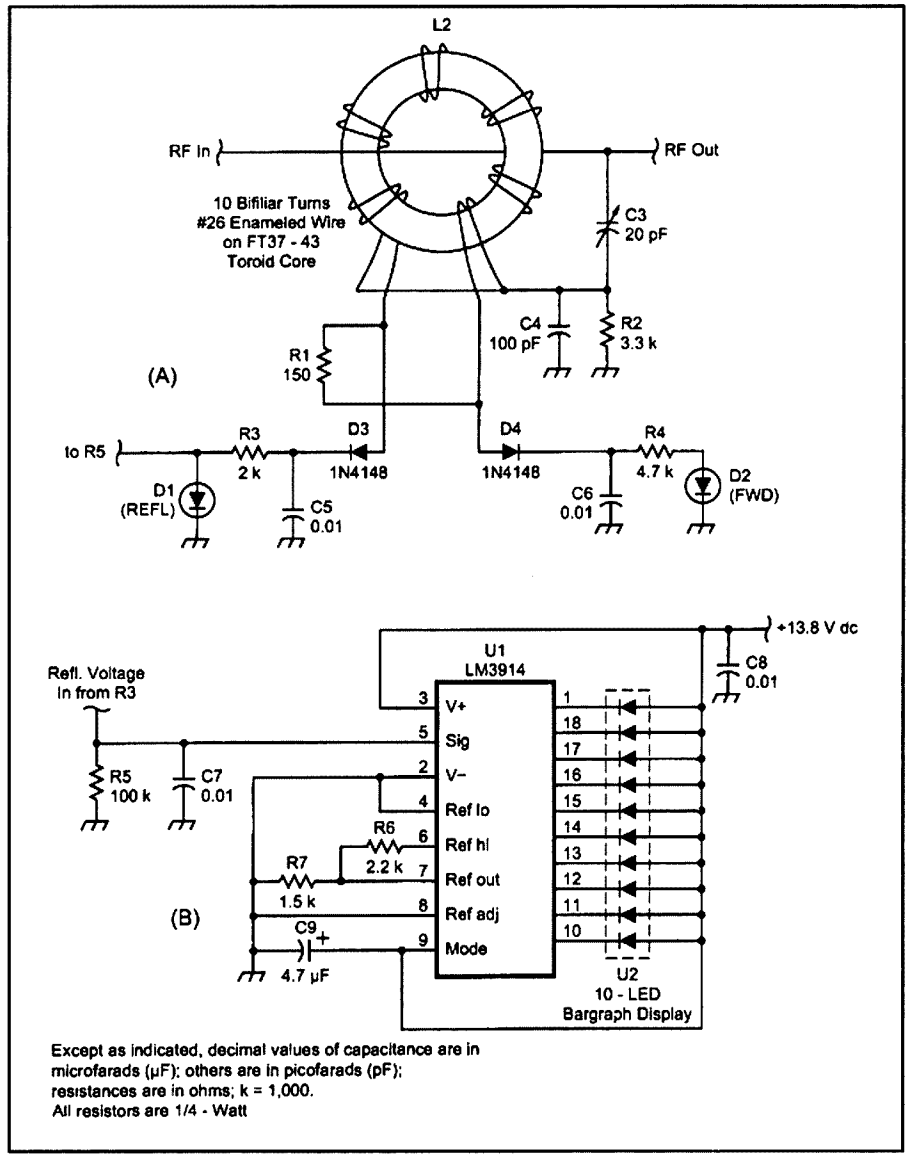

Fig 2. (A) SWR bridge with LED indicators.
(B) Optional LED Bargraph display for reflected voltage.

VHF UHF J Pole Antenna

A VHF UHF J-pole antenna which provides operation on 2 metres and 70 centimetres was described in *QST*, February 2003 by Edison Fong WB6IQN. This design gives good performance on both 2 metre and 70 centimetre by using a coaxial stub to decouple the 2 metres and 70 centimetres radiators.

A J-pole antenna when built for 2 metres can be used on 70 centimetre but, as the radiator is 1.5 wavelengths long on 70 centimetres, the radiation maximum is elevated in the region of 50 degrees above the horizon giving less than optimum 70 centimetres performance. By using a coaxial stub to give an 0.5 wavelength radiator on 70 centimetres this design allows the antenna to produce a radiation maximum closer to the horizon.

The original two metre J-pole is shown in Fig 3. This basic dual-band J-pole made out of 300 ohm ribbon and housed inside a PVC pipe radome was described by J Reynante KD6GLF in *QST*, September 1994. This antenna operates as an end fed, half wave dipole on 2 metre and as an end fed, three half wave antenna on 70 centimetre. The 70 centimetre performance may be affected due to the resulting elevated main lobe, which is approximately 50 degree above the horizontal.

The dual-band J-pole designed by Edison WB6IQN is shown in Fig 4. The antenna is made out of 300 ohm ribbon feeder with a stub made out of RG174 coaxial cable. A stub of RG174 coaxial cable is used at the 1/2 wave point on 70 centimetres to cause the radiation angle to be lowered on 70 centimetre without significantly affecting 2 metres operation.

The bottom section below the RG174 coaxial stub is built first. The SWR is checked on 70 centimetres. The coaxial stub is initially cut 10%-15% too long to allow for adjustment. The quarter wave RG174 stub is then attached to the top of the bottom section of the antenna. This is at the top of the 11 1/4 inch section above the matching stub. The matching stub at the base operates as a 1/4 wave matching stub on 2 metres and a 3/4 wave matching stub on 70 centimetres. The bottom, open end, of the RG174 stub should now be trimmed for minimum SWR on 70 centimetres.

The top VHF section of 300 ohm ribbon should now be connected. This is nominally 17 inches long but should initially be 10%-15% longer to allow for trimming for minimum SWR on 2 metres. The SWR on 2 metres may now be adjusted by trimming the top section, nominally 17 inches long, for minimum SWR on 2 metres.

The antenna is enclosed in a _ inch (19 mm) PVC pipe with end caps. The housing should be about 12 inches (300 mm) longer than the antenna. An SO239 is mounted on the bottom end cap. The RG174 from the feed point is terminated on the SO239. The length of PVC pipe below the antenna provides a convenient place to mount the antenna without affecting performance. The antenna may be held in place inside the PVC pipe using glue or pieces of foam. PVC electrical conduit may be used for the Radome.

The stub and feed line in the original were made from RG174 coaxial cable, which is thin coaxial cable. Other types of coax could be used such as RG58 but you should check that the velocity factor is the same as that of RG174. This would be most important with some look alike RG58 cable types, which may use different dielectric types.

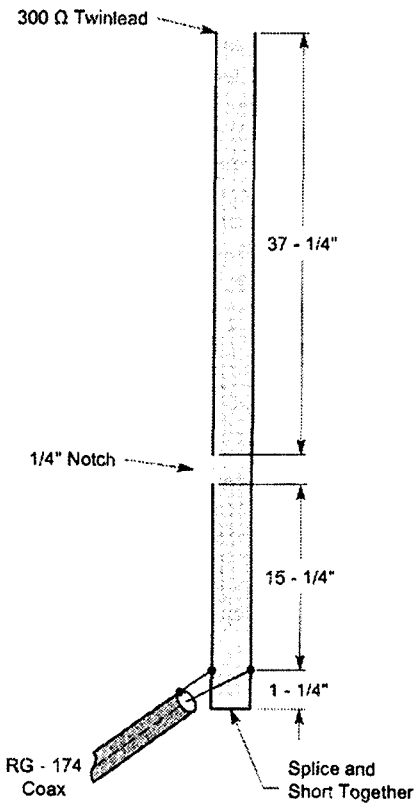

Fig 3. Original Ribbon J-Pole.

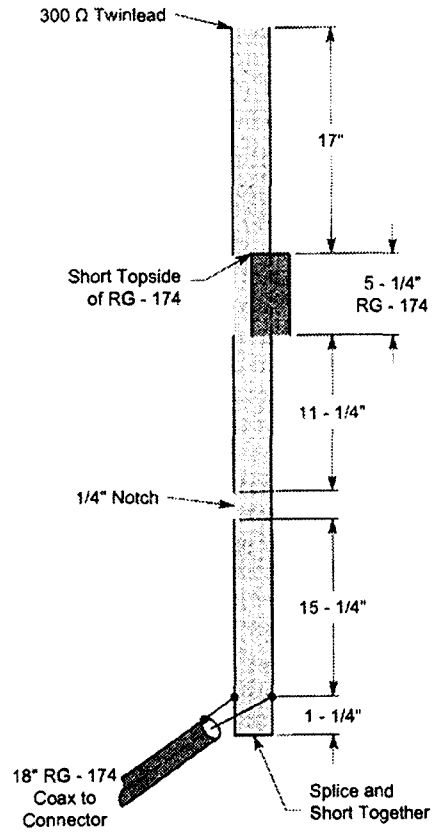

Fig 4. J-Pole Modified for Improved VHF – UHF Operation.
The dimensions are approximate and are modified on test.

A Crossed Field Loop Antenna for 3.5 MHz

by Lloyd Butler VK5BR

The Crossed Field Antenna (CFA) has been the subject of much controversy over recent years. The writer describes experimental work carried out on a CFA Loop for 3.5 MHz including the problems in making it work and the performance achieved. This is another antenna which might be useful for someone with limited space to erect a larger 80 metre antenna.

In a previous article, I described EH type dipoles for 20 and 40 metres. This leads to the question - what about one for 80 metres? Based on the recommended design dimensions found on the Internet, this would require a PVC tube 200 mm in diameter and around 2 metres high. For 80 metres, perhaps a small Crossed Field Loop might be another choice for a more compact antenna. I have experimented with such an antenna made up with a coax cable loop less than 1 metre square. In the following paragraphs, I describe how I made this type of antenna operate and what results were achieved.

Some Basic Requirements

It is not my intention to discuss fundamentals of the Crossed Field Antenna (CFA) which was first introduced by Professor Maurice Hately (GM3HAT) except to say that he also introduced the Crossed Field Loop.

To achieve the desired crossed field, the Crossed Field Loop has two adjacent loop circuits separately fed and the RF currents are forced through these two circuits 90 degrees out of phase with each other. However this is not easy to achieve. Because of mutual coupling between the two circuits, the tendency is for the two circuits to resonate as one so that currents within them assume the same phase relationship.

My initial thoughts were to reduce the coefficient of coupling between the two loops to as low as possible. However, I eventually came to the opposite conclusion. The two loop circuits are in fact cross connected in anti-phase and I found it was desirable to have as large a coefficient as possible so that mutual inductance between the two was cancelled as much as possible. This is achieved better by using a coaxial cable (one conductor inside the other) in preference to two side by side conductors.

To achieve the 90 degrees phase shift between the two currents, external reactive circuits are used. To force the two currents to not take up single resonance in the coupled loops, the inductance of the external series components is made large compared to the cross connected inductance of the loops. For example in the 3.5 MHz loop described here using RG59/U cable, the cross connected inductance is around 0.5 µH and the series inductors are around 5 µH.

Some form of monitoring the two phase currents is needed to adjust the two loop currents for the 90 degrees shift. When correctly adjusted, one loop circuit is actually resonated just below centre frequency and the other just above. It is no good adjusting just for lowest SWR as the result may be single resonance of the combined circuit and in effect, operation in a low efficiency magnetic loop mode.

To monitor the phase difference, a current transformer in series with each loop leg is coupled to a dual trace CRO. I initially passed the loop legs through the centre of ferrite toroidal cores but I found these saturated as power was increased causing distortion of the monitored waveform. They also introduced an accountable loss resistance component in series with the loop radiation resistance. The lower the ferrite permeability, the lesser the effect but I ultimately got rid of the ferrite and passed the wires through small insulated sleeves used as formers to support a 20 turn secondary winding.

Monitoring with the CRO can be quite tricky. I was tricked many times by residual signal induced by direct induction from the loop into the CRO probe leads and which interfered with phase monitoring signals.

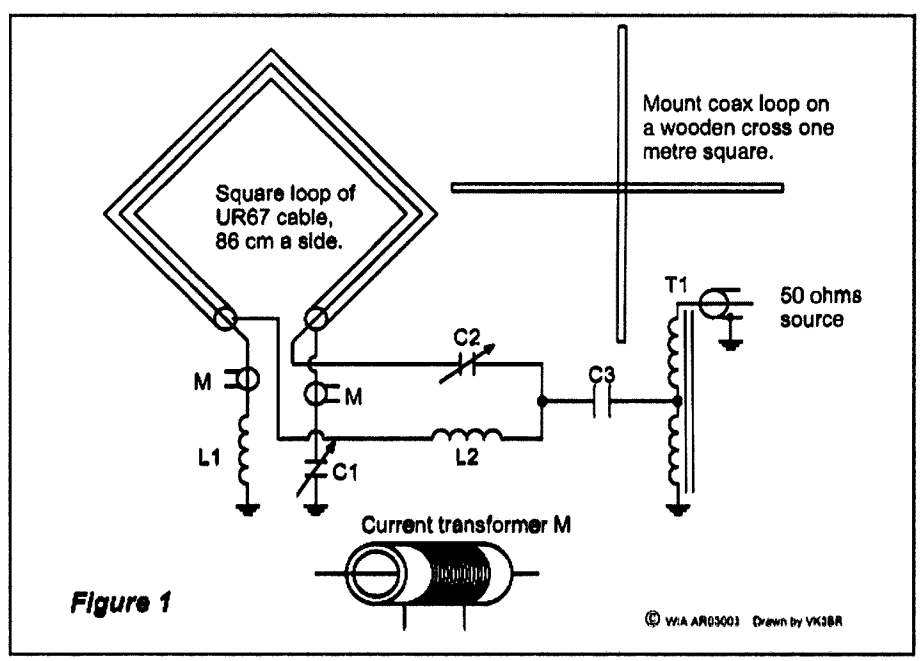

Figure 1

The 3.5 MHz Loop

After a lot of experimentation, I finished up with the arrangement shown in figure 1. The square loop is mounted on a wood cross with cross arms 1 metre long. UR67/U coax cable forms a square with sides of 86 cm. (Of course any other type of coaxial cable would have also done the job).

The series inductors are wound on 2cm diameter ribbed ceramic formers which I had on hand. I found I needed slightly more inductance in series with the inner loop than for the outer loop. For C1 and C2, I initially used wide spaced variable capacitors padded up to the required capacitance values with paralleled mica capacitors but I had trouble with the mica capacitors failing, possibly due to the high RF currents in the circuit. So I eventually fitted the 160 pf vane type air dielectric trimmers which were just large enough in their maximum capacity to achieve tuning. The plate spacing of these capacitors limit maximum power to about 30 watts above which arcing occurs across the plates. However this was sufficient power for me to carry out the experiments.

With the loop currents adjusted for the required 90 degrees shift, I found a need for a small amount of phase correction overall and hence the inclusion of capacitor C3. Loaded resistance of the adjusted circuit turned out to be around 10 to 12 ohms and this allowed a fairly reasonable match to 50 ohms with 2:1 transformer T1, giving 4:1 impedance ratio.

When the loop currents are roughly equal and 90 degrees out of phase as indicated by the CRO, SWR can be very close to 1:1 at the tuned up reference frequency. Moving up or down the band from this frequency alters the relativity of amplitude and phase between the two currents, alters the load impedance and alters the SWR. For a given fixed adjustment, SWR can be held within 2:1 over a frequency range of 75 kHz.

I am not sure in what plane this antenna should best operate. The photos of Professor Hately show him holding his antennae in the horizontal plane. However I arranged for a friend, 7 km distant, to monitor signal level for different orientations of the loop. My loop was elevated around 2 metres above the ground and my friend received via a loaded vertical antenna. The highest signal level he received was with the loop plane vertical and at right angles to the direction of transmission. With the loop plane still vertical but in line with the direction of transmission, the signal was 1.5 S points lower. With the loop plane horizontal, the signal was one S point below the first test. All in all, it didn't seem to be all that important how the loop was orientated. However from our tests, it did seem best with the loop in the vertical plane and at right angles to the direction of transmission...

The signal was also compared with that from an end fed V, a little over a quarter wave long and operated against ground as a Marconi antenna. The signal level received from this was close to three S points above the highest level signal from the loop.

Loss resistance

On air tests indicated that the loop performance was something like 20 dB down on a full sized wire antenna. The question arises about where the power goes that feeds into the loop. How much is actually radiated and how much is lost in heat in the loop circuits? I made some measurements to get some idea of what proportion of power might be lost in the RF resistance of the loop windings and the series inductors. This was done by measuring the approximate inductance and Q factor of each and deriving, from these, values of loss resistance. These were evaluated as follows:

Outer Loop Conductor = 1.5 ohms

Inner Loop Conductor = 2.2 ohms

Each Series Inductor = 1.2 ohms

Total resistance in the outer loop circuit is therefore (1.5 + 1.2) = 2.7 ohms. Total resistance in the inner loop circuit is therefore (2.2 + 1.2) = 3.4 ohms. The parallel resultant of these is close to 1.5 ohms. Assuming this figure is part of the approximate 10 ohms load resistance measured, one could assume the proportion of power loss due to loss resistance in the loop circuits to be (1.5/10) x 100 = 15 % or less than 1 dB.

Can we assume that the remaining 85% is radiated and if so, is much of it being lost in the wrong direction (Perhaps straight up due to ground reflection)? Or perhaps there is high absorption into the earth or surrounding objects.

Comparisons

It has been suggested that I compare the performance of this CFA Loop antenna with the Magnetic Loop but it is not easy to make direct comparisons. The CFA loop, designed for 3.5 MHz, is just under a metre square. To compare with a magnetic loop of similar dimensions, I have a magnetic loop, also just under a metre square, made of 20mm diameter copper tube designed to be quite efficient at 21 and 14 MHz. At 21 MHz it has a calculated efficiency of 89% and at 14 MHz a calculated efficiency of 68%. With extra tuning capacitors it could work at 7 MHz and 3.5 MHz but efficiency falls to a calculated figure of 15% at 7 MHz and only 1.5% at 3.5 MHz

On 14 and 21 MHz, the magnetic loop performs as well as a full sized wire antenna but because of the low efficiency at 3.5 MHz, it would clearly be around 20 dB down in performance on the full size antenna. Tests using my 3.5 MHz CFA dipole have indicated that its performance is also around 20 dB down on a full size wire antenna.

Made to the right dimensions for the particular frequency, the magnetic antenna works extremely well. However it has a limitation in its very high Q resulting in limited bandwidth and the need to progressively retune as the band is scanned. At 14 MHz, the calculated bandwidth for my magnetic loop is 19.6 kHz. At 3.5 MHz, there might be a real problem as the calculated bandwidth is only 1.6 kHz. By comparison the 3.5 MHz CFA loop holds a tolerable match over a 75 kHz range.

Some Conclusions

Well I can't say I am madly excited about this antenna. It will transmit and receive but not as well as a quarter wave Marconi antenna. (My observations indicate around 20 dB difference both on receiving and transmitting). On the other hand, it might be the answer where one needs to get on 80 metres, at least with some sort of signal, but doesn't have the space for a larger antenna.

I see no problem for the home constructor in making the unit if he can find some suitable variable capacitors of high enough capacitance and which will withstand both high voltage and high RF current. I see a problem if the home constructor doesn't have some means to monitor and set the two loop phase currents correctly.

ar

Installing Insulators on Loop Antennas

A handy way of installing insulators on loop antennas was described in the *Hints and Kinks* column of Bob Schetgen KU7G in *QST*, January 2003. The method allows the loop to be reconfigured which can be useful if the loop is being used in a portable station. The idea originated with Hugh Inness-Brown W2IB.

The method works well with stranded or flexible wire but may not be suitable for stiff wire types. The installation of insulators using this method is shown in Fig 5. The insulators used are of the dog bone type.

Installation is as follows:

1. Bend wire double at the desired location of the insulator and pass it through the end opening of the insulator. See Fig 5(A).
2. Pass the insulator through the loop of wire . See Fig 5(B).
3. Pull the wire tight. See Fig 5(C). This makes a secure connection to the insulator which will not slip. See Fig 5(D).

The insulator installation can be easily undone should you need to move the insulator.

The technique could be used for fixed antennas and can be used with insulated and un-insulated wire.

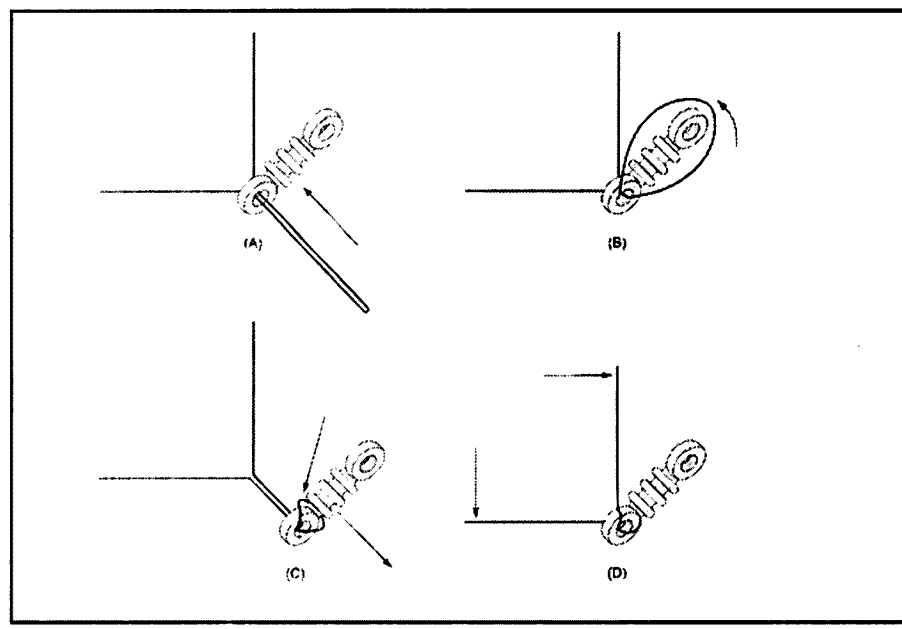

Fig 5. Installing insulators on loops without breaking the loop conductor.

Using Plug Pack Power Supplies

A technique for using a variety of plug pack power supplies for various projects and equipment around the shack was described in the Hints and Kinks column of Bob Schetgen KU7G in QST, January 2003. The idea was originated by H M Knickerbocker K6SK. The idea allows a variety of plug packs with varying output polarity, and even with ac output, to be used without damage to equipment.

The idea is to include a bridge rectifier and filter capacitor in each project or piece of equipment. This allows both ac and dc plug packs to be used and polarity is not important. The downside is that approximately 1.4 volt will be lost. Still this may be worthwhile if it saves repairs and makes plug pack selection less critical.

The added bridge and filter capacitor is shown in Fig 6.

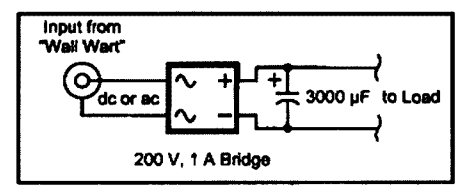

Fig 6. Added Bridge and Filter Capacitor protect against reversed power connection.

New address for General and Technical articles:

Secretary
AR Publications Committee
3 Tamar Court
Mentone VIC 3194
or armag@optusnet.com.au

Columnists, Club and Divisional contributors...

please submit your contributions for the June edition of Amateur Radio to **The Editor**
Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112
or
edarmag@chariot.net.au **by 15 May**

ZD1FG 44 years QSL at last

Bill Wells VKUA

About 2 months ago while running the ANZA net on 14.183 MHz starting at 0530Z I had just signed with Elmer 9L1DX when ZF2FG came on asking if Elmer was still on frequency. The answer was no. Art then explained that he had been ZD1FG and would have liked to chat with Elmer. My old memory to VK3WL days reminded me of a QSO in the late 1950's. On checking my log, there he was 19 July 1958on CW and phone – but I had never found a QTH to send the card to. So off went a QSL and a letter to Art. His reply and original ZD1FG card was a pleasant surprise after nearly 44 years.

Dear Bill,

My apologies for this delay in replying to your letter but we have recently shifted from our old home at Riverdale Beach to the city of Wanganui, which is on the west coast about 200 kms north of Wellington. I knew that I had some old ZD1 cards left but it has taken an age to find them after the shift.

However rummaging through an old box of QSL cards a few days ago there they were - some old ZD1 cards from my days at Njala so long ago. So you are in luck because I am able to send you the dinkum oil - must be a record for a delayed QSL confirmation Bill - almost 44 years!!

We spent 4 years in Sierra Leone where I was a UNESCO science education consultant to the Sierra Leone Government, spending two years in Freetown on the coast then two at Njala in Central Sierra Leone. While there I used my ham rig to test the feasibility of low power, low cost educational broadcasting in the country. It was a great success and led to feasibility test broadcasts for the Agriculture Dept - telephone communication throughout Sierra Leone was poor and they wanted to install a reliable means of communication for their agricultural officers who were out posted throughout the country. Interesting work for a mere amateur!

Ham radio has been a great companion to us during my work overseas. Spent 7-8 months in the UK in 1959-60 and went on air as G3NUZ. For three years in India I was VU2VGA, two spells in Thailand as HSIAHW, and two in Singapore as 9V1SM. I also had a spell in Sri Lanka and was allocated a 4S7 call but never went on air because they had a civil war and all ham stations closed down!

Mostly worked for UN organizations during those years, which I found most rewarding.

Hope that you like the card Bill - it was printed by one of the up country US Mission stations who had a printery for producing schoolbooks in local languages. Reckon its one of the best cards I have ever had.

Would have liked a QSO with Elmers 9L1DX but I have no beam at this QTH so such QSOs are not possible. I once had a 3 band 2 element quad but that had to be forgotten when we shifted. By the way - these days, as an old timer (81) 1 have no QSL card, nor do I QSL! So you are in luck!

Best 73 ZL2FG ex ZD1FG
8 May 2002

ALARA

Christine Taylor VK5CTY, vk5cty@vk5cty or geencee@picknowl.com.au

Remember the AGM

The AGM for ALARA is again on the FIRST Monday in May. We always have a good roll call for the AGM, so let us make sure this one is equally long. The list of nominations and the agenda is in the April Newsletter. See you there!!

A career move for Pam

Pam VK3NK, a long time member of ALARA, has recently become the Headmistress of "Cathedral College" In Wangaratta. Pam has been teaching and living in the Seymour area for a number of years so it is quite a major move.

We wish her well and hope to see her at an ALARAMEET in the future. We know she planned to come to Murray Bridge but couldn't make it. Better luck next time in Mildura.

Tower climbing training

Under the new OHS (Occupational Health and Safety) regulations, you, even as an amateur, are only covered by insurance when you climb your own tower. If you climb anyone else's tower you are not covered unless you have attended and passed an official training course and only then if you are using an approved type of climbing harness.

A couple of photographs, taken at a demonstration evening, in Adelaide, illustrate the approved climbing gear. (Rather different to the old safety belt!)

Training courses are held in all the capital cities several times a year, through the local electricity or telecommunications organizations.

Mary VK5AMD attended one held north of Adelaide in February. It is understood that she was the most proficient and the keenest of all the students in the group. Mary had previously completed a cliff rescue course run by the SES and has a local reputation of being completely comfortable at any height above the ground. When Mary is around, while others are still discussing who is to climb, Mary is already half way up with all the tools and equipment she needs for the task.

The radio group centered at Naracoorte has built or acquired a repeater to cover the South East of SA and Western Victoria. They have permission to put the repeater on a council tower but the Council will only allow it to be placed there if it is done by qualified climbers, so Mary now has the required certificate. Hopefully the repeater will be heard soon.

This requirement, of course, is another reflection of the insurance situation we all have met in various ways. However any amateur who is used to climbing towers for other amateurs should be careful to make sure he abides by the OHS regulations now in place.

A Correction

I invited visiting YLs to luncheons in VK5, VK3 and VK6, recently, but I told you they were all held on Fridays. Wrong! In VK6 they meet on the third Thursday of each month. The VK5 and VK3 luncheons are on Fridays, on the second Friday of each month but VK6 is different.

Please get in touch with a local YL if you are visiting. Even if it is not on a regular date, a special luncheon can sometimes be arranged.

In VK5 just such an extra lunch was held when Marilyn VK3DMS and OM Geoff were in Adelaide. Jean VK5TSX, Shirley VK5JSH and Christine VK5CTY were able to come along. Geoff VK5TY, OM of Christine and Jim VK5JST, OM of Shirley was also present to keep Geoff VK3ACZ company. A good time was had by all, especially the hilarity associated with taking a suitable photo with a new digital camera. A new toy.

A little poem sent me by email

Hello there nice person did anyone ever tell you?
Just how special you are?
The light that you emit might even light a star
Did anyone ever tell you
How important you make others feel
Somebody out here is smiling about love that is so real
Did anyone ever tell you
Many times, when they were sad
Your e-mail made them smile a bit, in fact it made them glad
For the time you spend sending things and sharing whatever you find
There are no words to thank you
But somebody, thinks you're fine
Did anyone ever tell you?
Just how much they like you
Well, my dearest "online" friend
Today I am telling you
Thank you friend, you made me smile
I hope this made many of you smile too.

ar

Beyond Our Shores

David A. Pilley VK2AYD
davpil@ midcoast.com.au

Colombia

Colombia's national ham radio society remains on the brink of being dissolved and you may soon hear very few of that nation's hams on the air. According to Fred Laun, K3ZO, in a report originally appearing in several D-X newsletters, the reason is the economy.

Laun's old friend Beto Rojas, HK3DDD, in Bogota says that Colombian postal rates doubled as of January 1st. It now costs the equivalent of $2.00 US to send a letter to the United States. As a result Colombian hams would have to pay the equivalent of 13 cents per QSL to send outgoing cards through the bureau.

Colombian I.A.R.U member society — the Liga Colombiana de Radioaficionados – L.C.R.A. — was to meet on Saturday, March 1st to dissolve itself. (No news since). It now has only 200 paid members and was an equivalent of 8000 United States dollars in debt. It's leaders felt that it could no longer stay in business. But says Laun, a miracle happened. At the meeting one of the members donated $7000 to pay most of the current debt. So, L-C-R-A will continue to operate as Colombia's national society for at least the next three months.

In a note to Amateur Radio Newsline, Laun says that several Colombian hams were moved by the messages they received from around the world and have vowed to try to rescue their almost 70 year old society from the brink of oblivion.

Even so, HK3DDD says that many Colombian hams have stopped calling C-Q and some have terminated all high frequency operations as they can no longer afford to meet the demand for QSL cards.

(ARN via QNEWS)

Hinternet U.S.A.

The ARRL High Speed Multimedia (HSMM) Working Group is surveying the amateur community to gauge interest in IEEE 802.11b "Hinternet" activity.

"The primary goal of the survey is to encourage amateurs to get on the air and start playing with this cheap digital microwave gear," says HSMM Working Group Chair John Champa, K8OCL k8ocl@arrl.net. Hinternet Radio Local Area Networks (RLANs) typically use direct-sequence spread spectrum between 2412 and 2437 MHz and can simultaneously carry audio, video and data signals. Hinternet aficionados adapt commercial 802.11b interfaces, designed for Part 15 operation, to amateur use.

The HSMM Web survey is brief and permits an opportunity for open-ended input. It asks if respondents have a IEEE 802.11 or "other high-speed digital station" running under Part 97. If so, amateurs are asked to register their stations. It also asks respondents to explain how they might use a high-speed digital system or network if they were to set one up.

Asked if the Hinternet is catching on within Amateur Radio, Champa simply points to the more than 15,000 hits to the HSMM Working Group's Web site. The Hinternet also is the focus of the article "High Speed Multimedia Radio" by Kris Mraz, N5KM, in the April 2003 issue of QST.

Hinternet proponent Mark Williams, AB8LN, of Milford, Michigan, envisions growth of amateur 802.11b operation to cover all large metropolitan areas in the US, not just the few miles some contend as the limit for such point-to-point connections. "This is just too easy," he says. "With some of the Amateur Radio pioneering that we are famous for, we should be able to push this technology to its limits—50, 75 and 100-mile links at 2.4 GHz." He said wireless networks dedicated to Amateur Radio stretching across states and linking hams everywhere with high-speed voice and video are possible. "File-sharing and e-mail, network gaming and pop-up chat are just the tip of a titanic iceberg," he predicted.

Applications abound for public service work. Amateurs in the Texas search for debris from the shuttle Columbia used a 802.11b high-speed system on ham radio to link the net control station in Nacagdoches with the Internet.

More information is available on the ARRL High Speed Digital Networks and Multimedia Web page http://www.arrl.org/hsmm/.

(ARRL N/L)

Travel warning

DXers advised to use carry-on luggage only.

If you are planning a DXpedition, you might want to think in terms of smaller being better.

This following report is of vandalism to the luggage of a recent DXpedition by those highly trained security folks at Seattle Washington's Sea-Tac Airport.

Amateur Radio Newsline's Jim Meachen, ZL2BHF, (Auckland NZ), reports on the experience of some homeward bound DXpedition operators:

"When the D-Xpedition group returning from the recent AH3D operation reached Seattle for their connection to Copenhagen, all their cases' locks were broken by the Sea-Tac Airport security people who just had to take a peek inside within a secure area of the airport.

As most seasoned travellers know, security should find the passengers to get the keys to luggage that they want to inspect. In this case security simply broke into them, resulting in damage to the luggage and some rather messy repacking. *(We trust they made large insurance claims)* As a result of this experience, DXer Martti Laine, OH2BH, says he will be going hand carried from now on using the new Yaesu FT-897, which weighs in at only 8 and 1/2 pounds and goes in the passenger cabin with him. De Jim Meachen ZL2BHF.

(ARN via QNEWS)

Introducing RAAF Williams Amateur Radio Club

By Jim Linton VK3PC

This active Melbourne club began as an amateur station for RAAF radio apprentices, but membership has been open for many years to anyone with an interest in the hobby.

In the early years of the RAAF some technical apprentices were trained at *Frognall*, a 14-room mansion in Camberwell, in Melbourne's inner east. The former private school became a WW II RAAF tele-communications station, a training centre and later the School of Radio "Detachment A".

Around 1950 the then Commanding Officer of Frognall, Squadron-Leader John Marr, obtained a licence for the apprentice's ham radio station which was given the callsign VK3APP.

The callsign suffix "APP" was used at the time to represent the apprentices, as all apprentices were referred to as "APPies". VK3APP remains a symbol for all apprentices who have passed through the School.

The early 1960s saw the School of Radio move from Frognall to RAAF Base Laverton, re-named in the early '90s as RAAF Base Williams, and the radio club became the RAAF Williams Amateur Radio Club (RWARC).

A highlight for RWARC was in 1991. Its members learnt that Shuttle mission STS-37 (Atlantis) had a program to allow school students to talk to the crew during three orbit passes over Australia.

The club applied, on behalf of the RAAF School of Radio at Laverton in Melbourne's west, to participate in the program. VK3APP was allocated orbit 14, their window occurred just 18.5 hours after launch, at 2125 local on Saturday, 6 April 1991.

A feature story was published in the Amateur Radio magazine June 1991, covering the events of that historical day. The spirit shown by its members in that exercise lives on today.

The club caters for a range of interests including homebrew or construction, operational activity, social events – in fact its members enjoy virtually every major aspect of amateur radio.

A friendly atmosphere

Visitors to the club, or those who make the initial telephone call or e-mail contact with an official, will find they receive a warm welcome whether they're already a radio amateur or just a beginner seeking help and guidance.

Meetings or other gatherings, including social or BBQ activities, have a friendly low key atmosphere as club members demonstrate mutual respect and support.

The club is well established in two buildings at the RAAF Williams Base at Laverton. The main room is primarily used for the station's on-air activities and meetings. There is an array of antennas for HF, VHF, UHF and a satellite dish.

Equipment includes Packet Radio, HF transceivers; VHF gear and future expansion plans include an Amateur Television station.

The club's callsign VK3APP can regularly be heard during the annual JOTA, amateur radio contests, the RAAF Adventure Training exercises, and a club chit chat to help keep members in touch. Their club net frequency is 147.800 MHz FM simplex.

Also of interest is the large library of radio magazines and reference material and the beginnings of the club's museum of early radio and defence radio communication\test equipment.

The beginning of VK3APP with RAAF radio technicians at the mike - Brian Bell, Jack Griffiths, Mark Webster and Ivan Spiller.

Instructional night, learning the art of soldering. (Photographer unknown)

Tutoring and mentoring approach

A room is dedicated for classroom style instruction giving the club the scope to run theory, regulations and Morse code classes if there are sufficient enrolments.

The club has a fine tradition of helping newcomers qualify for an amateur licence. In fact it has gained a well-deserved reputation for the tutoring and mentoring approach rather than using the traditional study class method.

Club President, Chris Whitefield VK3JAA said attempts at running classes in the past were not as successful as today because they did not suit many who could not attend due to family, work and other commitments.

Chris said, "We found there were people very keen to join the hobby of amateur radio, willing to put in the necessary effort, but formal classes did not suit them."

"The promise we make to them now is to find someone experienced within the club to provide them with individual tutoring or mentoring so they can progress at their own pace."

"When they're ready the club's WIA accredited invigilators can arrange, at short notice, the necessary exam session for them."

He said this approach works well for the club and has resulted in a number of new radio amateurs, and increased club membership.

Sharing of information and expertise within the club is one of its strong points. It frequently holds information sessions run by members – topics have included antenna design, purpose and use of test equipment, and conversion of the Philip's FM900 transceiver to the 2-metre band.

Project nights are also popular with previous projects including how to solder, building a PSK interface, and antenna construction.

The club's monthly meeting features guest speakers which this year will include those talking about Contesting, DXing, and the Wireless Institute of Australia.

RAAF Williams ARC last year qualified to become a WIA Victoria QSL distribution point and helps provide this service to WIA members throughout Melbourne's western suburbs and beyond.

It supports WIA Victoria and was part of the team that put on the amateur radio display over the four days of the Great Australian Science Show in 2001.

A monthly newsletter is produced and club members with e-mail addresses find it very convenient to receive the latest information electronically.

Taking part in JOTA is an annual club activity.
(Photographer unknown)

RAAF Williams ARC also publishes its latest information and photographs of club activities on its Internet web site http://www.vk3app.com

The club meets every Friday night at 7.30pm in the clubrooms located at Bell Parade, RAAF Williams Base, Laverton (Melways 53 B9). Due to current security arrangements in place at all Defence establishments, visitors are requested to contact either the President or Secretary prior to the meetings so access arrangements can be initiated.

For more information please contact

Chris Whitefield VK3JAA, President RWARC, during work hours on 9256 3244 or president@vk3app.com

Ian Handy VK4JAL, Secretary RWARC, during work hours on 9256 3813 or secretary@vk3app.com

Club Rooms 1900-2130hrs Friday nights on 9256 2965.

Club Notes

Adelaide Hills Amateur Radio Society

There have been two activities recently for AHARS. They ran a successful (as far as enjoyment is concerned – results to come later) John Moyle Memorial Field Day at Womberoo, near Swan Reach. Ten participants stayed for the full weekend, three others visited on Saturday.

Four stations were set up under the trees in the scrub; each one attached to a separate wire aerial. The Zepp was used on two bands, 160 metres and 15 metres, with some attempts to find contacts on 10 metres. The others were dedicated to a single band.

The operators moved around from station to station. The radios used were given large labels to assist strange users, which seemed to work very well.

The second activity was the Buy and Sell for members only, held for the meeting immediately following the AGM. One person's junk became someone else's treasure, as usual, and the club benefited by 10% of the price. A pleasant excuse to talk to friends as well.

Several meetings where the emphasis will be on historical things are to follow. For details please contact Geoff VK5TY or the new Secretary, Paul VK5PH QTHR the callbook.

VHF/UHF - an expanding world

Leigh Rainbird VK2LRR

2 & 70 FM DX Report

Not all our Radio Amateurs are able to use SSB and the Digital modes, either due to licensing restrictions or availability of radio equipment. Some operators enjoy the challenge and thrill of pushing an FM signal through where it normally would not travel. This column is intended to fill the gap and provide some incentive to see more operators on the bands and perhaps be a stepping stone for some to step up to SSB work in the future.

Unfortunately, as we approach the colder months, good Duct conditions are becoming less and less and distances are becoming shorter. All contacts are worked from QF34nr Grid Square on 2 m FM unless otherwise noted.

February Report

Only one significant Duct during February was accessible for three consecutive mornings, 8–10. Saturday the 8th appeared to be the strongest. I was operating portable from Galore Hill in QF34 grid square during this morning. It was quite amazing to say the least. Signals were coming in from all over.

Significant simplex contacts were completed with – Ron VK3AFW and Barry VK3BJM around Melbourne 350 km; Jim VK3AEF & Bill VK3SWD in Nhill 503 km; Shane VK5NRV at Woodside 720 km Brian VK5ZMB at Gawler 735 km; Greg VK3MTV at Mildura 460 km; Joe VK5UJ at One Tree Hill 734 km.

Significant repeater contacts were completed with Paul VK2YVG via the very rarely accessed Broken Hill repeater VK2RBH, distance to repeater 628 km. Accessed VK5RAC, near Port Lincoln, 1019 km, no replies to my calls. In general all VK5 2 m repeaters were accessible on the 8th varying in distance from 600 to over 1000 km.

Another major league 2 m DX repeater, VK5RMB at Murray Bridge S.A on 146.875, was repaired and put back in service in February and was heard many times. At over 700 km, very impressive, being accessible when nothing else was heard. Thanks to Rob VK5MM for answering the early morning CQs.

March Report

Two Ducts seemed usable in March.

The morning of Saturday 15th was parr of the John Moyle contest, unfortunately the Duct did not continue on the Sunday morning in southern VK2 but was still able to provide some assistance for some southern VK3 operators into VK5.

During the morning of the 15th the Duct came and went pretty silently, I think many operators were in transit to their contesting locations. Initially John VK5NJ at Mt Gambier made the trip into VK3RMM, Mt. Macedon 2 m repeater and then across to Ararat VK3RWA.

The Warrnambool VK3RWL 2 m repeater (the most distant VK3 repeater from QF34nr grid at 512 km) then drifted into play. Surprisingly, after contact via the repeater, I was able to make an easy simplex contact with Geoff VK3ZGT, located just out of Warrnambool at 534 km with signals up to 5/7.

A few other shorter simplex contacts were made, VK3HEN at Kyabram around 250 km, VK3UBC at Bendigo 314 km, VK3AIC at Longwood 200+ km.

Mornings and evenings around the 29th March to 1st April had good enhancement and a small Duct. This was caused by a High Pressure cell working its way between VK3 and VK7, which did wonders for those stations aware of the phenomena.

A slow, deep QSB was noted during these contacts. The two best and quite surprising simplex contacts from here were to Chris VK3VSW in Geelong, 383 km. Chris was only using a vertical base antenna and ran up to a 5/7 signal this way. John VK3YD also made it through from Monbulk, 40 km East of Melbourne. John was also using a vertical base antenna up 21.3 m (70 ft), and at a distance of 322 km the signal was 5/5.

Other stations that came up simplex were VK3HEN, VK3KBV, VK3ANW all at Kyabram; VK2KKZ at Griffith; VK3GOM, VK3XDP, VK3JGL all at Bendigo; VK3DSF, VK3AGG all at Shepparton.

Leigh Rainbird VK2LRR

Let's Beat the Winter VHF/UHF Doldrums

It's been a remarkably good summer, certainly here in VK3, with a succession of slow moving Highs across the Bight, producing some long-lasting openings across to VK6. Bill VK6AS in Esperance was at times besieged by a veritable dogpile of VK3 stations on 2m for extended periods.

The recent Field Days also saw plenty of activity with many mountaintop stations working those near and far. Three groups – let's say Gippsland, Melbourne and Western District – have been giving the microwave bands up to 10 GHz a good, successful workout.

This activity shows there are many stations capable of putting out a good signal on all bands from 6m to 3cm. However, with winter approaching, the VHF/UHF bands are quietening to the point where regular evening CQ's on 2m often go totally unanswered. As for the call frequencies on 70cm and 23cm, does anyone monitor these or are they only used after a hookup on say 2m?

The pressure is on for RF space and there is a great risk of us losing substantially here – as is already about to happen with the lowest 10MHz of the 70cm band. The authorities don't care that there's little activity right now due to the lack of extended propagation. If they monitor a slab of valuable spectrum like the 70cm band and find little activity, then they'll be very receptive to requests for other uses of that spectrum.

We need to generate some activity. And activity begets activity. How many times have I heard people questioning the usefulness of a 2m SSB rig / horizontal yagi, on the basis that there is no one there to work? But, there is!

So what regular activity is there currently? Well, the morning Aircraft Enhancement Net would probably be the busiest time on 2m at the moment – although even that can be fairly quiet. Most activity seems to centre on 144.1 between 8 am and 9 am during the week and 144.2 on weekends. Gordon VK2ZAB is one of the regulars in this Net and reports a total of 484 contacts with 53 stations for the month of March – not all aircraft-enhanced however.

Furthest distances are 790 km north to VK4DFE and 740 km south to VK3II.

Robbie VK3EK conducts a weekly VK3 net on Wednesday nights at 8.30 pm on 144.150. The net regularly attracts at least a dozen stations from around the state. If demand is there, this net sometimes QSY's to 70cm and 23cm.

Let me know of other regular activity and any other nets around the country.

How do we generate more activity? Well, there seems to be a peak of activity on Sunday mornings. Is there a need for a Sunday morning 10 am net that would also relieve the TVI issues that some country stations cannot avoid? Is anyone keen to re-introduce the Scrambles that used to run many years ago? What other ideas do people have?

As they say, **Use it or Lose it**

Advanced Refractive Effects Prediction System (AREPS)

Further to the AREPS information in February AR, I have added a few examples from the AREPS Software from a Duct opening which occurred in the morning of 31.10.02.

This opening began at around 2 am local time or 1500Z and finished at around 7 to 8 am or 2100Z. The higher stations (2 m FM Repeaters) came in earliest and were last to disappear, the usual process as the Duct falls to its lowest levels and then rises again.

The Duct covered a very wide area to the west of my QTH near Wagga Wagga NSW, covering repeaters around Adelaide and eventually to the Port Lincoln area repeater on 146.750 which is a 1019 km path.

Unfortunately at that stage I only had a mobile 2 m rig set up inside and a 5/8 wave vertical base antenna at 30 ft. When you are in a Duct it doesn't take much to get the signal through.

The graphs are only one output of the AREPS program. The graphs are a cross section of the Troposphere from Sea level up to 4000 metre, and show propagation anomalies present at the time the data was recorded.

There are two sides in the graphs, the left side is a view of the Troposphere, the right side shows the height and thickness of any Ducts present.

From East to West (left to right below, the graphs are over Wagga, Adelaide, Woomera, Eucla and Esperance.

The actual Duct layer is at a similar height and thickness over each location, but does vary. At Esperance, which is a lot further away, it appears the duct is still present but to a much lesser extent.

One thing to keep in mind is that the data used to produce these graphs was taken at 0000 UTC or 11am EST. This is well after the opening had finished at my location, and the majority of the graphs show the Duct somewhere between 600 and 1000 metre at this stage. You must assume that the Duct was at a lower level or at ground level during the previous hours while the Duct was usable, and has then slowly risen higher and higher as the morning progressed. It therefore becomes clear, that you can see that the antenna was in the duct, and then as the Duct moved higher and signals got weaker and weaker until the Duct was too high to use.

Download the AREPS software at http://sunspot.spawar.navy.mil/2858/software/ . The Upper Air data is available at http://weather.uwyo.edu/upperair/sounding.html .

The homepage of the Space and Naval Warfare Systems Center, Atmospheric Propagation Branch, where the AREPS program is produced is located at http://sunspot.spawar.navy.mil/2858/ and this site would be an interesting read for all interested in VHF, UHF and microwave propagation.

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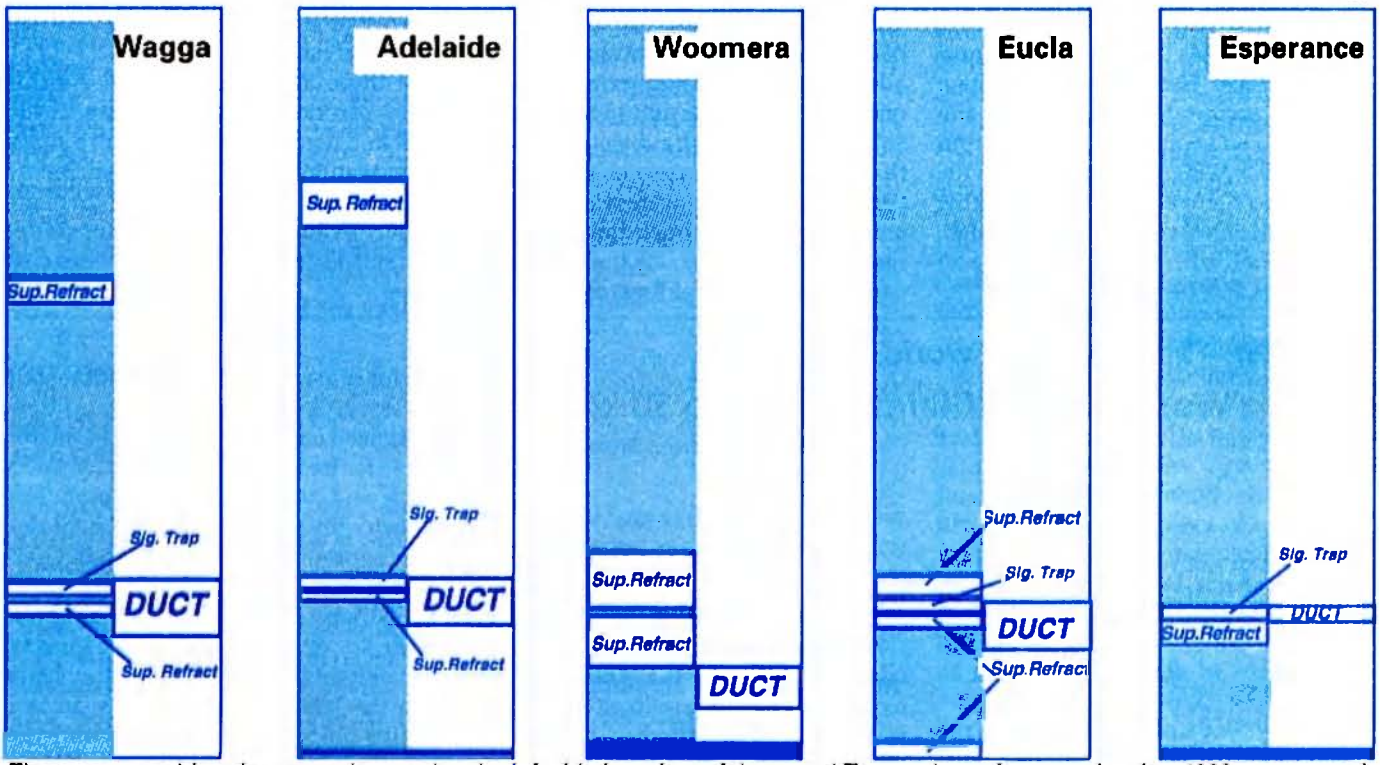


There are two sides shown on the graphs, the left side is a view of the actual Troposphere, from sea level to 4000 metres, and the right side shows the height and thickness of any Ducts present.

More VHF UHF foot of next page

Education Notes

Ron Smith VK4AGS
Federal Education Co-ordinator

"Write it Down, or Smother it in Words"

I have mentioned how any exam or assessment system involves the same series of decisions. There is also a significant level of unavoidable subjectivity. To complicate matters, any system has errors and inaccuracies which can vary over time and geography. What varies in all of this is; when, where, and by whom.
This article continues our look at examinations and the methods of teaching and assessing how people learn. It also covers how we try to measure what has been learnt.

For a very long time exams in most areas of education involved writing extended answers to questions. This was true for amateur radio examinations up until the current system came into vogue. Extended answer systems have their supporters and are extensively used in some areas of education where they are making a comeback.

Supporters argue that extended answer examinations allow assessment of a wide range of human abilities, particularly where logical argument to show understanding is involved. They also argue that candidates are given opportunities to demonstrate creativity. Extended answer examinations are certainly not resource hungry when it comes to setting or designing

Unfortunately there are problems. The main one is that extended answers require a highly knowledgable and skilled marker. Candidates can write a range of acceptable answers, so the marking is subject to the interpretation of the marker, a high level of subjectivity. Even when there are so called marking schemes the level of subjectivity is high, even higher with a large number of candidates and several markers.

Another significant problem is that the marking process can take an extended time and since it requires specialists this can also be costly. To complicate matters a good answer requires a good ability at written language which can mask technical knowledge and raise all sorts of issues in a multicultural society.

Historically, education systems went considerably, but not totally, away from extended answer questions in the late sixties, early seventies.

The main reasons for this were associated with a falseness about the examinations. Although the questions were expected to reveal a wide range of human skills, in reality the range of allowable questions was limited. Many students simply learnt by rote a number of standard answers without any understanding. There were allegations of bias in the actual markers as well as allegations of changing standards from one examination session to the next.

These feelings of subjectivity were then considered to be not acceptable. Similar allegations were made within amateur radio, although the high level resources needed to mark the exams was a major factor in deciding to change the amateur radio examination style.

The difficulties were real but, within the wider education system, it was not as big a problem as expected. Then the awarding of certificates was based on a ranking system, not a standards system. Extended answer systems could produce ranking lists, even if they were not wonderfully accurate, about as well as other examination systems.

Last time I wrote how the so called objective or multiple-choice examinations had accuracy problems, had subjectivity, had limitations in a standards system, but had resource advantages after the event but not before. One of its main competitors, extended answer examinations, also has accuracy problems, also has subjectivity, also has limitations in a standards system, but has resource advantages before the event but disadvantages afterwards.

Is there any ideal system? As this series of articles continues I suspect you will find that there actually isn't a single examination type which is ideal. Before we explore this issue further there are other examination or assessment systems to consider. More of these next time.

VHF/UHF – an expanding world continued

20 GHz World Record Claim Pushed to 30 km

This information from Brian, WA1ZMS:

We took the efforts of Will, W0EOM and Bob KF6KVG with their latest world record of 24.6 km as a challenge to try and better our East Coast efforts on 120GHz. At the same time as Will and Bob were doing 24 km on the band, I was trying an active bias circuit to improve my RX mixers at 120 GHz.

W4WWQ, WA4RTS and I took to the local hills of the Blue Ridge Mountains and managed a few more QSOs on 120 GHz with our best DX being 30.0 km.

Date: April 2, 2003
Time: 05:18z <— it was a late night.
WA1ZMS/4 37-31-19.3 79-30-14.4 FM07fm
W4WWQ 37-21-09.7 79-14-20.3 FM07ji

Distance 30.056 km

A point to note is that as Will and I take turns bettering the other's DX, the oxygen losses will become the limiting factor in all of our efforts.

The loss due to water vapour on this band may be around 0.24 dB/km, but the loss due to oxygen is around 1 dB/km. So for someone to improve a DX record of say 30 km by another 10 km, they will need an improvement of 14.89 dB! (2.49 for free-space loss, 2.4dB for water loss, and 10dB for oxygen loss). The above values assume a typical semi-dry atmosphere. We'll need real QRO power for DX over 60 km.

So...when Will takes the record back by a km or two (and he may already have) it might seem like splitting hairs but the loss per km from oxygen is a major obstacle to overcome and the efforts are not trivial.

Photos and audio files can be found at http://www.mgef.org/zms_120.htm.

Rowland Bruce VK5OU

On the 23rd of January 2003 we mourned the passing of a well liked and respected former President of the S.A. Division of the WIA.

Rowland Bruce VK5OU was born 25 April 1939 in Yorkshire, England. Never one to just sit on the sidelines, he was an active contributor to several organizations in particular Rotary and the WIA and whatever he took on he applied his best to it.

His involvement with the WIA started in 1983 when he became Education Officer, a position he held until 1985.
1985 - 1989 He was Federal Councilor.
1986 - 1990 Vice President
1986 - 1987 D.O.C. Liaison
1986 - 1987 J150 Award Manager
1989 - 1991 QSL Manager
1990 - 1992 President
1992 - 1994 Immediate Past President
1992 - 1994 Director

No problem was too big or too small for him to tackle and he always had an ear and a mind to apply to any problem and could always offer a sensible and workable solution. Although he is best summed up as "reliable, steady and level-headed" he will certainly be remembered for his warm, friendly personality and sense of humour.

His involvement with the WIA spanned a total of 11 years, which represents many hours working for a better WIA. In between his official activities he still found time to work DX and participate in Contests.

Rowland is survived by his wife Pam, son Robert and daughters Kate and Rachel.

To his family and friends we extend our deepest sympathy and hope that the deep loss they feel now will soon subside to warm and happy memories.

Jennifer Wardrop VK5ANW and Bob Allan VK5UL

Ed Mann VK5KAV

"The Advertiser" for Saturday April 5, 2003 included a Death Notice for Edward Thomas (Ed) Mann, VK5KAV, who passed away on April 2 at the Hahndorf Nursing Home after a long illness, aged 83.

Ed had been a fairly active amateur and a member of the Adelaide Hills Amateur Radio Society until some time after he moved from Flagstaff Hill to Woodside, about eight years ago. However, for various reasons his interest declined over the last three years or so and last year he very generously donated virtually all of his equipment to the VK5/8 Division of the WIA, which in turn transferred it to WICEN for its use.

The VK5/8 Council acknowledges Ed's passing and extends its sympathy to his family and friends.

David Box VK5OV

James Thomas (Jim)Cunningham VK4BS

Born in New Zealand in 1927, died suddenly in Brisbane on March 20, 2003,

Resident of Frankston Vic, Lismore N.S.W. and then Russell Island Qld.

Dearly loved husband of Lois (dec). Loved father of Linda (dec) and Dale. - Sadly missed. VK4BS is now silent.

Jim was an avid Amateur Radio participant and there will be many Radio people who wish to know of his passing.

Andrew Hosking,
29 Forth Street, Parkdale, #195, Victoria.

Rex Corthorn VK3VG – formerly VK2VG

Rex Corthorn, VK3VG, formerly VK2VG, died on the 6th February 2003 at Mallacoota, Victoria, where he and wife, Mollie, had lived in retirement for a number of years. They had been married for 60 years.

Although I had worked Rex on many occasions after WWII when he was VK2VG, we did not meet until 1950 when we were both serving on the R.A.A.F. Active Reserve as Signals Officers at Richmond R.A.A.F. Base.

Rex was licenced in August 1932 and was a member of the pre-war R.A.A.F. Wireless Reserve. He was called up on 3 September 1939 and sent to the Middle East.

On his return he was posted as a Signals Officer to Mallacoota, then an R.A.A.F. Base, then to. New Guinea. After discharge Rex returned to his old wool-buying firm, where he remained for 45 years, becoming Manager and Director of their Melbourne office.

After his retirement, Rex and Mollie went to, live in Mallacoota, his old wartime locality, which he liked so much.

Rex Corthorn was of a very gentile nature, and a true gentleman although he could become strong willed. He was a good friend for 53 years. Rex was 89 years of age. He will be sadly missed by Mollie, daughter Helen and family, and friends.

Vale Rex Corthorn VK3VG/VK2VG

Ben Mills VK2AJE

Les Daniels VK2AXZ

I regret to advise that Les Daniels VK2AXZ passed away on Wednesday 29 January 2003 after spending several weeks in the John Hunter Hospital.

Les was born at Minmi in 1925 and lived in the Newcastle area all his life. He was a long-standing member and solid supporter of Westlakes Amateur Radio Club.

Les was an avid rag chewer on the VHF and HF bands, he was also a keen fisherman, an accomplished golfer, a good chess player, a talented artist, and in his younger days, an amateur boxer.

He surprised his friends, and perhaps himself, when he married for the first time three years ago. He often commented that the best two decisions made in his life were early retirement and his marriage. Deepest condolences are extended to his widow, Rose.

A large contingent of relatives, friends and Westlakes Club members paid their final respects to Les at the funeral service held at Broadmeadow on 31 January 2003.

The old, now closed heritage listed cemetery at Minmi is his final resting place.

Vale Les Daniels VK2AXZ.

Submitted by
Greg Smith VK2CW

Division News

VK1 Notes

Forward Bias

Peter Kloppenburg

It is not too late to take a trip to yesteryear! An exhibition of domestic radios is on show at the Canberra Museum and Gallery until Sunday, June 1, 2003. The exhibition is aptly titled "When Radio Ruled The Waves", considering that broadcast stations were the main source of information, news, and entertainment between the early twenties and the middle fifties, after which television broadcasting took over these roles.

The exhibits include factory built and home made crystal receivers, early valve operated broadcast receivers, car radios, and modern mantel radios. For those of us who made a living from repairing radios and got to know the peculiarities of all the different makes that were sold in Australia, this is indeed a fascinating trip into the past. All the major manufacturers are represented, such as RCA, AWA, HMV, Philips, and Astor. With the increasing number of people becoming familiar with broadcast radios and transmitters, amateur radio came into its own as well. Amateurs built their own receivers using simple triode valves, wound their own coils, and constructed tuning capacitors using brass shim materials. The guest curator of the exhibition is Richard Bigbie, who is well known in the circles of the 'Historical Radio Society of Australia', and a local collector and restorer of antique and veteran radios. Richard has a vast collection of early radios, and it was he who provided several samples of them, from 1914 and 1923, on December 12, 2002, when the University of Canberra celebrated Marconi's achievements with an open day.

Much interesting gear was on sale at the Trash & Treasure on Monday, March 24, 2003 in the Scout Hall in Farrer. Russell Manning (VK1ZRM) offered microwave accessories, such as cables, plugs, dummy loads, and circuit boards with gold plated components. Richard Elliott (VK2KDE) made a splash, with bags containing assorted components for the home brewer. Other members brought telegraph equipment, low voltage/high current power supplies, wide-band oscilloscopes, and PC monitors, all at bargain basement prices. During the break, Gilbert Hughes (VK1GH) gave an outline of the Foundation Licence that is now current in the UK. Gilbert quoted some very impressive statistics regarding increases in membership numbers of the RSGB.

At the Federal Convention of 4-6 April, a decision was made to adopt the UK Foundation Licence into the Australian licensing scheme. The WIA will start the process of convincing the Australian Communications Authority of the benefits of including this licence into its licensing scheme at the earliest opportunity.

The next general meeting will be held on Monday, May 26, 2003 at Scout Hall, Longerenong St. Farrer, at 8.00 pm. Cheers

VK2 Notes

Pat Leeper VK2JPA

The Annual General meeting of the NSW Division was held on 12th April at Amateur Radio House in Parramatta.

A total of 40 voting members were in attendance, thus ensuring a quorum.

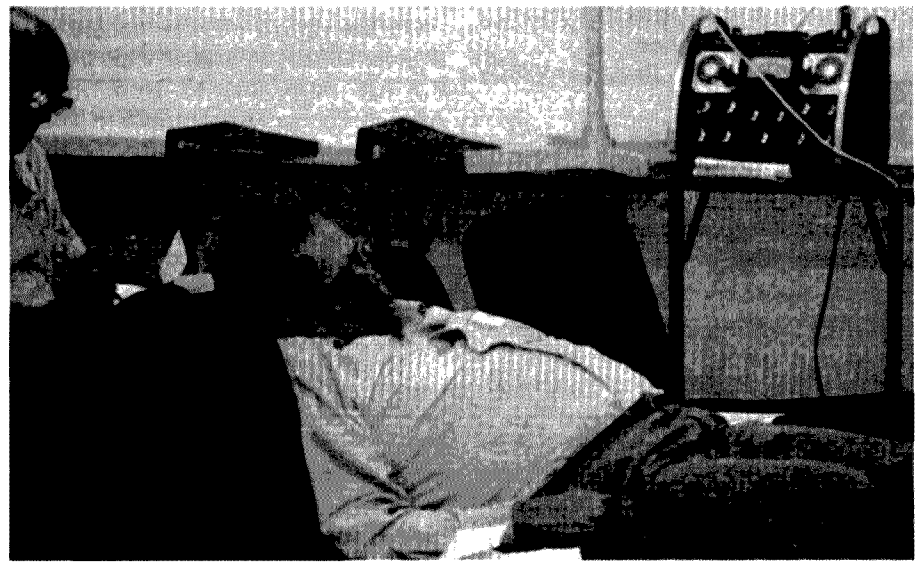
Peter O'Connell VK2EMU announced the new councillors for 2003-4. There were only 8 nominations so there was no need for an election.

They were
Terry Davies VK2KDK,
Owen Holmwood VK2AEJ,
John Turner VK2WRT,
Brian Kelly VK2WBK,
Chris Flak VK2QV,
Terry Ryeland VK2UX,
Michael Corbin VK2YC and
Noel May VK2YXM.

Peter O'Connell VK2EMU was re-elected as Returning Officer, with Kevin Dawson VK2CKD Alternate Returning Officer.

Three motions on notice were dealt with by the meeting.

1. "That the Institute reinstate the system of handling deceased estates that existed before the present system was introduced" - carried: 127 for; 28 against 7 abstain (proxies counted for this motion).



We know AGMs are boring, but —! "

2. "that the NSW Division of the WIA actively consider the consolidation of operations in expanded facilities at Dural" - As the wording of this motion was slightly amended from the floor, proxies were not counted. The motion was carried: 37 for, 1 against; 2 abstain.

3. (last sentence, para. 1) of motion was amended) "During the life of the DCC (Dural Consolidation Committee), the incumbent Councils shall consider the DCC's policy recommendations in all matters relating to the consolidation at Dural". Again proxies could not be counted and the motion was carried: 36 for, 2 against, 1 abstain.

The four members elected to the Committee were Stephen Pall VK2PS, Eric VK2EFY, Eric VK2KUR, and Peter VK2BPN.

We wish all those elected to the various positions a successful tenure.

That's all from me folks – Pat Leeper VK2JPA signing off.

VK3 Notes

WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au
By WIA Victoria Councillor, Barry Robinson VK3JBR

Attending the WIA Federal Convention in Adelaide as part of the WIA Victoria delegation, accredited Observer, was an interesting and rewarding experience. It was my first direct involvement in the federal arena and first hand look at the decision making that occurs.

Clearly each WIA Division prepares differently for this annual event. The VK3 delegation's preparation included a meeting of the WIA Victoria Council in the week before the Federal Convention to review the entire agenda, each of the reports to be tabled, and the consultation input received from members to the six policy motions that had been published on the website.

Held over three days the Federal Convention is potentially an exhausting event for those individuals fully involved. WIA Victoria paced itself by sharing the workload between its three delegates.

Our Federal Councillor, Jim Linton VK3PC, called a team meeting before the start of each day to review the agenda, share any information gathered from other delegates, and do some last minute forwarding planning.

This also meant that the Alternate Federal Councillor, Peter Mill VK3APO, and myself had specific agenda items to talk on, or question, when they discussed around the table. All three delegates were also free to express their viewpoints at any time, and they did.

The major achievements were two new WIA policies that have the potential to result in a much better future for the Amateur Radio Service in Australia. These were that there be an Entry Level Licence, and the licence structure next year be a two-tier system - Entry Level, and Unrestricted. The WIA Victoria delegation played a leading role when these matters were debated.

A WIA Victoria motion seeking to avoid an unnecessary delay in the removal of the mandatory Morse code tests in amateur licensing in Australia, was strongly supported. It is now WIA policy to seek assurances from the ACA that it will not delay the end of the Morse code requirement that is anticipated to result from the World Radio-communications Conference this year.

The WIA journal, Amateur Radio was discussed. WIA Victoria will conduct a three month trial of providing an electronic version of it to its members registered for the Members Section of its website. If you have email and are not registered, please do so and take part in the trial.

A decision will then be made, after the trial, as to whether AR magazine will be issued electronically to WIA members as a membership service, either to replace the printed magazine, or in addition to it.

One of the detailed presentations made at the Federal Convention was by Brian Clarke VK2GCE, Chair of the WIA Strategic Planning Committee. He says the WIA needs to act like any business or service organisation and dramatically increase those buying its services and joining as members.

The initial emphasis of the review in creating a single national body is no longer the flavour of the month. The WIA is working towards making the WIA Federation even more effective and responsive.

Resulting from the Federal Convention, WIA Victoria has a lot of work ahead of it. Apart from the trial of AR magazine via the Internet, there is a survey, which has now begun of radio amateurs to measure their views about the proposed new Entry Level Licence that could begin in early 2004.

WIA Victoria AGM

A reminder that the annual general meeting will be on Thursday, 22 May 2003.

A formal notice has been issued to members. Those who were financial as at 31 March 2003 also received a ballot pack. The three year term of office for the WIA Victoria Council concludes at the AGM.

The second batch of inductees to the WIA Victoria Elmer Hall of Fame will also be announced at the AGM. To make a nomination email wiavic@wiavic.org.au and please put "Elmer" in the subject line, or write to: Elmer Hall of Fame, WIA Victoria, 40g Victory Boulevard, Ashburton 3147.

If you can, come along and meet the candidates for the 2003-2006 Council, and show support for your organisation.

VK7 Notes

Justin Giles-Clark VK7TW

QRM

In this my first contribution to this section and I would like to thank Ron Churcher VK7RN who has been keeping us informed of the VK7 Divisional happenings since May 1998, many thanks Ron, for a job well done.

Divisional AGM

The Divisional AGM was held on 15 March 2003 at Kingston about 10 km from Hobart. The Divisional Office Bearers for 2003 are:

Executive:

President: Phil Corby (VK7ZAX)
Secretary/Treasurer:
Dale Barnes (VK7DG)

State Councillors:

Ron Churcher (VK7RN) Steve Jones (VKZSJ) Allen Burke (VK7AN) Phil Corby (VK7ZAX) Geoff Wells (VK7ZOO) Dale Barnes (VK7DG) Kevin Burgess (VK7BK) TBA

Ex-Officio Officers

Awards Manager:
John Bates (VK7RT)
Broadcast Officer:
Justin Giles-Clark (VK7TW)
Assistant Broadcast Officer:
John Rogers (VK7JK)
Education Officer:
Reg Emmett (VK7KK)
Federal Councillor:
Phil Corby (VK7ZAX)
Historian:
Richard Rogers (VK7RO)
Intruder Watch:
Kevin Burgess (VK7BK)
FTAC Officer:
Rex Moncur (VK7MO)
Membership Officer:
Dale Barnes (VK7DG)
Membership Officer (Recruitment):
Allen Burke (VK7AN)
Public Officer:
Dale Barnes (VK7DG)
Honorary Solicitor:
Phil Corby (VK7ZAX)
QRM Editor:
Justin Giles-Clark (VK7TW)
QSL Bureau:
John Bates (VK7RT)
Web Master:
Robert McKenzie (VK7RB)

A special thank you must go to John Bates (VK7RT) who has been Treasurer since 1999 and Secretary/Treasurer since 2000.

Branch Meetings

Rex Moncur (VK7MO) has been doing the rounds of the Southern and North West branches talking on the Cape Hauy DXpedition (as outlined in QRM last month and featured in this edition) and airing his thoughts on implementing and assessing the new EMR regulations. The talk notes and assessment form have been made available on the VK7 Division website for amateur use.

In the North West branch Terry Ives, VK7ZTI has been showing members around the Moina power station in the Mersey-Forth hydro scheme. The Branch also held their annual March BBQ in Ulverstone.

The Northern Branch held a couple of "members and partners" dinner meetings in Launceston with speakers from the Weather Bureau and on topics such as "Drug Awareness in Australia".

The Southern Branch has been entertained by Mr David Edwards, an Engineer from the U of T talking about the Fred "Pop" Medhurst (A7AH) empire, a true Tasmanian radio pioneer. The branch also held a broad discussion about the different entry-level licence models.

Travelling around Tassie?

If you are travelling in Tasmania and are around when a branch meeting is scheduled then you are most welcome.

Southern Branch

Meetings are held on the first Wednesday of every month at 20:00 in the Queen's Domain clubrooms. The clubrooms are the former OTC Marine Radio station at the very top of the Queen's Domain in Hobart.

There is a social afternoon each Wednesday from approx 12:00 until 16:00 at the same venue. Call in and have an "*eyeball ragchew*" and share your experiences. You are welcome.

Northern Branch

The Northern Branch meets monthly on the second Wednesday of the month at the Institute of TAFE, Alanvale Campus, Block B, Launceston at 19:30.

North West Branch

The North West Branch meets monthly on the first Wednesday of the month at Penguin High School, Penguin at 19.30.

73, Justin Giles-Clark VK7TW

Club Notes

VK3IRL, the callsign of BASS amateur Radio IRLP group Node 6330

In December last year we had a request from the YL International IRLP Net for our node to link up and take on the YL net in Australia.

The outcome of the request, made through Elizabeth VE7TLK– Glenna VE7DSCis that it has been picking up momentum with other nodes worldwide with more joining in.

After all, this is an opportunity for the YLs to make a contact and be able to use their radios. Our group would love to have those YLs who could make themselves available on a regular basis become members and be the net controllers in Melbourne.

The YL International IRLP Net goes to air on the 1st and 3rd Tuesday of each month, starting at 10.30 am local time for check-ins and crosses over to the net in Canada at 10.45am .

For more information look up the internet http:// www.barirlp.cjb.net or www.qsl.net/vk3irl.

ar

Bill Magnuson VK3JT

At last... The mast...

Last month I finally got around to repairing my antenna system which was damaged in storms late last year.

Repair involved tilting the mast over to the ground and straightening up a few things. While it was easily accessible I decided to do a bit of preventive maintenance.

As it turned out the beams, polarity switching relays and rotators were in very good condition. In fact, apart from a few minor adjustments the whole installation checked out OK. That's not bad considering the AZ/EL system has been in operation for over 10 years and in that period has withstood the rigors of moving QTH and several wild storms.

The beams are KLMs and the rotator is a Kenpro. I checked out the co-axial cables with the wonderful little gadget described by Geoff VK2ZAZ in the Amsat-VK newsletter No.65 back in 1990. I re-visited Geoff's article in this column in November 2000. The gadget is essentially an RF voltmeter terminator built around a BNC connector. It can be plugged into one end of a suspect piece of co-axial cable and used to measure losses.

Once again this tiny device proved its worth. The cables checked out OK and it was with a glad heart that the mast was winched back into position.

But the proof of any pudding is in the eating – so – with a fresh set of Keplerian elements in the tracker, the system was fired up on the late evening pass of UO-22.

I was delighted to see the "S" meter swing hard over as the satellite came up over the horizon and it remained there for most of the pass. Within a few seconds a message flashed across the screen telling me that the computer clock had been updated by the clock on the satellite. Having been off-air for so long it took a few minutes to update the directory information but I still had time during the pass to upload a message and send a real amateur radio reply to an email from a friend who I know monitors UO-22 every day.

It was also something of a minor miracle that all the computer equipment still worked. I was reminded the other day of the age of that gear while talking to a friend who likes to keep up to date with his computer gear.

His latest has a processor running at over 2 GHz and is equipped with – believe it or not – a gigabyte of RAM with room for two more GB! It's sobering to realise that all the digital satellite gear is running on an ancient IBM machine equipped with ISA ports. One supports the Kansas City Tracker/Tuner and the other supports the Quorum weather satellite receiver/decoder.

I believe one can still obtain computer mother boards with ISA slots if one tries very hard but many of the younger folk in computer stores these days either don't remember them or just smile sweetly.

It prompted me to think about the current situation of someone wanting to get started in satellite work and how they could quite easily encounter high hurdles on the way. As a consequence I'll put in some time next month preparing a summary of what is currently available in the way of computer controlled trackers that can be used on more modern machines.

The Real Cost of Supporting ARISS

ARISS International Chairman and AMSAT-NA V.P. for Human Spaceflight Programs, Frank Bauer, KA3HDO was asked recently for a cost breakdown for the ARISS program. Here is part of his reply on the AMSAT-BB. It makes interesting reading:

"The ARISS Budget discussion of the Board of Directors meeting is located on page 22 of this edition of the Journal. In it, I state that NASA has contributed approximately $150,000 in real dollars last year for ARISS related activities. The bulk of this funding goes to getting the internationally-based amateur radio hardware safety certified to fly on the Shuttle and the ISS. It also funded a portion of the development hardware, particularly the antenna systems, and the development of some educational and outreach materials that the team is using to promote the program.

AMSAT-NA has contributed approximately $34,000 last year to the program. The bulk of this ($18,000) was for travel. Since this is an international effort, face-to-face coordination is a must. The ARISS team had 2 international meetings in 2002 and we supported a very important trip to Russia. We also had several travel trips to NASA Johnson Space Centre to support several mission-critical activities.

The other big item in the budget is components - i.e. hardware development. Please read the January/February 2003 Journal to see what we did last year. We did a lot last year. This included the delivery of the 4 antenna systems, supporting 3 EVAs (Spacewalks), the IMAX Film debut, many school group contacts, and a balanced ham radio program.

The other item that was discussed in the board meeting that should be addressed here is my assessment of the worldwide amateur radio volunteer support to ARISS. I stated that the amateur radio community is contributing approximately $5 million towards the ARISS program. This contribution assessment is not real dollars, but the volunteer time and talent contributions that the international community invests into ARISS. The space agencies look to metrics (measurements) to understand how a program is performing. One metric that they look at is the investment made by

the partners in an activity. We have a real-dollar investment and we have a volunteer time and talent contribution to the program.

How did I reach this $5 million *contribution investment? I estimated the number of hours spent by the international team to perform its duties and used standard aerospace cost estimation numbers to reach the numbers above. We have a number of countries involved in ARISS. We have had to develop a lot of hardware (flight, flight backup, training, etc).*

Performing school contacts requires a big, local team that works together for weeks to make the contact a success and to make it meaningful from an Educational perspective. We have a large team that is working with the space agencies to schedule these contacts and to coordinate with the local school volunteers. We have several weekly international teleconferences to make sure the program is on-track and moving forward. As you can see, there is a lot going on internationally. When AMSAT or universities quote a satellite development cost, they never include the equivalent volunteer time contribution. They don't have to because they are not a partner with the space agencies in a program like ARISS.

Now, I am sure a question that will be asked is whether this investment is worth it? The ARISS program inspires students to pursue careers in math and science and to become ham radio operators. These aren't just words. I have seen it happen. The students never forget this event. The teachers are inspired for years to come and several install amateur radio stations in the schools permanently.

There are two major shortages that are affecting us as a nation and as a worldwide community. These two shortages are the lack of young people in the amateur radio hobby and the lack of students pursuing science and math careers. The ARISS international volunteers invest so much time ($5 million worth) because they believe in the program. They are inspired by the students, by the astronauts and by our ability to fly hardware on one of the most complex engineering projects known to humankind.

They know that they are making a difference in growing the amateur radio hobby and getting students inspired in math and science careers. Please understand that my definition of an ARISS volunteer is anyone, worldwide, that helps support the ARISS program and its ideals. It includes the ARISS international delegates, the AMSAT-NA volunteers, the volunteers from all the international countries that make ARISS happen, our Russian colleagues led by Sergej Samburov, the ISS Fan Club, and hardware development teams such as the MAREX team, the Naval Academy team, AMSAT-Italy, etc.

Thanks Frank, I know that will be of interest to the many Australian volunteers who have given time to the ARISS project and its predecessors over the years. It may also serve to inspire others to take part in what is a huge international effort that does Amateur Radio proud.

Shuttle disaster delays some ARISS Activities

The entire space shuttle fleet has been grounded pending the oUTCome of the inquiry into the Columbia disaster. This has had an impact on the ARISS program.

More from Frank Bauer. Bauer says that the only major setback for ham radio so far concerns upgrading the ISS ham station itself. With the shuttles not flying, consumables like food and water are the highest priority items to be launched on the upcoming Progress re-supply missions. This means that the ARISS hardware that was planned to be flown this year will probably be delayed. The gear waiting for transport includes the Slow Scan Television equipment, plus Kenwood D700 and Yaesu FT-100 radios and the Naval Academy's PC Sat 2 ham satellite. Bauer says that this equipment will be kept ready for any upcoming transport flight opportunities to the ISS. The good news is that the opportunities for school contacts will remain the same. Look for them at a rate of at least two a week. Maybe more if the Expedition 7 crew finds itself with extra free time. For the latest ARISS announcements and news, visit the ARISS news website, http://www.amsat.org/amsat/ariss/news/arissnews.txt

And for a list of scheduled school contacts,

http://www.amsat.org/amsat/ariss/news/Successful_ARISS_schools.rtf

Secretaries Please Note

***Club Notes* and *Division News* are in *AR* for the benefit of your organisation and amateur radio.**

Please use the facility and advance the hobby by providing us with information about your activities.

AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding
AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034

Graham's email address is: vk5agr@amsat.org

Contest Calendar May - July, 2003

May	3	IPA Contest (CW)	
May	3/4	10-10 Intl. Spring QSO Party	
May	3/4	ARI International DX Contest (All)	
May	4	IPA Contest (SSB)	
May	10/11	Volta RTTY DX Contest	
May	10/11	CQ-M International DX Contest (CW/SSB/SSTV)	
May	16/17	Anatolian WW RTTY Contest	
May	17/18	King of Spain Contest (CW)	
May	24/25	CQ WW WPX Contest (CW)	(Mar 03)
May	24	VK/trans-Tasman Contest (SSB)	(Apr 03)
May	31	QRP Day	
Jun	7	VK/trans-Tasman Contest (CW)	(Apr 03)
Jun	7/8	ANARTS WW RTTY Contest	
Jun	7/8	WW South America Contest (CW)	
Jun	14	Asia-Pacific Sprint (SSB)	
Jun	21/22	All Asian DX Contest (CW)	
Jul	5	Jack Files Contest (CW/SSB/PSK31)	(May 03)
Jul	5/6	Original QRP Contest (CW)	
Jul	19	Pacific 160 Metres Contest (CW/SSB)	
Jul	19	Colombian Independence Day Contest (CW?SSB?RTTY)	
Jul	26/27	Russian RTTY Contest	
Jul	26/27	Venezuelan Independence Day Contest (CW)	

Jack Files Contest 2003

from John Spooner VK4AJS, Contest Manager

Saturday, 5 July, 2003
0800z – 1400z

This contest is sponsored by the WIAQ Division and is in honour of the late Jack Files, a long-serving VK4 WIA councillor.

Object is for amateurs to work as many other amateur stations, and particularly as many different VK4 shires and towns, as possible.

Date: Saturday, 5 July, 2003

Time: 0800UTC – 1400UTC in six one-hour blocks for the purpose of duplicate contacts.

Band: 80 metres only. Use 3.5MHZ – 3.7MHz to put all licence grades on an equal footing.

Modes: Either CW; SSB; PSK31, or All Modes

Categories: Single Operator; Club Station

Exchange: Non-VK4 stations will send RS(T) plus serial number starting at 001 and incrementing by one for each contact. VK4 stations will send RS(T), serial number and two-letter shire or town code for purposes of multipliers.

Score: One point per contact

Multipliers: Each VK4 Shire or Town counts as a multiplier.

Final Score is total QSO points X total number of multipliers.

Repeat Contacts: In order to make best use of the band, stations may be contacted once in each hour on each mode. These repeat contacts must not be consecutive.

Logs must show full details of all QSOs and must be accompanied by a Summary Sheet showing operator's name; address; callsign; category and mode entered; claimed score and a declaration that the rules and spirit of the contest were observed.

Send logs by mail to: Files Contest Manager, PO Box 1006, Yeppoon, 4703. Logs may be sent by e-mail in text format to: vk4ajs@optusnet.com.au

Closing date for all entries is 7 August, 2003

Certificates will be awarded to the top scorers in each mode in each VK State, ZL, P29 and any DX country (i.e. country outside VK, ZL or P29).

continues over

A correction to the results for the November 2002 Field Day: VK3AEF operated from QF04 and the fourth operator listed should have been W. Day, VK3SWD.

JACK FILES CONTEST 2003

VK4 City/Town/Shire Codes

A	AC	Aramac;
	AL	Albert;
	AN	Arakun (R);
	AT	Atherton;
B	BA	Banana;
	BC	Barcaldine;
	BD	Bendemere;
	BE	Burnett;
	BO	Biggendon;
	BH	Bauhinnia;
	BI	Bungil;
	BK	Burdekin;
	BL	Baloone;
	BN	Brisbane;
	BO	Barcoo;
	BP	Bulloo;
	BQ	Booringa;
	BR	Burke;
	BS	Broadsound;
	BT	Beaudesert;
	BU	Bundaberg;
	BV	Boonah;
	BW	Bowen;
	BX	Blackall;
	BY	Belyando;
	BZ	Boulia.
C	CA	Caloundra;
	CB	Caboolture;
	CD	Cardwell;
	CF	Clifton;
	CH	Chinchilla;
	CK	Cook;
	CL	Calliope;
	CM	Cambooya;
	CN	Crows Nest;
	CP	Carpentaria;
	CR	Croyden;
	CS	Cairns;
	CT	Charters Towers;
	CY	Cloncurry;
D	DO	Douglas;
	DI	Diamantina;
	DL	Dalrymple;
	DU	Duraringa.
	DY	Dalby;
E	EA	Eacham;
	ED	Eidsvold;
	EK	Esk;
	EM	Emerald;
	ET	Etheridge.
F	FL	Flinders;
	FZ	Fitzroy.
G	OC	Gold Coast;
	GD	Gladstone
	OH	Gayndah;
	GI	Goondiwindi
H	HB	Hervey Bay;
	HK	Hinchinbrook;
	HT	Herberton.
J	JE	Jericho;
	JO	Johnstone;
	JY	Jondaryan.
K	KO	Kingaroy;
	KK	Kilkivan;
	KO	Kolan.
L	LA	Laidley;
	LC	Logan;
	LO	Longreach;
	LV	Livingstone.
M	MA	Mareeba;
	MB	Maryborough;
	MC	Mackay;
	MH	Murweh;
	MI	Mt. Isa;
	MK	McKinlay;
	ML	Milmerran;
	MM	Mt. Morgan;
	MN	Minrani;
	MT	Monto;
	MU	Mundubbera;
	MV	Miriam Vale;
	MX	Murilla;
	MY	Murgon.
N	NE	Nebo;
	NN	Nanango;
	NO	Noosa.
	PD	Peak Downs;
	PR	Pine River;
	PT	Pittsworth;
	PY	Perry.
Q	QL	Quilpie.
R	RC	Redcliffe;
	RD	Redland;
	RH	Rockhampton;
	RI	Richnmond;
	RM	Roma;
	RO	Rosalie.
S	SA	Sarina;
	ST	Stanhope.
T	TA	Tarra;
	TE	Torres;
	TM	Tarcoom;
	TY	Townsville.
W	WA	Warwick;
	WC	Woocoo;
	WD	Wondai;
	WO	Waggamba;
	WH	Whitsunday;
	WI	Winton;
	WO	Wambo;
	WR	Warroo.

(R) = restricted area for radio transmission (Shire entry permit required).

2003 Wadda Cup Contest

The Central Highlands Amateur Radio Club of Tasmania (CHARCT) will hold the 2003 80m Dash for the Wadda Cup on 21 June 2003.

The contest manager for the 2003 80 m Dash for the Wadda Cup is Keiran Blyth VK3BTV (winner of the 2002 event). As entrants found in the inaugural 2002 event, one major difference from other sprint type contests is that at the end of the 80 m Dash, a score roll call will be held to reveal the provisional winner of the Wadda Cup. The 2002 event was a closely fought affair. The winner's margin was just 2 points.

In keeping with the spirit of making the contest interesting and up to date, there are a number of changes to the 2003 event, including extending the contest time from 30 minutes to 60 minutes, inclusion of a SWL section and moving the date to June to give Northern, Central and Western Stations a better opportunity of participation.

Contest bonus

The contest also offers amateurs the opportunity of accumulating contacts for two Tasmanian awards. The CHARCT Tassie Trout Award is available to any amateur that makes contact with 14 CHARCT members. Full details, including the current membership list, are available on the club's website www.vk2ce.com/vk7cht

Also, the Tasmanian Division of the WIA has the Tasmanian Devil Award. Contact with 50 VK7 amateurs is the only requirement on HF. More details are available on the VK7 division website www.tased.edu.au/tasonline/vk7wia

Contest aims

- Encourage on air activity in a short, friendly contest.
- Provide amateurs with the opportunity of accumulating contacts for the Tassie Trout Award and the Tasmanian Devil Award.
- Encourage entry by first time contesters.
- Promote on air activity of VK7 amateurs. (The old mug might just return to Tassie).

The complete Wadda Cup rules are as follows -

Contest date and time

The contest will be held on Saturday 21 June 2003. The contest will be 60 minutes duration. The start time is 1030 UTC (8.30pm EST) until 1130 UTC (9.30pm EST)

Pre-contest announcements

The contest manager will operate as VK7CHT/3 (CHARCT club callsign) during the contest. Contact with VK7CHT/3 will earn 2 bonus points. VK7CHT/3 will not be eligible for the Wadda Cup or any contest award certificates.

All contestants are asked to listen on 3.585 MHz (+/-), 15 minutes prior to the start of the contest. CHARCT President Bob Geeves, VK7KZ, will give a short address and officially launch the 2003 80 m Dash for the Wadda Cup.

VK7CHT/3 will give a time check, on this frequency, 2 minutes before the start time.

Wadda Cup

General rules

1. The contest is open to all VK amateurs.
2. A station may only be worked once during the contest.
3. Sequential numbers, commencing at 001, shall be given and received for all contacts made during the contest. (RS numbers are not required).
4. The contest is phone only, using LSB on the 80 m band. Frequencies to be used are from 3.540 MHz to 3.625 MHz.
5. Maximum power is 100 watt.
6. Entry categories -
   a) Single operator entries only. No multi-operator entries are allowed.
   b) Short wave listeners (SWL).
6. The winner of the 2003 Wadda Cup will be the contest manager for the 2004 event. (This is not a great chore and there is plenty of support available for the contest manager through CHART). The Wadda Cup contest manager's guide will be made available and the guide details everything that the contest manager needs to know on conducting the Wadda Cup Contest.

Scoring

Category a)

i. Contact with any VK amateur scores 1 point.

ii. Contact with VK7CHT/3 scores 1 contact point plus 2 bonus points = 3 points.

Category b)

i. All recorded contacts score 1 point

ii. VK7CHT/3 may be recorded more that once, however, the 2 bonus points may only be counted once.

The contact and move rule

1. After calling CQ contest and establishing a contact, the calling station must move their calling frequency by at least 5kHz.
2. A station answering a calling station may make one call on the same frequency and exchange numbers with another station. The calling station must then move their calling frequency by at least 5kHz.

Example - VK7VH calls CQ contest on 3.560 MHz. VK7KZ answers the call and exchanges numbers with VK7VH. When the contact is completed, VK7VH must move frequency by at least 5kHz. VK7KZ may then call CQ contest on 3.560 MHz. VK2CE answers VK7KZ and exchanges numbers. VK7KZ must move at least 5 kHz etc etc.

Logs

1. All participants must keep a separate contest log sheet. Use 4 headings - UTC time, Station worked, Number sent, Number received.
2. SWLs should record UTC time, the call sign of both stations and the numbers sent by each station.
3. Retain your log for checking. You will be advised if your log is required by the contest manager, during the contest call back.
4. The contest winner, 2nd place contestants and all SWLs must send their log, post marked no later than 21 July 2003, to -

The 2003 Wadda Cup
Contest Manager
6 Ranfurle Road
Forest Hill
Victoria 3131

Logs must be legible and show the details required in Rule1 (Rule 2 for SWL) above. Attach a summary sheet showing the entrants callsign, name, address and claimed score. If your log is not received by the due date, you may be excluded from the contest results. You will be advised during the call back if your log will be required as a check log.

The winner

All contest participants are asked to listen for VK7CHT/3 on 3.585 MHz (+/-) immediately after the conclusion of the contest. Add up the number of contacts that you made, during the contest, and if you worked VK7CHT/3 add 2 bonus points to your final score. Follow the on air roll call to find out the provisional winner of the Wadda Cup and other contest award certificate winners.

1. The winner will be the entrant with the highest score.
2. Should there be more than one entrant with the highest score, an on air count back will be conducted by the contest manager. The count back will be based on the number of contacts made during specific time blocks. Although the count back procedure will be decided prior to the contest, details will only be revealed during the count back.
3. The provisional winner and 2nd place contestants will be declared official when logs have been received and checked by the contest manager.
4. The contest manager's decision will be final.

The awards

1. The winner will be awarded the Wadda Cup, suitably engraved, for a period of 12 months. The Wadda Cup is a classic silver cup and has become known as the "Old Mug". The winner will also receive the first place award certificate.
2. All 2nd place and 3rd place contestants will receive an award certificate.
3. The highest SWL score will receive a special contest award certificate.

Results

When the contest manager has verified all logs, the results will be published on the CHARCT website. Results will also appear in Amateur Radio magazine.

This year's event has been expanded to encourage participation from all VK amateurs and SWLs. The format of last year's contest was enjoyed by all and the time expansion from 30 minutes to 60 minutes should encourage participation from amateurs that are familiar with sprint type contests. The date and time change will better suit entrants from VK4, VK5, VK6 and VK8.

Whether you are a keen contester or someone that has not tried contesting before, we encourage you to have a go at this year's event. Have fun during the contest and don't forget to join in the roll call at the end of the contest.

Goodluck

Keiran Blyth VK3BTV, 2003 Contest Manager

The VK/ trans-Tasman Contest 2003 :

This exciting 80 metre Contest will be staged over two nights

Phone: *SAT 24th MAY*
CW: *SAT 7th JUNE*
Time *0800 Z to 1400 Z*

Both nights run for 6 hours, in 1 hour stages, - long enough to be interesting without being arduous, and providing constant activity with stations being reworked each hour. The main emphasis is on contacts between VK and ZL stations, with the scoring structured to give all stations an equal chance, regardless of their location or time-zone.

Bonus points can be earned each hour, and are awarded to encourage trans-Tasman contacts and participation by VK Central and Western zones. As well as Phone and CW, there are QRP Categories, and one for SWL's. An engraved trophy will be awarded to the outright winner, certificates for winners and placegetters in other Categories.

This Contest is not a sprint or a marathon. It will provide 6 hours of non-stop evening entertainment that should not intrude too much on family life or sleep time. So, make a note of the details, and give it a go!

The only thing we ask is that you take the time to submit your log (even if you don't think you will win). This is essential to make it all worthwhile, and to ensure the on-going success of the Contest. Rules were published in the Amateur Radio Magazine April Issue and NZART break-in, and are available on the Contest Webster: http://home.iprimus.com.au/vktasman

Email queries and comment to Contest Manager on: vktasman@hotmail.com

ar

An Amateur Radio Study Course by Graeme Scott VK2KE

Colwyn Low VK5UE

Graeme has kindly sent me his four book study course for the Novice and Unrestricted Amateur Licences.

Book 1 *'The Novice Operators Theory Handbook'*. Covers basic theory and is the main introduction to all the required study material.

Book 2 *'The Novice Operators Theory Study Program'* is a study guide which is used with each chapter of Book 1 to reinforce the subject matter and assure the students, they have mastered the subject matter.

Book 3 *'Amateur Radio Study Course'* is the bridging course from the Novice licence material in Book 1 to the depth necessary for the AOCP exam

Book 4 *'Radio Amateur Licence Study Guide'* is the study guide for Book 3.

Graeme is a well known Radio Amateur, who works hard to foster the hobby. This course is a further example of his dedication to introducing more people to our great hobby.

I have read through both study books and spot checked the study guides. Steve VK5AIM has also been through them. We agree the books together are a good course of study and are well matched to their goal: – an Amateur Licence for the student. The presentation of the books is good and the layout is easy to read. The style is well pitched to the new student. Several hundred copies of the course have already been sold.

As the author and I both agree no book is perfect (Not even AR) so I have a few comments. The use of abbreviations and the spelling of units are not consistent and there are a few places where material seems to be out of order. However these points should not prevent the student passing the exam.

In summary I could recommend the four book course to all and especially to those preferring to work from hard copy.

All books are available from Megjay Pty Ltd at PO Box 385 Albury NSW 2640. This is Graeme's company and he has been doing mail order for years and loves corresponding with the successful candidates! The prices are: -

Novice Theory $16.00 : Novice Study Guide $10.00

AOCP Theory $13.00 : AOCP Study Guide $10.00

Good Luck with your course.

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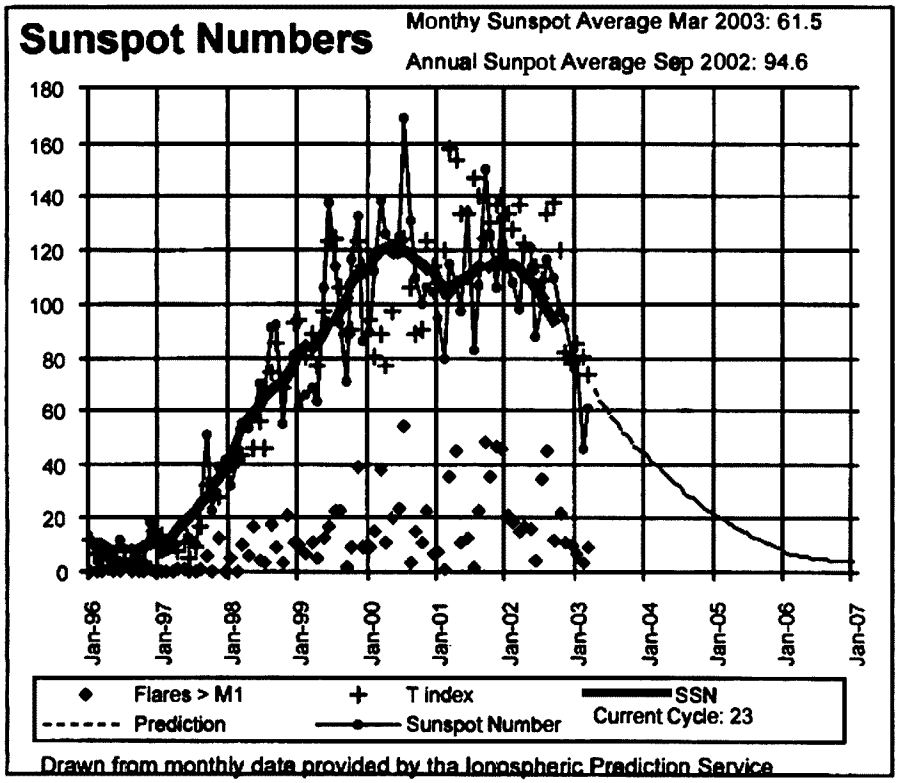

by Robin L. Harwood VK7RH

Iraq and ruin — the takeover of the airwaves

The 21st of March was the deadline was set by the US administration on the Iraqi regime of Saddam Hussein to comply with its directions to completely dismantle their so-called "Weapons of Mass Destruction" or face the consequences.

The deadline passed at 9 pm Eastern Daylight Time which corresponded to 0200 UTC. At 0230 the first air raid took place in the southern suburbs of Baghdad at a reported target of Opportunity with the majority of electronic media relaying a live video feed from Baghdad.

At 0253, Ari Fleisher, President Bush's Press spokesman, came into the pressroom of the White House to confirm that hostilities had commenced and that the President would be making an address to the Nation at 0315.

Unfortunately I was unable to receive anything here in this retirement village at that hour yet I was certainly able to follow developments from the Internet until propagation came in about 0700. All the major international broadcasters had pre-empted their normal programming from when the deadline was first announced.

The major US Military channels had been extensively monitored for many months leading up to this point yet little was given away as communications security was extremely tight. Once hostilities did erupt there was a noticeable increase in traffic but it was very difficult determining where it was coming from.

I must admit I was glued primarily to the television networks in the early stages but relied on shortwave for in-depth analysis and background which was lacking from the jingoistic American TV networks. They were treating it as a live reality TV show, whereas the various international and domestic shortwave broadcasters provided quite a contrasting viewpoint on the conflict.

Many broadcasters were live around the clock with updated reports and news analysis whilst the TV ended up screening the same items because there was nothing to show.

The Americans and British and our small contingent pressed on with sporadic resistance and in 20 days were within Baghdad and there are indications that the Iraqi regime could implode, leaving a vacuum. The Americans have indicated that they wish to have a controlling say on how the new Iraqi government evolves and minimise the involvement of the UN. Strategically the presence of a large American military contingent has altered the balance of Power within the Middle East.

As I did allude in last month's column, I do expect that the Americans will rapidly establish relay bases for their external broadcasts on Iraqi soil. The senders that Iraq possessed were destroyed in bombing raids including the clandestine operation on 7070. We now know that it was based pretty close to Basra in the south and to the Iranian border.

Also expect that the various psychological warfare senders of the Americans and British will eventually become absorbed into the new domestic broadcasting organisations. I did manage to hear "Information Radio" once on 9715 at about 2100. It came in best on USB but the channel is also utilised by many other broadcasters, making reception of this clandestine very marginal

Meanwhile— elsewhere

Germany

Deutsche Welle now based in Bonn, have ceased their English transmissions to Australia and North America and also cut back their German language transmission hours.

This was a highly unusual decision coming at the peak of the Iraqi war. Alternative channels to other areas have been given but they are not as good as the previously targeted broadcasts to Australasia.

One channel of 9720 was useless for a week, due to a lack of co-ordination with the BBC World Service. The Singapore relay was co-channel with their Indonesian service also to Asia. They eventually shifted 10 kHz up, allowing the DW English service from Sri Lanka to be easily heard on 9720.

BBC World and VOA

The BBC World Service in English is now easily heard on 9740 at 2200, which was very welcome after DW's departure. Also the VOA has now shifted down to 9705 from 9760. Iran on 9870 however is co-channel with another Arabic station, possibly R. Sawa from Washington.

Looking forward

Well it is now winter and it is going to be very interesting with fewer broadcasts to North America. This could allow others to be easily heard. As previously mentioned, the digital broadcasting platform, DRM is commencing next month via DW. Others are scheduled to gradually increase their DRM output when more DRM receivers are readily available.

Austria will be continuing broadcasting via shortwave but not from its International service, which has been disbanded. Instead they will relay one of the domestic services as a filler. The senders at Mosbrun are hired out to various organizations such as Adventist World Radio, Radio Canada International plus sundry Ethiopian clandestine broadcasters.

Well that is all for this month. Remember that you can email your news to vk7rh@wia.org.au.

73 Robin L. Harwood

Ham Shack Computers

Alan Gibbs VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 25 – OpenOffice Review

Scanning through advertisements for affordable operating systems and office software packages suggests that prices are now going through the roof. Even the cost of so-called 'upgrades' can be prohibitive and assumes that users have the earlier version on their computers. Today, the cost of legal software outstrips the cost of a brand new computer system! It's cheaper and easier to upgrade computer hardware, but upgrading the software is another matter – usually well outside the shallow pockets of most Radio Amateurs. There is another way that might just be for you, and it'll cost you nothing!

Open Source Software

For many years, mainframes and servers used by Internet Service Providers (ISP), governments, military, and businesses have been using UNIX and Linux operating systems. Linux (4) is a development of the original UNIX system based upon 'Open Source' (5) - meaning that the raw core code of the software is freely available to other writers and developers. As a result, there are many different derivatives of the Linux operating system. On the plus side, Linux is free of copyright, has thousands of free, add-on, open source applications, and now comes with a 'Windowed' Graphical User Interface (GUI). On the negative side, Linux is generally more difficult to use compared to Microsoft Windows products for newcomers to computing.

Background Brief

Popular software is always being upgraded, requires 'patches', might only work on some systems and not others, needs to be 'registered' before working properly, or is subject to the ubiquitous 'blue screen of death' and won't work at all unless the system is rebooted!

However, most Linux developers have tried to build a solid, trouble free operating system that could be an alternative to the more dominant Microsoft products – AND to offer Linux products free of cost worldwide. Microsoft Office packages have become 'the worldwide de-facto standard' especially if document interchange is effective between users.

Paying over $400 for a full copy of Microsoft XP that can only be legally used on one computer AND has to be registered online has become beyond financial sustainability for many users.

Adding $900+ for the full cost of Microsoft Office XP and the whole concept becomes ridiculous. Readers might argue that these OEM software products (Original Equipment Manufacturer) are cheaper if bought at the same time as purchasing a new computer. This is true to some extent but wait until the next 'upgrade' is due!

Industry Trends

Corporate industries and educational institutions (5) pay huge sums of money for licensed software on servers and personal workstations. Upgrade costs become prohibitive when business activities must be kept efficient, fault free and the productivity must be compatible with the 'Microsoft Office' interchangeability syndrome.

Try sending a WordStar or WordPerfect document to the editor of this publication, a friend or business associate – and wait for their cries for help!

These days, thousands of high school, TAFE and university students need to use computers for their studies. Imagine if the full cost of mainstream software were added to the cost of the computer, study guides, textbooks plus the upfront government HECS fees!

Even the lower cost of 'academic software packages' is still far too expensive for most RA enthusiasts.

Radio Amateurs

Why do most Packet Radio and IRLP nodes use Linux? – because the Linux operating system is free, and usually more stable than other high-priced commercial products. For RAs who experiment with their computer(s), the cost of software exceeds the deepest junk boxes and is beyond those surviving on a tight budget.

Not only do RAs need a stable operating system (without the mandatory encumbrance of 'on-line verification'), but also need to interchange with 'MS Office' for word-processing, databases, spreadsheets, HTML writing and drawing programs.

Open source program writers have produced similar packages to Microsoft Office that run on Linux, Windows, and Macintosh systems.

Examples include OpenOffice (2) and StarOffice (3) each claiming compatibility with Microsoft Office but costing virtually nothing to use. One argument being that today, Microsoft Corporation now has real competition in the worldwide marketplace!

Conversely, try loading Microsoft Office 97-2000 onto a Linux operating system and see just how far you'll get! Thankfully, times are now changing in favour of Open Source software, which benefits all assertive RA's in their quest for continued experimentation and enjoyment.

OpenOffice.org 1.02

Released in mid-2002 as version 1.0, OpenOffice.org is 'taking off' as a major competitor to Microsoft Office in business, education, and especially in

home personal computer systems.

The 'Office' suite includes Write, Calc, and Impress - each similar in operation to MS Word, Excel, and PowerPoint. Whilst there are variations in the 'look-and-feel' of these new programs, most of the GUI controls do much the same.

Downloading OpenOffice (50MB!) can take ages (4½ hours in the writer's case!) with a groggy 56KB dial-up connection, but broadband readers will jump for joy provided they don't over stretch their allocated download monthly ISP limit. Download packet errors can be a nuisance and may cause installation or operational errors, so the alternative is to use OpenOffice taken from popular magazine CD-ROM's (6). In the writer's case, it took just 20 minutes to faultlessly install the suite and test its Write and Calc compatibility using this edition of Ham Shack Computers that you are now reading!

Readers with a few spare dollars can purchase the OpenOffice version 1.02 CD-ROM by post or on-line (4) – but make sure you ask for the Windows compatible version!

Once installed, open Write and look through the functions of each button and the drop down dialogue boxes. Many of the common tasks found in MS Word are common in OpenOffice Write. Open an MS Word document in OpenOffice to see if it imports without error. You'll be surprised at the results! OpenOffice has the options to save documents in the default OpenOffice format, or in MS Word (filename.doc) meaning that the file can be retrieved in MS Word again.

Windows XP users might find that if a .doc file is 'clicked' from My Documents, XP will open the file in OpenOffice instead of MS Word. To fix this problem, right 'click' the filename and select Open with... then choose MS Word. Apart from small differences between the two programs, and some practice,

Write certainly does the job nicely. Calc is almost identical to Excel. Again, search the button functions and you'll be handling spreadsheets like a pro in no time. Both Write and Excel will save in MS formats making interchange with other users very easy, although this is not the case with Coral WordPerfect 8.

The OpenOffice.org HTML Write also does the job well with few exceptions. One problem is that a non-printing hard return in HTML (<BR>) seems impossible without editing in raw code! However, the writer believes that a 'fix' to solve this is not far away.

StarOffice 6.0

Sun Micro-systems offer a similar 'Office' package that has been authored using the same core as OpenOffice, but with a richer operating environment. The cost for the SOHO suite is US$75, and US$25 for the academic version. Registered users also have the privilege of on-line support, which, compared to the cost of the Microsoft equivalent is still a huge advantage for our readers.

For Windows Users

Open Source Office suites are here now and widely used as alternatives to MS Office products. Millions of computer users are considering the long term options, so now is the time to make up your mind, rather than being trapped by the continuous, high priced MS 'upgrade' syndrome all over again

Staged Transition

For Windows 98/SE, ME, 2000 and XP users, it's worth trying OpenOffice.org or Sun Microsystems StarOffice as the first step into Open Source products. Linux users already have these products packaged with Redhat 8.0 and Mandrake 9.0 operating systems, and are well practiced in their use. Do some homework by trying these new products, consider which way the professionals are heading – and save big money!

Summary

Power users will already know that a brand new computer (4), loaded with Redhat 8.0 and OpenOffice 1.02, with 128 MB of RAM, a 30 GB hard drive, powered by a Via EPIA 8000 motherboard all running from a 12-volt plug pack is selling for less than A$700!

This price is well below the cost of Microsoft XP Professional, and could end up being 'THE' Ham Shack Computer in the near future. How much did you say that you paid for your new computer AND software? Just following the tips from this series has saved readers thousands of dollars in the long term.

Radio Amateurs should, by definition, still be innovators and experimenters rather than 'black box' operators. However, there's nothing wrong with using 'black boxes' – it's what you connect to them that promotes innovation. Perhaps the computer has finally replaced the soldering iron in the modern Ham Shack, but these days the words 'Home Brew' also means experimentation with computer software that has overtaken constructing projects using individual electronic components. No more solder blobs stuck to the XYL's carpet! It will cost you nothing to try one of the Open Source Office Suites. You have absolutely nothing to lose – yet everything to gain. Go for it!

Ham Tip No. 25. For readers seeking links to all the software and tips mentioned in this series, just 'click' onto the Ham Shack Computers Web Site (1) and save time and money!

Ham Shack Computers, Part 26 – "Linux for Amateurs" next month looks broadly at the arguments for converting to Linux, and what's 'in it' for Radio Amateurs. If readers are still bewildered, just send the writer an E-mail and keep the 'Ham Spirit' alive.

Radio Amateurs should, by definition, still be innovators and experimenters rather than 'black box' operators.

References:

(1) Ham Shack Computers Web:
http://www2.tpg.com.au/users/vk6pg
(2) OpenOffice.org software at:
http://www.openoffice.org
(3) Sun Microsystems StarOffice at:
http://www.sun.com/software/star
(4) Linux and applications software at:
http://www.everythinglinux.com.au
(5) The Lure of Linux in: Australian Personal Computer (APC) Magazine. December 2002. pp 118-123.
(6) OpenOffice.org version 1.0 for Microsoft Windows 95-XP. Australian Personal Computer (APC) Magazine. Attached CD-ROM. October 2002.

73s de Alan, VK6PG

ar

HF Predictions

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

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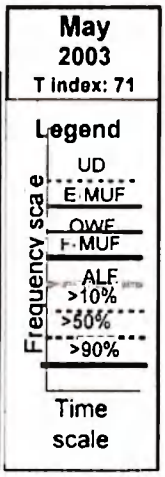

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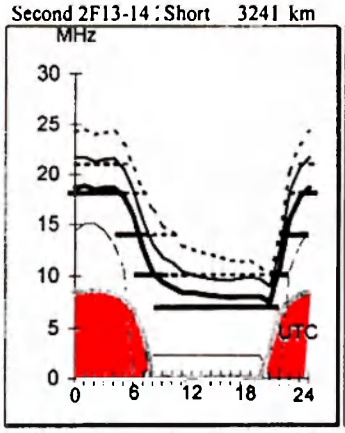

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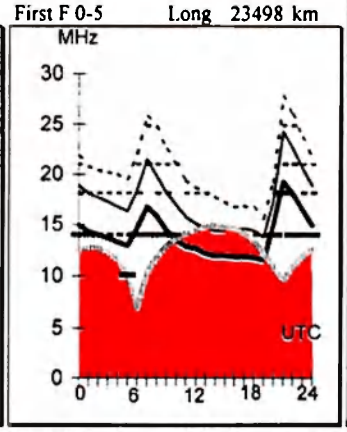

Adelaide-Cairo 288
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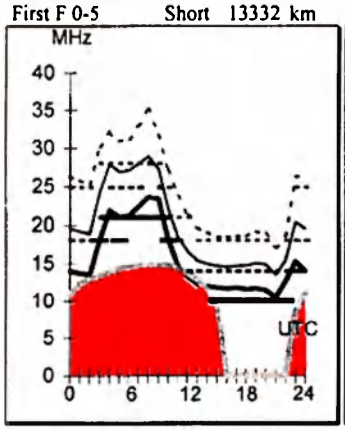

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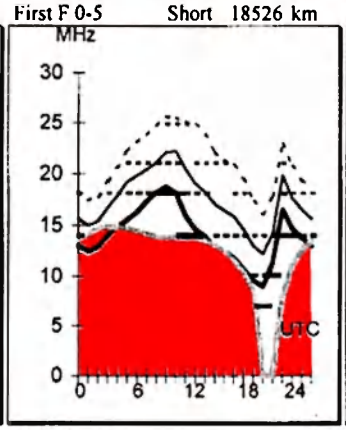

Canberra-Moscow 317
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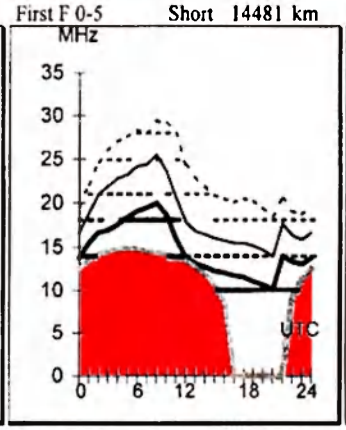

Darwin-Manila 340
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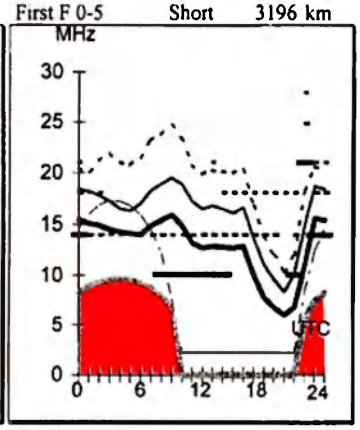
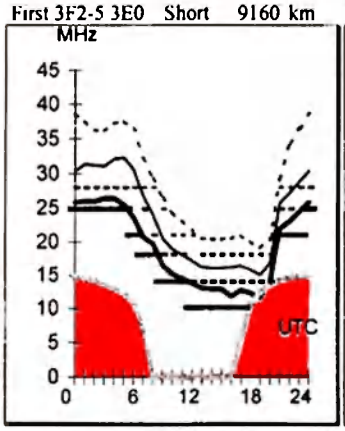


Adelaide-Honolulu 57
First 3F2-5 3E0 Short 9160 km



Brisbane-Ottawa 52
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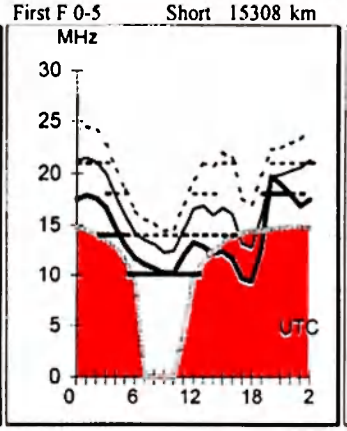

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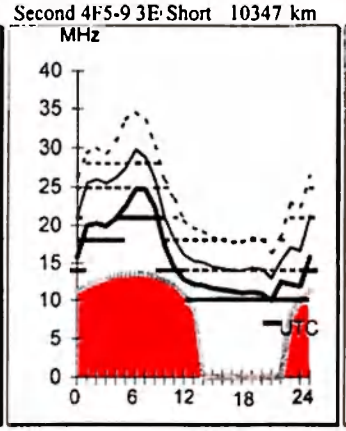

Darwin-Santiago 157
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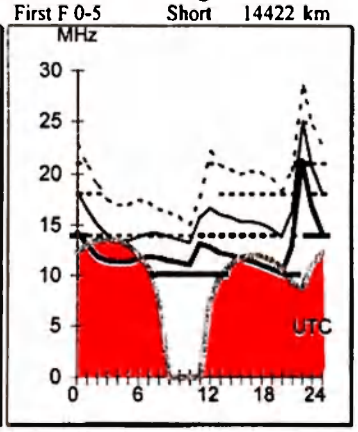

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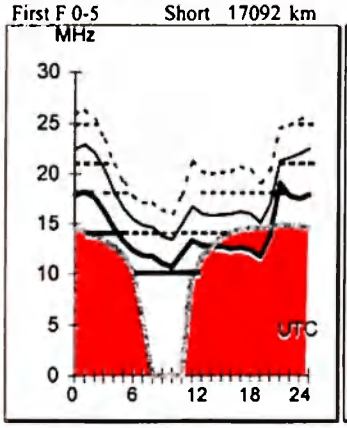

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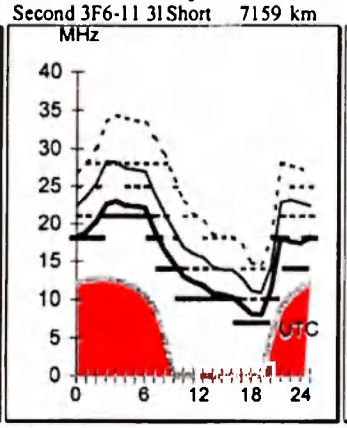

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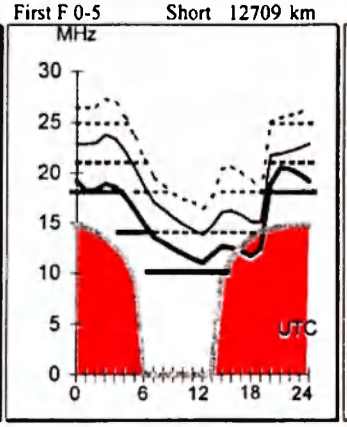

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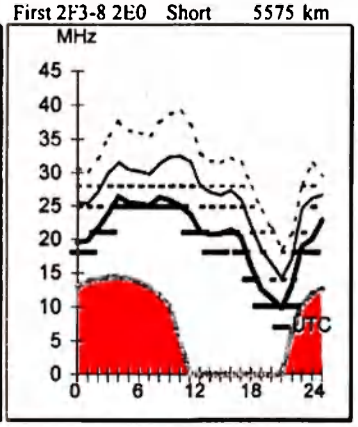

Hobart-Barbados 134
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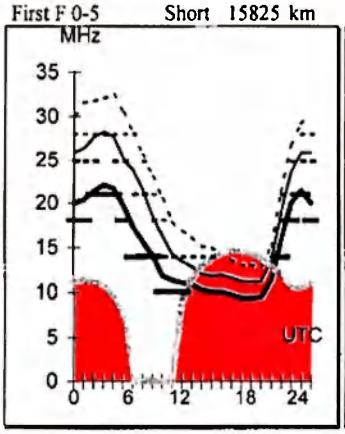
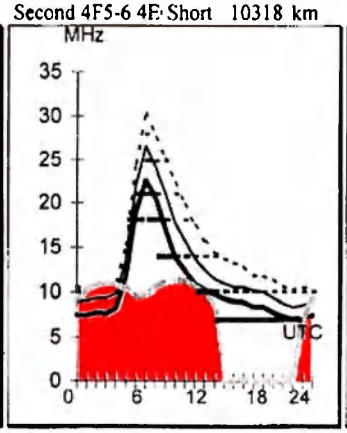


Melbourne-Capetown 222
Second 4F5-6 4E Short 10318 km



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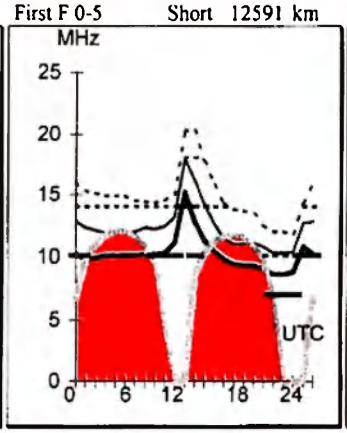

Sydney-Budapest 306
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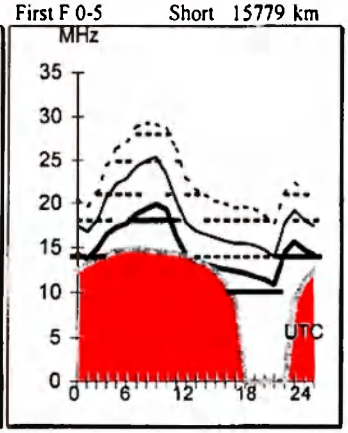

Hobart-Lima 133
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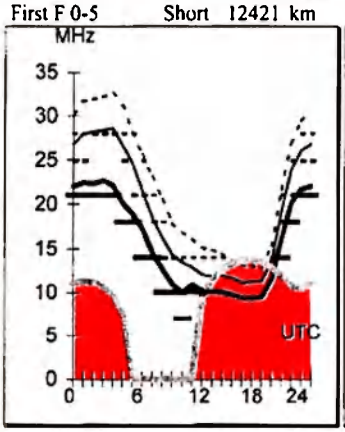

Melbourne-Miami 94
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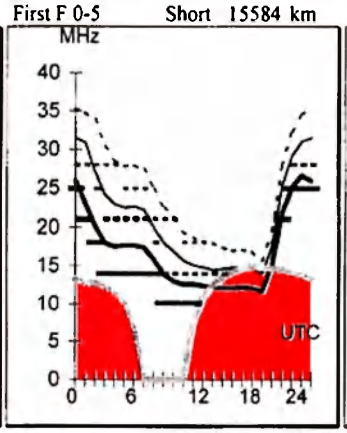
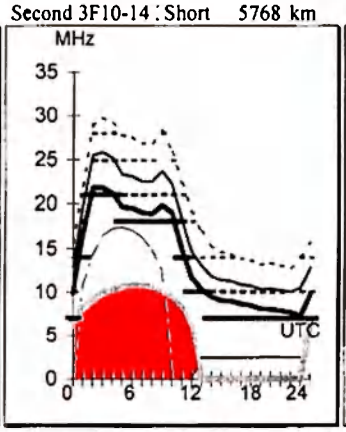
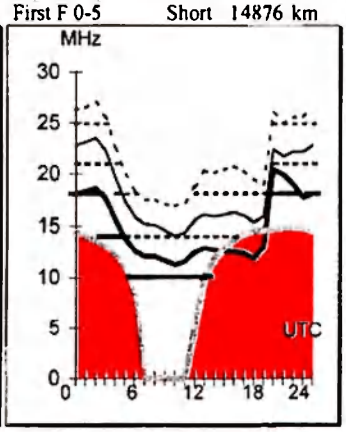


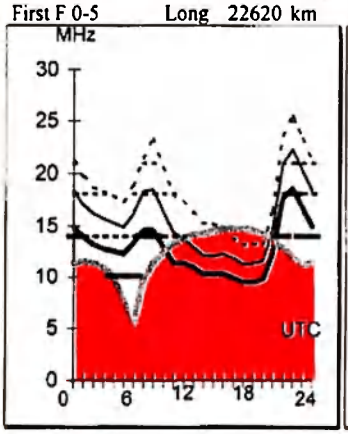
Perth-Columbo 312
Second 3F10-14 Short 5768 km



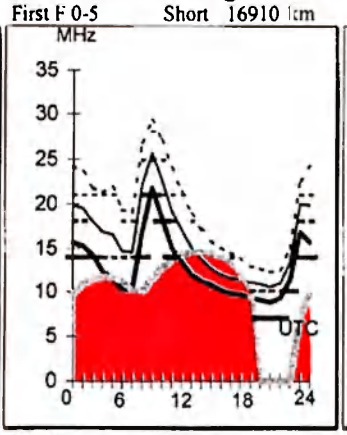
Sydney-Chicago 62
First F 0-5 Short 14876 km



Hobart-London 123
First F 0-5 Long 22620 km



Melbourne-Senegal 219
First F 0-5 Short 16910 km



Perth-Osaka 17
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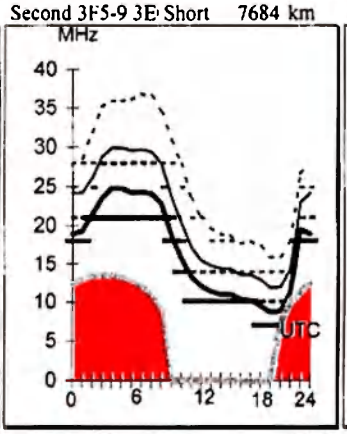

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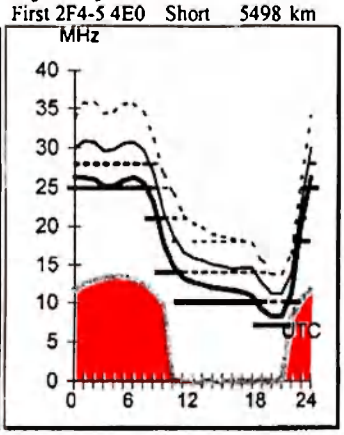
First 2F4-5 4E0 Short 5498 km



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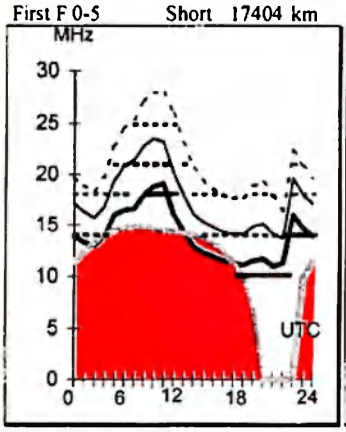
First F 0-5 Short 17404 km



Melbourne-Suva 65
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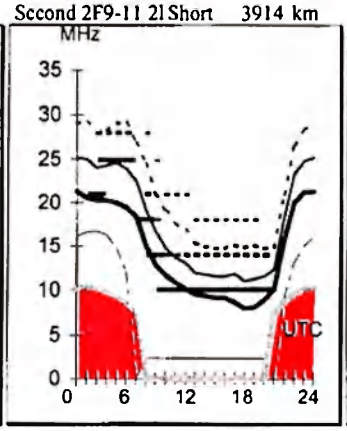
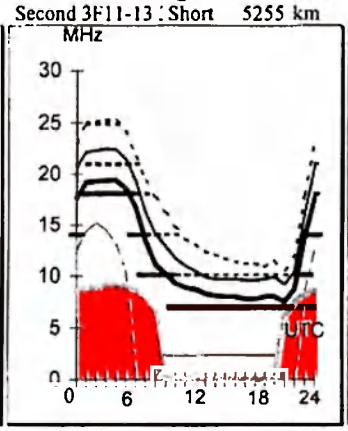


Perth-Wellington 119
Second 3F11-13 Short 5255 km



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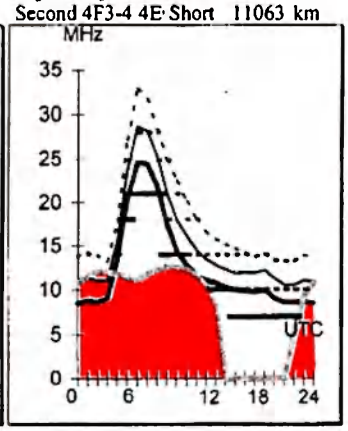

How's DX?

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AR not immune to change

The hobby of amateur radio is not immune to the changes taking place in today's society. For many years the global amateur population has been declining, admittedly more markedly in some countries than in others, but on the whole the trend is definitely downwards. In fact it was not so long ago that our own national society, the WIA, was seriously considering its future. A recent edition of the Italian '425 DX News' carried the following news item by Fred, K3ZO. "LCRA (Liga Colombiana de Radioaficionados) to be dissolved. My old friend HK3DDD has just informed me that postal rates in Colombia were doubled as of January 1, 2003 and it now costs the equivalent of US$2.00 to send a letter from Colombia to the USA", Fred, K3ZO goes on to say "It now costs HJ/HK hams the equivalent of 13 cents per QSL to send outgoing cards through the bureau, but anyway the bureau won't be available any longer because the Colombian IARU-member society LCRA is meeting this Saturday, 1st March, to dissolve itself, since with only 200 paid-up members and US$8000 of debt it feels it can no longer stay in business. Beto also says that Colombian hams have stopped calling CQ and running stations because they can't afford to handle the consequences economically. Colombian DXers are simply searching and pouncing these days, looking for new countries for themselves". Fortunately, VE3EXY reported after the meeting that the existing members decided not to wind up the LCRA affairs and the league will continue to survive for a while yet.

I admit that Australia is not Colombia, and certainly the WIA is not quite in the position the LCRA finds itself in, but the WIA still has a membership problem. Without a strong national membership the various WIA services we all so often take for granted may well not be able to be funded or provided for in the future. Everyone, members and non-members alike, whether you only 'tinker' in amateur radio or only occasionally work a bit of rare or long-haul DX profit from the services of the WIA. Everyone will sorely miss these services and facilities if, by unfortunate chance, the WIA ever finds itself in a similar situation as the LCRA.

Talking about 'tinkering' in amateur radio, another report from 425 DX News by Sylwester Jarkiewicz, SP2FAB, reveals that Poland has authorised amateurs to use the LF spectrum from 135.7 – 137.8 kHz on a secondary basis. Output power is limited to 1 watt EIRP on CW. I wonder whether it is time for VK amateurs to begin petitioning for access to this band.

The DX

3D2, FIJI. Andre, GM3VLB is heading to Fiji on holiday. He says he will be on air as 3D2LB from Beachcomber Island (OC-121), Fiji from the 26th until the 30th of May. QSL direct only to GM3VLB. [TNX GM3VLB and 425 DX News]

3X, GUINEA. Leo, UT1WL is currently stationed in Conakry (Guinea) and has been issued with the callsign 3XY1L. He will be using a TS50 on 20 and 15 metre using simple dipoles until he can arrange for alternative antennas for the other bands. Listen for Leo after 1800 UTC especially during the weekends. QSL via UY5XE either direct to George Chlijanc, P.O. Box 19, 79000 Lviv, Ukraine or via the bureau. [TNX UR5WCW and 425 DX News]

9N, NEPAL. Dov, 4Z4DX is planning to be active as 9N7DX from the 21st of April until the 15th of May. Activity will be on 160 - 6 metre using CW and digital modes. QSL via 4Z4DX. [TNX 4Z4DX and 425 DX News]

9N, NEPAL. Hugo, LA5YJ/9N7YJ has recently returned to Kathmandu, Nepal on a U.N. assignment. He has equipped himself with a modern transceiver and trapped dipoles for the 160, 80, 40, 30, 17 and 12 metre bands. An amplifier is also in his sights. Hugo says that he does not operate using digital modes. QSL direct only to Bjorn Hugo Ark LA5YJ, Rute 504 - Paulsrud, NO-2840 Reinsvoll, Norway. [TNX LA6FJA and 425 DX News]

BU2, TAIWAN. Mark Kawasaki, JJ1TBB has been authorised to operate as BU2/JJ1TBB from Taipei. Mark is expecting to be staying in Taiwan for at least the next three years. QSL via JL1ANP. [TNX JJ1TBB and OPDX]

C9, MOZAMBIQUE. Max, IZ4DPV () and Filippo, IK4ZHH () will be on air from Mozambique from the 20th of April until the 4th of May. They have been issued with the calls C93CM and C93FF respectively. The pair are planning to be on 80 – 10 metre using SSB and CW with some RTTY and 6 m work a possibility. Equipment will be 100 watt and TH7 and wire verticals. They also intend to participate in the ARI DX contest over the 3rd and 4th of May so if you want C9 have a listen over the weekend. QSL via their respective home calls CBA or via bureau. Note, E-mail or eQSL's will not be accepted. [TNX IZ4DPV and 425 DX News]

D2, ANGOLA. Joao, CT1BFL says he is planning on a long trip to Angola and expects to be on air until Feb 2004 signing as D2U. To date he has not been able to get on air but when he does his activity will be mainly on 160 - 10 meter running CW and SSB. QSL via CT1BFL. [TNX CT1BFL and OPDX]

FO, FRENCH POLYNESIA. Jean-Baptiste, F8DQL is planning to be active as FO/F8DQL from Tahiti (OC-046, DIFO FO-002) over the period of the 3rd until the 25th of May. Check +/- 28030, 21030 and 14030 kHz. He is also hoping to get in a trip to Moorea (OC-046, DIFO FO-010) during the same time frame. QSL via the bureau or to Jean-Baptiste Jacquemard, 241 Boulevard Voltaire, F-75011 Paris, France or via the REF bureau. [TNX F5NQL and 425 DX News]

HB, SWITZERLAND. The Amateur Radio Club of Vaud Canton, Switzerland

() has been granted permission by the Swiss authorities to use the special call HE2MM from the 1st of April until the 31st of December. Further details of the club and its activities can be found at http://www.hb9mm.com All QSOs will be confirmed automatically via the bureau. [TNX HB9DUC and 425 DX News]

JA, JAPAN. Taka, JR3TVH/6 says he will be active again from Miyako Island (AS-079). Activity will begin at approx. 0900 on the 1st of May until 1000 on the 5th. Taka is planning for activity on 6, 10, 12, 17 and 20 metre using SSB and CW. QSL via JR3TVH either direct CBA or via the bureau. [TNX JI6KVR and 425 DX News]

JA, Japan. Toshi, JM1PXG/6 says he has had to change his operating plans due to a change in the ferry schedule. He will be operating from Tokara Kuchino-shima (AS-049) on the 40, 20, 17, 15, 12 and 10 metre bands using CW only beginning on the 3rd of May until around 0000 UTC on the 5th. QSL via home call either direct or via the bureau . [TNX JI6KVR]

KH3, JOHNSTON ISLAND. John, KH3/KT6E is on a short assignment to Johnston Island and will be there until sometime mid-year. He operates as much as his free time allows and runs 100 watt and a long wire. QSL via the address at www.qrz.com [TNX KH3/KT6E and The Daily DX]

TU, IVORY COAST. David, F5THR will be visiting the Ivory6 Coast from the 23rd March until the 1st of July. While there he will be using the callsign TU5CD. QSL via F8BON either direct or via the bureau. [TNX La Gazette du DX and 425 DX News]

W, USA. The Fall River Amateur Radio Club is planning a trip to Martha's Vineyard (NA-046) and will be on air on all HF bands using the callsign W1ACT.Activity will take place over the 2nd to the 4th of May. QSL via N1JOY, Roland Daignault, 19 Davis Road, Westport, MA 02790, USA. [TNX RSGB and 425 DX News]

V7, MARSHALL ISLANDS. Neil, WD8CRT is currently active as WD8CRT/V73 from Kwajalein (OC-028) in the Marshall Islands. He says he will be there for his foreseeable future and has applied for the callsign V73NS. Neil is often on air after 1200 UTC, particularly between 00.00-03.00 UTC, try listening around 14029, 10116, 21004 and 28021 kHz. QSL via address on www.qrz.com [TNX WD8CRT]

YB, INDONESIA. Stan Matejicek, OK1JR will be living in the Czech embassy for the next few months. While there he will be on air as YB0AJR operating on 160 – 6 metre. He also has plans to travel to some of the Indonesian islands when and if he has the time. Stan has a website at www.ok1jr.com/ wher you can find more details. QSL via OK1JN (Stan's Father). [TNX OK1JR and 425 DX News]

Special Events

The 5th High Speed Telegraphy World Championship is being held in Minsk, Belarus over the 4th until the 8th of May. The event will be marked by the special event station **EW5HST** which is currently being aired by the event organisers. A website at http://hst2003.osto.by/ will reveal more details (although I'm not sure if the site will be in English). The station is often heard on 14030 kHz around 1800 UTC and later. QSL via EU1SA. [TNX EU1SA and 425 DX News]

Sam, VE3XAP, says that the Canadian authorities have allowed all VE, VO, VA and VY radio amateurs to use special event prefixes to celebrate the National Library of Canada's 50th anniversary over the period of the 24th until the 27th of May. **VE's can use CK, VO's can use CY, VA's can use CJ and VY's can use CZ.** [TNX VE3XAP and OPDX]

Club station PY3ARD has been allowed to operate the special callsign **ZW90S** during 2003 to celebrate the 90th anniversary of the Gerge Black Scout Group. This is the oldest Scout Group in Brazil and has operated uninterrupted since 1913. Plans are for the special callsign to be on air for the first time during the CQ WW WPX SSB Contest, but organisers say they expect to be quite active during the rest of the year as well. QSL both PY3ARD and ZW90S via the bureau or direct to Associacao dos Radioamadores da SOGIPA, Rua Barao do Cotegipe 400, 90540-020 Porto Alegre - RS, Brazil. [TNX PY3DX and 425 DX News]

The special event callsign **IR3IDO** will be on air from the 24th of May until the 15th of June to celebrate the 75th anniversary of the expedition to the North Pole led by General Nobile. History was made when the expedition went awry when the airship 'Italia' crashed and the survivors were rescued after radio played a pivotal role in the search and rescue efforts. QSL to IK3OYY via the bureau or direct to Fabrizio Bottaro, Via A. Manzoni 4, 35041 Battaglia Terme - PD, Italy. [TNX IK3OYY and 425 DX News]

Victor, RV3YR, says that he and a number of other operators from the Fifth Ocean Flight Amateur Radio Club will operate the special event station **RP3YGA** from Brjansk region over the period of the 5th until the 12th of May. The station will also take part in the CQ-M International DX Contest too. More information on the club can be found on their website at http://www.qsl.net/5ocean QSL direct only to RV3YR. [TNX RV3YR and 425 DX News]

The special event callsign **IU7FM** will be on air from the 11th until the 18th of May to celebrate the 4th Friendship Meeting. The meeting is being held just outside Porto Cesaro, Italy. For further details visit http://www.dreamingsea.it [TNX I7YKN, IK7JWX and 425 DX News]

DXpeditions

PY, BRAZIL. An international group of amateurs consisting of CT1AHU, PY8EA, PT7BI, PT2GTI, PT2HF are planning a trip to Mexiana Island (SA-042). The group will be on the island from the 21st until the 25th of May and plan to operate on the 40, 20, 15 and 10 metre bands using SSB. No QSL route as yet. [TNX CT1END, CT1AHU and 425 DX News]

FO, MARQUESAS ISLANDS. A team of Italian amateurs will be active from the Marquesas Islands (OC-027) beginning on the 25th of April until the 9th of May. The team will comprise I2MOV, I2YSB, IK1AOD, IK1PMR, IK2DIA, IK2GNW and IK2WXV and plans are to run three stations operating

on all HF bands with a separate station on 6 metres. A beacon will be operating for five minutes on 50105 kHz every thirty minutes (on the hour and thirty minutes past the hour). The callsign will be TX4PG. Check their website for further details at http://digilander.libero.it/i2ysb/ QSL via I2YSB. [TNX I2YSB and 425 DX News]

Round up

I had a query from a VK4 regarding the QSL route for the recent VP6DIA Ducie Island Dxpedition. After a bit of searching on the internet I can confirm that the only authorised route is via JR2KDN, Yuichi Yoshida, 4F Kato Building, 529 Rokugaike, Kita-Ku, Nagoya 462-0002, Japan.

Philippe Schmitt (ex PU2DXS and PT2PS) has changed his callsign to PT2FM. The inspiring thing about Philippe is that he is 14 years old and first gained his licence at the age of eleven. His new callsign indicates that he now qualifies for all full licence privileges. [TNX PT2FM and 425 DX News]

Some not so good news regarding Peter, VY0PW who is currently on assignment in Niger. Peter says that he has been badgering the Niger authorities to issue him with a licence for his eastern Niger QTH but has recently been informed that a licence will not be issued for amateur operation from this part of the country. Apparently the authorities have 'serious concerns relating to internal security in various parts of Niger and deem an HF radio in private hands is too much of a risk'. New licences are only being issued for amateur operations from the capital of Niamey and its immediate surrounds Unfortunately this does not include Peters QTH. [TNX DK8MZ and 425 DX News]

Neil, WD8CRT is on Kwajalein in the Marshall Islands and expects to be there for quite some time. He has applied for the callsign V73NS but at this date is still awaiting confirmation. Bob, WB8B hints that if you here Neil on air working split then it is a good sign the he will be operating for an extended period of time. However, if you hear him operating on a spot frequency then this probably indicates that he is only on a short visit to the shack. Bob also says that there are also antennas for 80 and 160 metre that Neil has not had a chance to set up yet. QSL to WD8CRT/V73, Box 8341, APO, AP 96557 (Or via the V73 Bureau).

As mentioned earlier Leo, UT1WL is currently working in Conakry, Guinea and has recently received the licence to operate as 3XY1L during 2003. Leo is not on a Dxpedition and is using some basic and simple equipment, a TS50s (on battery power due to the frequent interruptions to the mains electricity supply) and is presently limited to operations on 20 and 15 metre due those being the only bands he has antennas for. He is planning on erecting antennas for 40 metre soon. He is most active after 1800 UTC and during the weekends. At some time during his stay he is hoping to visit both of the IOTA groups of islands, the Loos Islands (AF-051) and the as yet unnumbered islands including

Digital DX Modes

A new mode called JT6M has been added to WSJT. This mode is optimised for 6 metre meteor scatter and is positioned between FSK441 and JT44 as shown in the following table:

Mode	Speed Characters / Sec	Sensitivity CF to SSB Passband
FSK441	141	0 dB
JT6M	14	-14 dB
JT441		-22 dB or up to -28 dB with averaging

JT6M gives its full advantage over FSK441 on 6 metre meteor scatter contacts at distances in the range of 1500 km to 2000 km. At distances of 700 km and less the shorter pings give no advantage over FSK441. Peter VK3KAI and Mike VK2FLR have shown that the speed of this mode has advantages for Aircraft Enhancement contacts on 2 metre on paths too poor for SSB. Joe Taylor, K1JT, advises that his next project is a more efficient birdie killer for WSJT.

A number of stations have been experimenting with JT44 on troppo scatter on 2 metre. Ron, VK3AFW has been working Guy, VK2KU (Melbourne to the Blue Mountains) with signals averaging around -17 dB. Stations working regularly to Rex VK7MO in Hobart are Des VK3CY (788 km and typically -21 dB), Ron VK3AFW (596 km, -12 dB), Ian VK3AXH (660 km -20 dB), VK3AUU (545 km -16 dB) and Warren VK3BWT (621 km - 13 dB). The focus frequency for JT44 is 144.225 and there is activity most weekday mornings from 0700 to 0830 Vic / NSW time. Southerly stations TX in the first period.

For terrestrial JT44 contacts the procedure is to exchange a report that represents the signal strength in -dB, eg 1616 means a signal of -16 dB. For example send: VK3AXH VK3BWT 1616 RRRR.

The following codes are also used for terrestrial JT44 contacts:

NNNN nil signal copied
MMMM copied meteor pings only
GGGG copied your grid square
PPPPP partial copy of a signal
RRRR copied both call signs and a signal report in – dB

FSK441 activity sessions are held each Saturday and Sunday morning from 0700 to 0800 local NSW / VIC time on 144.230. Contacts are generally possible in the range 800 to 1800 km. Stations operating over the past month include Waldis VK1WJ, Ian VK2EI, Adrian VK2FZ, Dave VK2AWD, Neil VK2AKR, Mike VK2FLR, Wayne VK2JKK, Des VK3CY, Gavin VK3HY, Charlie VK3FMD, Peter VK3KAI, Warren VK3BWT, Rod VK4KZR, Glenn VK4TZL, John VK3FGY and Rex VK7MO.

Guy VK2KU and Mike VK2FLR have been working new countries and grid squares using JT44 on two metres EME. Mike's signal has been seen in the UK by GW4DGU using a single 7 metre long yagi.

As you read this Rex VK7MO, will be portable at Lord Howe Island activating VK9 on 2 m, 70 cm and 23 cm from the 3rd to 10th of May. FSK441 contacts should be possible from central Queensland to Tasmania and as far west as Adelaide. Troppo scatter contacts on JT44 may be possible into the East Coast of NSW on 2 m and 70 cm with Aircraft Enhancement being a possibility on 23 cm.

For information on the Digital DX modes and operating procedures please look at the VK2 VHF DX site http://www.vhfdx.oz-hams.org/ then click on "Digital Modes".

Rex Moncur VK7MO

75th Aniversary of Trans-Pacific flight

On May 31, 2003, (June 1 your date) the Western Aerospace Museum at Oakland Airport, Oakland, CA, USA, will be celebrating the 75th anniversary of the 1st trans-Pacific flight. The event is sanctioned by the Centennial of Flight Committee. Speakers at the event will include the sons of the Pilot and Navigator and the Australian Consul to San Francisco.

For historical background, Charles Kingsford Smith and crew lifted off from our airport May 31, 1928, to start their epic eight-day flight to Brisbane, Australia. The Southern Cross first landed at Wheeler Field in Honolulu, then Barking Sands Beach on Kauai.

From there it flew nonstop to Suva, Fiji where it landed on the field at Albert Park. Unable to take off from there with a full load of fuel, they flew to Naselai Beach, filled up and took off on their final leg. The destination was Eagle Farm Airdrome outside of Brisbane. Onboard that flight was an American radio operator, James Warner, who kept the listening world informed of the plane's progress by HF transmissions. Huge crowds were on hand to greet them and give them a hero's welcome.

As part of the celebration the East Bay Amateur Radio Club has volunteered to set up HF voice and Pactor communications network at the Museum between activities and interested persons, especially in the places where the plane landed.

We would be very pleased indeed if ham radio operators in Australia and Fiji would participate in our event.

While a "Third-party" communications treaty is already in place between the US and Australia, none exists with Fiji. However, I have been in correspondance with the Deputy Secretary of the Ministry of Communications in Fiji, Minister Josua Turaganivalu, to request a temporary third-party agreement. Our hope is that he may provide a waiver to allow amateur operators for the day of the event to carry out such communications.

A similar waiver will be required from the US State Department and FCC for which, I have been told, a form exists.

We envision participants would be able to talk to each other about their memories of, or interest in the flight. It would be an added benefit if participants were able to talk from home by phone patch. This could be especially important if events do not correspond to the time of our event.

The radio operators here will pass on Pactor messages of well-wishers.

Interested participants will talk to each other over radios under operator control who will be able to direct especially interesting communications into the auditorium over the PA system for all to hear (and respond).

The radio station here will continue to be active throughout the event, from noon until 10 PM PDST, Saturday, May 31 (I think that's 5 AM-3 PM, Sunday, June 1, your time and date).

We believe this cooperative effort will increase the experience for all involved and should lead to a much better feeling for that monumental flight. We expect this exchange to foster warm feelings between all participants and serve to bring this historic event alive, again.

I have heard concurrent events are being planned in Australia but I don't have any of the specifics as to where and by whom. Nor do I know if any activities are being planned in Fiji for the day.

Pactor communications were received through AsiaNet during the 60th Anniversary of the flight in 1988 from Australian dignitaries, aviation museums, and air club leaders who joined others to send their best wishes for the occasion. We hope they will do the same this year.

If you can help get the word out or have any recommendations on whom we might contact, it would be greatly appreciated.

Tom Hieronymus N6RQQ
Trustee, Western Aerospace Museum

How's DX? continued

the Tristao Islands. QSL via UY5XE either direct to George Chlijanc, P.O. Box 19, 79000 Lviv, Ukraine or via the bureau. [TNX UR5WCW and 425 DX News]

Obi, JA0WJN is based at the Japanese Dome Fuji Station in Antarctica and is signing 8J1RF. The base was established in February 1995 and its location is 77.19S-39.42E which puts it approximately 1000 km from the coast and is roughly 3800 m above sea level (should make for a long slide downhill!). Obi expects to be at the base until at least January next year. His equipment and antennas permit him to operate on all HF bands 30 – 10 metre using SSB, CW, RTTY and SSTV. He also hopes to get some time on the satellites especially AO40. Obi says he will most likely be on air around the following times; 09.30 - 10.00 UTC, 12.30 - 13.00 UTC, 17.00 - 20.00 UTC on week days, 13.00 - 20.00 UTC on Saturdays and 07.00 - 20.00Z on Sundays. All QSOs will be confirmed automatically via the bureau when Obi returns to Japan sometime after May 2004. [TNX 8J1RF and 425 DX News]

Mark Kawasaki, JJ1TBB, is extremely happy with his new callsign from the Taiwanese authorities. He has been granted permission to operate as BU2/JJ1TBB and says that the 'BU' prefix is very new. Mark will be based in Taiwan for the next 3 or 4 years and plans to be active on 40 – 10 metre using CW and SSB. He has already been spotted on air around 21262 kHz at 0200 UTC. Apparently Mark is well known in the region, with past activity from Singapore as 9V1AN during 1995-96, Christmas Island as VK9XB in 1996 and Vietnam as XV2A in 1991 among others. QSL via JL1ANP. [TNX JJ1TBB and OPDX]

Sources

This month, as always, we thank the various individuals and organisations for the information and news contained in this edition of DX Notes. This month our thanks go to; 8J1RF, UR5WCW, WD8CRT, DK8MZ, PT2FM, I2YSB, CT1END, CT1AHU, I7YKN, IK7JWX, RV3YR, IK3OYY, PY3DX, EU1SA, VE3XAP, OK1JR, RSGB, KH3/KT6E, JI6KVR, JI6KVR, HB9DUC, F5NQL, CT1BFL, IZ4DPV, 4Z4DX, LA6FJA, UR5WCW, GM3VLB, SP2FAB, HK3DDD, K3ZO, VE3EXY, 425 DX News, OPDX, RSGB, The Daily DX and La Gazette du DX.

ar

Hamads

FOR SALE NSW

• **Power Supply.** Industrial switch-mode 10-18 volts up to 43 amps! $75 plus circuit instructions. Post anywhere in Oz (5kg). Bob VK2CAN Phone 02 9416 3727

• **Tilt over 50 ft wind up tower**, on ground ready for transport $350. VK2IRP QTHR Phone 02 9802 6066

• **Kenwood TL-922 HF LINEAR AMPLIFIER.** A matching pair of AMPEREX 3-500 ZG graphite anode glass tubes installed with very little operating time. I have owned amplifier since new. Excellent condition. Supplied with Kenwood Owner's & Service Manuals, & interconnect cables. Amplifier will tune WARC frequencies. Any inspection welcome. Genuine reason for sale. $1650-00 James VK2JO GPO Box 5076, Sydney. 2001. NSW. Australia. Email: jamesgoodger@hotmail.com, Fax 02 9838 0644.

• **Shack clearance:** The underlisted items are available at prices quoted or near offer subject to BEST OFFER by 31st May 2003. (1) **KENWOOD TS-440S** with AAT and Mic MC-60 #7090801 $1500. (2) **KENWOOD Power Supply for 440S** $125. (3) **YAESU Antenna Tuner FC-301** #8H070749 $250. (4) **FUJIDEN LPF 1kW FD-30M** (nsn) $50. (5) **YAESU Linear Amp FL-2100B** #190432 $450. (6) **AZDEN 2 m - FM PC5-3000** #81015 $450. (7) **ALINCO VHF/UHF Mobile DR-605T** #T002525 $500. (8) **KENWOOD TM-221A 2M FM Mobile** #9031810 $200. (9) **TAIT T-196 2 m Base** with P/S #207639 $200. (10) **DAIWA 1P4T Coax SO-239 Switch** (nsn) $50. (11) **MARCONI VTVM TF-2604** 240 Vac 1500MHz #200930/45 $150. (12) **HP-410C VTVM** 240 Vac 1500MHz #0982A14561 $100. (13) **UNIDEN 16ch Scanner** (nsn) $50. (14) **GRUNDIG GDO TR-300 0.4 - 300MHz** #64/101 $75 (15) **A & R PS-141** Batt. elim 4.5/12V 500mA $25. Contact via email to: tonymul@pip.com.au or Phone 02 9791 0366 Tony VH2ACV.

• **Deceased estate:** From the estate of John Thornthwaite, VK2ATO: **MFJ-949E HF ATU** - Versa Tuner, as new, packing, man. $150. **YAESU FC-707 HF ATU** EC, copy man $150. **YAESU FT-707 HF** 100 W, mic, copy man, GWO $500. **YAESU FT-270R/RH** 2 m FM box, mic, man, mob bkt, GWO $200. **ICOM IC-211** 2 m ALL MODE mic, man GWO $300. **ICOM IC-2A 2 m** HH chgr, bat, man, a little battered but GWO $100. **ICOM IC-46A 70 cm FM** mic, mob bkt, man, GWO $200. **KEN KP-202** Vintage 2 m HH - 6 xtal chans, no man, needs AA nicads, still works! Collectors item! $50 **KENWOOD R-5000** - classic comms rcvr, copy man, GWO $500. **SWAN SW-350 HF** 200 W, man, heavy duty HB pwr supply, no remote VFO, GWO $100. **SHURE 444** - classic magnetic desk mic., PTT bar, good order $50. **RESLO - Desk ribbon mic.** - OK $40. **BC-221** - 1940s military freq. meter - book not calibrated, GWO $50. **PHILIPS FM-92 UHF** - unmod, untested, remote head but no mic. $50. **MARCONI TF-995** AM/FM sig gen - 13.5 to 220 MHz - battered, large, heavy, OK $50. **HEATHKIT HA-202A** 2 m high power lin amp, not boxed, working $25. **CONNOR T215 BICC** test oscilloscope - special pulse tester for lines. EC $50. **TAIT T-196** UHF mob tcvr, no mic, no man, unmod, untested $20. **HEATHKIT IM-13 VTVM** no man, no probes, OK $10. **ALINCO ELH-230D** – 2 m lin amp (HH to 30 W) no man GWO $25. **DIGITOR D-2510** – 2 m lin amp (HH to 30 W) no man GWO $20. **MIDLAND 70-340B** 2 m FM – 25 W, 80 chans, mic, lead, no man, GWO $100. **PHILIPS 2 m FM** single channel, neat unit, mic, xtals for 146.7, GWO $25. All prices ONO plus pack and post. Transmitting gear to licensed amateurs only. Serial numbers available. Enquiries to Stan Bourke, VK2EL, QTHR (Ulladulla). Phone 02 4455 5825 or e-mail sbourke@shoal.net.au

• **Tower, gal steel, triangular** 570 mm per side, 8 sections each 3 m long very strong, ex Telstra $500. John VK2ZHM QTHR Phone 02 9417 5338 mitchell@zeta.org.au

WANTED NSW

• **HF multi band vertical antenna**, also Discone or wide band rx-tx antenna for scanner use. Either base or mobile plus 6 m, 2 m, 70 cm mobile antennas. Jim VK7GO/2 Mobile 0403 070 671

• **Tone squelch unit FTS-6** for Yaesu HT FT-209R. Email VK2IGS igray@nor.com.au

• **Phillips FM-828/825 W1 Band.** Any quantity. Contact Sky, vk2tsl@sarc.org.au, de Sky VK2TSL QTHR.

FOR SALE VIC

• **Westinghouse 8-transistor vintage portable B/C receiver** in original leather case, also professional chimney flue cleaning kit. Both in good order. $70 the lot. VK3GMM Phone 03 5985 2671

• **Deceased estate: Kenwood** communications receiver R-5000 and manual, S/N 80500034. Mint cond. $650 ono. Ted VK3ALT QTHR, Phone 03 5941 1248.

• **Deceased estate: Kenwood transceiver TS-520D** $300, c/w ext speaker $50, ext VFO $70, antenna unit $70. **Station monitor** $100. **Kenwood transceiver SSB TS 120S** Trio c/w ext VFO $400. **Kenwood transceiver TS-700S** $250. **Kenwood transceiver HF TS-50** $800. **Kenwood auto antenna tuner AT-50** $350. **Antenna TH3-JNR** 3 El Tri Band Beam (new) $500. Serial nos and manuals available for all items. Contact: Phone 03 5821 6314.

• **YAESU FT-767GX c/w 6 m, 2 m & 70 cm modules**, in pristine condition. S/N 9D/250119. $2200 or nearest offer. VK3BCQ QTHR. Phone 03 9309 5613.

• **Metal mast: 10 metre,** guyed (galv. iron & aluminium, with timber top). Also G5RV & other antennas, etc. $55 or offer. David VK3DNG QTHR Phone 03 9859 4698. Email: darodda@jeack.com.au

• **Kenwood TS-690S HF and 6 metre.** Excellent condition $1100. Contact VK3DTO Andy, Phone 03 5382 1759 or vk3dto@amsat.org

• **Antenna tuner MFJ-969,** H/F + 6, new and unused, $475. S Algar Phone 03 5941 1680

WANTED VIC

• I am refurbishing a **Butternut HF6V 6 band HF vertical.** I require a copy of the **assembly instructions** to get it going. Happy to reimburse copy and mail charges etc. Ian VK3AYK Phone 03 9580 6627 Email: ikeenan@bigpond.com.au

• **Icom 448A. 70cm FM monoband radio.** Contact Warren VK3XSW, email warren.stirling@blackboxoz.com.au

• **For Wireless Set No 11** - A low power PSU in any condition - complete or empty box would be fine. Empty case would be fine too. Also need two of the female three pin plugs to suit the PSU. These plugs have a triangular pattern to suit two thick pins and one thin. For Wireless Set No 62 - one of the aluminium handles/bracket for the front panel. Clem VK3CYD Phone 03 5126 2064, clem@dcsi.net.au

• I would like to get **a Commodore Amiga 1200.** My preference is one with the motherboard still in the original Commodore keyboard case, but after market tower could be useful. I will also need manuals. Alan

About hamads....

- Hamads may be submitted by ***email*** or on the ***form on the reverse of your current Amateur Radio address flysheet.*** Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or printed clearly, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

"Mickey Mouse" language

With respect to the article by Bob Slutzkin, VK3XK, in the April edition I wonder whether this is not one of the problems with the Institute and its inability to attract new members.

He says "why not use whatever phonetics you like"!! That would certainly be a very "Mickey Mouse" way of doing things - everyone just doing whatever they like. It is a bit like his way of quoting the call sign of VK3BFG.

I personally find the language used on air today rather distasteful. Admittedly, I am a bit long in the tooth having been a ham since 1970 but in those days the code was definitely no swearing, no politics and no religion.

Whilst I know that swearing is fairly common these days, streetwise, it does not have to be so on air, does it? With all due respect to CBers, that used to be the criticism of a lot of CB operators in the early days, their foul language, and it put a lot of people off ever being involved. I suggest that it does nothing to encourage new members to ham radio today.

Graham Kinge - Victor Kilo Three X-ray Kilo (VK3XK)

CB a start, at least!

In reference to a letter-to-the-editor headed "The Dick Smith way?" AR, Vol. 71 No 3, I can sympathise with J Robertson's apparent despair at the loss of the lower frequencies of the then 11-10 metre amateur band to the CB radio allocation, but I would ask JR to consider what actually occurred as a direct consequence of Dick Smith's efforts.

CB became the nursery ground to many future AR operators and radio/electronics professionals. I can testify to this through personal experience! As a way of introducing a large number of people to radio as a hobby and of broadening AR's exposure to the general community, it was perhaps singularly successful in its scope.

Dick Smith should be applauded for being instrumental in this.

Tim Parrey VK2TA

The last word

I thought Bob Slutzkin VK3SK (OTU April 2003) said all that needs to be said, and destroyed his own argument at the same time, when he wrote, "Of course the phrase must be familiar to the person being called".

Don Jackson VK3DBB

HAMADS continued

VK3JAJ, Phone 03 9817 2057, P.O. Box 442, Deepdene, Vic 3103. email: vk3jaj@bigpond.com

FOR SALE SA

• **Kenwood TS-430S HF tcvr** with all optional filters fitted, instruction manual and service manuals. All in excellent condition, $750 ono. John VK5KBE QTHR, Phone 08 8250 7259 or mobile 0412 000 076

• **1 x Microwave Developments 12 slot,** horizontally polarised, omni directional slotted waveguide antenna tuned to 1283MHz. The antenna is brand new, powder coated white, 185cm long, a gain of 10.5dbi and will handle 75 watt RMS. Perfect for an ATV repeater or beacon. Will sell at cost $300 firm. Please call Steve VK5SFA 0418 657 658

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WANTED TAS

• **Analogue mobile phones type Fujitsu Model F80M-364.** Require for parts only - Comms project. Any condition will be OK. Trevor VK7TB, 9 Norfolk St, Perth 7300, Tasmania. Phone 03 6398 2118 or email cabriggs@optusnet.com.au

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Alan Hawes	VK1WX
Secretary	Deane Walkington	VK1DW
Treasurer	Linden Orr	VK1LSO

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga. VK1 Home Page *http://www.vk1.wia.ampr.org*

Annual Membership Fees. Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Owen Holmwood	VK2AEJ
Treasurer	Chris Minahan	VK2EJ

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.

Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Jim Baxter	VK3DBQ

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Ewan McLeod	VK4ERM
Secretary	Bob Cumming	VK4YBN
Treasurer	Bill McDermott	VK4AZM

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 in both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au

Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

President	Neil Penfold	VK6NE
Secretary	Roy Watkins	VK6XV
Treasurer	Bruce Hedland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.wia.org.au/vk7*
email: *vk7dg@useoz..com*

President	Phil Corby	VK7ZAX
Secretary	Dale Barnes	VK7DG
Treasurer	Dale Barnes	VK7DG

VK7WI: At 0930 hrs every Sunday on 146.700 MHz FM (VK7RHT, Hobart) and relayed on 147.000 MHz FM (VK7RAA, Launceston), 146.625 MHz FM (VK7RMD, Ulverstone), 146.750 MHz FM (VK7RNW, Ulverstone), 147.075 MHz FM (VK7RWC, Rosebery), 3.57 MHz LSB, 7.090 MHz LSB, 14.130 MHz USB and UHF CB Channel 15 in Hobart area.

Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

John Moyle Field Day

Living under canvas

Some are still looking for their "living under canvas allowance" Summerland ARC. Carl VK2 XL and Rod VK2HRW at Mt McKenzie.

Youth on the air

Townsville ARC started 'em young and took advantage of all the 'mod cons' offered by a friendly Scout hall. At Bluewater Terri Johnson with daughters Sarah, Rose Marie and Mary Ann

"The road to Nhill"

The site of VK3AEF at Tarranginnie near Nhill. with antennae in 'plain' view.

As Jim VK3AEF says, with some understatement, "There's not a lot sticks up very far in the air around here".

It certainly would rotate you

The big array at VK3AEF is driven by this rotator

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The magazine for AUSTRALIAN Amateurs

June 2003
Volume 71 No 6

Amateur Radio

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Amateurs still leading the way in LF & VLF developments —

2 new articles:

The state of the art on Long Wave
by John Adcock VK3ACA

600 metres and beyond: A long wave adventure
by Dale Hughes VK2DS

Doug McArthur VK3UM wins achievement award for *world-class moon-bounce station*

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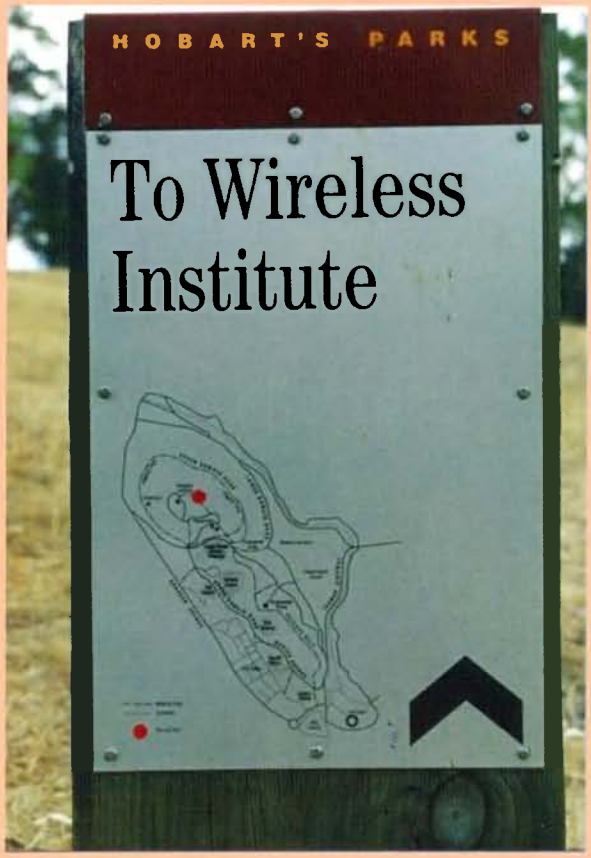
Hobart City Council promotes WIA



Trail sign, "To Wireless Institute" with map.

The Wireless Institute has been specially mentioned by the Hobart City Council in its interpretative promotion of parks in the municipality.

Tasmania's Southern Branch clubrooms are located close to Hobart's CBD on top of the Domain parkland. Previously the site of coastal radio station VIH, the rooms are of historical interest.

Tracks through, remnant natural bush connect points of interest for walkers. A road also leads to the rooms past the Botanical Gardens and Government House.

Signs in the immediate vicinity boldly state "To Wireless Institute" with a map showing exactly where one is heading.

The main driveway sign gives a potted history of the site with the following text; "Wireless Institute: The coastal station, as it was formerly known, was established by the Commonwealth Government in 1912 and was an integral part of the early twentieth century communications network, linking the first Antarctic expeditions with the rest of the world."

The clubrooms are open most Wednesday afternoons. Visitors are welcome and can call VK7OTC on the club's 147.600 MHz FM output repeater for directions if required.

Photographs courtesy of Bob VK7KRW.

Clubrooms located at top of Hobart Domain (VK7OTC).

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Editorial

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Our Cover this month

WIA President Ernie Hocking VK1LK presents the 2003 Ron Wilkinson Achievement Award to Doug McArthur VK3UM. Story onpage 22

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
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Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

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Editorial Comment

Colwyn Low VK5UE

Conspiracy? What conspiracy?

This month we are seeing the feedback from the WIA Federal Council/WIA AGM. The WIA Council has decided to put the Entrance Level licence concept to the ACA and is presently surveying members for their views. It really surprises me the number of comments I have seen on the "WIA Conspiracy" theme. There is always the problem of what is pushing what when fundamental changes are proposed to an existing structure. However this Licensing Structure has been in place for many decades and even the introduction of the Novice Licence did not depart far from the "Need to pass a tough test to join the exclusive ranks of Radio Amateurs, who all know that a CW skill is absolutely necessary to be a real Amateur."

Now I can hear the howling, but in reality, up until WWII CW was an essential mode to be skilled in. In the 21st century CW is one of many modes and its use is very dependant on the choice of the operator or driven by the need to have a simple communications mode for weak signal work without a computer.

June 2003 is not June 1945. Computers are tools and most Amateurs have one. Some choose to connect it to their transceiver, others do not. Some use SSB and others FM for speech QSOs. Some of us use Packet and some use modern software supported digital modes. Some of us are happy with IRLP. Some use TV. We are no longer a group of very special people who can communicate using RF. If you do not think this is true then just count the number of your friends who have a mobile phone that can connect them to anyone with a phone anywhere the world with noise free channels. What would you have given for that if you were a Radio Amateur 50 years ago?

So we have to wake up to the fact that the world has changed. We have to look at where our hobby lies in the modern scheme of things. We have to decide if we keep it so exclusive that it dies with us.

I found it interesting that in a letter I received recently the writer proposed the use of eQSO on the Internet, and then went on to say they were using this as a carrier for CW. Use it as a teaching tool yes, but why use more encryption than is necessary to get a message from A to B?

One great problem is that the WIA speaks to the ACA on behalf of all Australian Radio Amateurs, but is only supported by about a third. It would be really interesting to know if it is the present members, the actions of the WIA in the past, or just a willingness to let others pay to keep their privileges that keeps the Amateurs out of contact with the WIA. Sure, we could do a lot more if we had more members. But to keep saying the WIA is just trying to perpetuate itself in its old mode is no longer valid. If all Amateurs do not get together then all that is good in the hobby of Amateur Radio, and the fine traditions of community service from the AMATEUR SERVICE will soon be forgotten. We would be lucky if a historian found references to them in the collections of the National Library or in some dusty, almost forgotten local Communications Museum.

We have to wake up to the fact that the world has changed. We have to look at where our hobby lies in the modern scheme of things. We have to decide if we keep it so exclusive that it dies with us.

*What do **you** want Amateur Radio to be tomorrow ?*

Colwyn VK5UE

Ernie Hocking VK1LK
Email: president@wia.org.au

Update on the Foundation Licence

Discussions on the proposed new foundation licence seem to have occupied just about every spare minute for the last month. Jim Linton VK3PC quickly developed the members survey after the AGM. After a couple of modifications the survey managed to make it to the publisher in time to appear in May's AR for VK3, VK2 and VK7. I believe that the VK4 survey will be in the next issue of QTC. Other divisions have either already surveyed their members or are adopting a more direct approach.

Even before the survey is completed I have received a large number of informal email and paper correspondence about the proposal which all indicate a high level of support. There have been a few suggestions that there are significant numbers of amateurs with concerns about the proposal. At this stage they have certainly not made their views known to me although I have received comments from half a dozen amateurs. The general themes identified have been:

- A concern that the new licence will result in a reduction in skill levels.
- A desire to maintain a progression in licences and the privileges.
- The need to engage with Commonwealth Agencies and Industry to promote Amateur Radio

I would like to personally assure all amateurs that everyone working on the development of the Foundation Licence proposal has the best interests of amateur radio at heart. It is a difficult time since I know that many of you would like to know the details of the proposal. However I would ask you to be patient. Until we have received your views and fully developed the WIA position, and then sat down and worked through the issues with the ACA a lot of the details will simply not be known. Please bear with us. As soon as we know anything we will let you know, and remember that the only official source of information is AR or the WIA Federal web site. If you hear odd rumours circulating in newsgroups, mail reflectors or the dark recesses of clubrooms please refer back to AR or the WIA Federal web site for clarification. If you are still unclear then contact your local division or write to me directly.

The WIA will continue to work on understanding the views of all Amateurs on this matter.

As a matter of courtesy to the ACA I recently met with them to brief them on WIA position with respect to the proposed licence. This was a very useful meeting where the ACA indicated that they were in agreement that a reform of the amateur radio licence was required, partly as a result of WRC 2003 and partly to reflect the changing role of ACA. It is their intention to develop a discussion paper on the matter and write to all amateurs shortly after WRC2003. It is expected that the analysis of the submissions they receive will be complete in early 2004. Subsequent changes to the regulations will be worked through during 2004 with the revised regulations being published in first quarter 2005. I will be developing a separate report on this meeting as soon as possible.

The WIA will continue to work on understanding the views of all amateurs on this matter. These views will be summarised in the formal WIA submission to the ACA discussion paper.

Examinations

Some 18 months ago many of you will recall that the WIA made a submission to the ACA in relation to further devolution of the examinations. This activity has now been completed and the ACA have appointed the WIA as an "approved organisation" for the purposes of setting amateur examination papers. This is an important step towards reform of the administration of the hobby and a key aspect to the running of any future foundation licence examinations. As the details of the impact of this become clear I will be issuing a separate paper describing how the changes will affect the administration of examinations.

Changes to the 70 cm band

In late 2002 I brought to your attention some proposed changes to the amateur use of the 70 cm band in NSW. These changes will have an affect on amateur activities on the 420-430 MHz portion of the band in order to accommodation new emergency services requirements. The ACA has released a document describing the changes. This document can be found on both the ACA and the WIA web sites. The WIA was fortunate to be able to work closely with Technisyst who have been implementing the new systems with the NSW Government. This cooperation has very helpful in enabling the NSW WIA to adapt to the changes with minimal impact to the amateur radio service.

IARU Region 3 uncertainty with SARS

The final piece of news that I have this month is the impact that the Severe Acute Respiratory Syndrome (SARS) outbreak has had on the planned International Amateur Radio Union Region 3 meeting later this year. IARU will confirm whether the meeting is delayed or continues as scheduled. I am sure that you will all join with me in wishing good health to all amateurs affected by the SARS outbreak.

So 73s for now and I look forward to hearing you comments, either directly or via the divisions. All the best in amateur radio

Ernie Hocking VK1LK

The state of the art on Long Wave

John Adcock VK3ACA

This is a brief report on some things that have been happening in this region on LF (Low Frequency) or Long wave since my last article on the subject in AR, "The Day we Crossed the Tasman on Long Wave" Ref. 1. In this article reference is made to recent use of D.S.P. (digital signal processing) using a computer for weak signal detection. The author also acknowledges advice given by Bob ZL2CA, Richard VK7RO and some information from "Break-in".

Advantages and disadvantages of communicating on LF have been discussed to some length in previous articles and these will not be discussed here.

This article is not very detailed and the LF field is changing daily so my apologies if there are inaccuracies in the article!

The World scene briefly

In America an "unlicensed" band (CB band) has been used by amateurs since the start of CB. The unlicensed band, 160 to 190 kHz was intended for local, in house communications or control systems and not for long distance communications by amateurs. This facility allowed a maximum 1 watt input to an antenna no longer than 15 metres. Antennas of this type with typically less than 0.1% efficiency do not provide very much power. Never the less, American amateurs achieved some success with this mode especially using weak signal receiving techniques.

Prior to amateurs any where in the world being allowed to use a regulation defined low frequency band amateur band some amateurs obtained "Experimental licenses" (later known as a "scientific license"). In this country these are expensive and rather limiting.

Around 1990 New Zealand amateurs were given the use of the band 165 to 190 kHz and Papua were given the 160 to 190 kHz band at the same time. In New Zealand amateurs are allowed 5 watts EIRP (approx. 1.5 watts actual radiated power from a short mono pole). This frequency range was based on the American unlicensed allocation. The band was issued on a non-interference to other services basis.

The main objections by licensing authorities in most countries to increasing amateur capability in the 160 to 190 kHz region are: -

1. That it is likely to cause interference to pilot carriers used on power lines used by power companies.
2. That the allocation is inside the Long Wave broadcast band in region one. Region 1 includes Asiatic Russia and Europe and Africa. (This objection applies more in America than here.)

In Australia the authorities have taken the view that they will consider any proposal which may be agreed to by the ITU. Such a proposal may be put at the next World Administrative Radio Conference.

Amateurs in UK were issued with a 73 kHz band (71.6 to 74.4 kHz) in 1996. In 1998 this was replaced with the more generally issued 135.7 to 137.8 kHz band in some European countries. This latter band has been allowed in a number of European countries which include UK, Germany, Portugal, Ireland, France, Switzerland, Italy, Luxembourg, Austria, Czech Republic, Slovak Republic, Belgium, Spain, Denmark, Holland, Sweden, Romania, Venezuela and several former Soviet states. The European band is just below the "region one Long wave broadcast band". Recently Argentina was allocated a band near the European band. The 73 kHz band is still being used but it is intended to be phased out.

There is a lot of negotiating going on in many countries for an LF band particularly in US but to date the Americans do not have an official low frequency amateur band.

VK and ZL activity using standard techniques

Activity in Australia has been rather slow. There are a few amateurs in Australia holding "Scientific Licenses". At the moment this does not include the author, I held such a license 10 years ago and have now let it lapse. Robert Milne VK7ZAL with the call sign AX2TAR appears to be the only one who is using his license. He has made transmissions using Morse CW and SSB but because of his limited license status he has to generate morse with the assistance of VK7FB. So far Robert has had 2 way communications with ZL1WB. There are several VK listeners who send reports but as far as I know, Richard VK7RO and myself, VK3ACA, are the only Australian amateurs who have weak signal DSP receiving capability on LF. Steve VK2ZOT and some other VK2s sometimes send in reports.

In New Zealand a group of interested amateurs run a net on Thursday evening in which Morse CW is the mode used in the LF transmissions. The net, known as "the low frequency group", starts on 80 metres at 0830z, 8.30 pm. NZ time on 3.670 MHz SSB. This net is open to any interested VK amateurs as well as ZL. The group of NZ amateurs arrange LF transmissions on 181.4 kHz, which start at 0900z, each transmission runs for 2 minutes. There are usually 4 to 6 participants and at the end of the approximately 10 minute period, reports are exchanged back on 80 metres. Arrangements are then made for a second test run starting at 1000Z and the same procedure of reports is repeated. The net concludes about 1030Z. These

times are put back 1 hour for daylight savings i.e.. start time of net, 0730Z.

At my QTH the results of this have not been very good so far. ZL1WB who has an enormous antenna can usually be heard here and should be good copy in a quiet location. Other ZLs are sometimes detectable here using DSP. But of course, this being designed for very slow morse code only draws a single line for ordinary morse and the morse characters are not visible.

Eighty metres itself is not all that good and quite often I can only copy one or two of the people in the net. Now summer season has started the 80 metre net is almost impossible, the net operates at the same NZ time, and with daylight savings it starts well before sunset.

Receivers and Antennas

A note on receivers and antennas is in order. A lot has been written on this subject in other articles Ref. 2 gives a few examples. Except when a good quality dedicated receiver is used such as an "MN26C compass receiver" most ordinary receivers won't pick up much using a simple antenna. This lack of activity with simple antennas is partly because of interference (cross modulation) from strong signals from the broadcast band and partly because the random length of wire has a high impedance and the receiver has a 50 ohm input. Almost any receiver, which covers LF, will pick up a great deal if a highly selective antenna tuner or coupler is used. I usually use an antenna tuner with the main antenna connected as a Tee but some people prefer an active whip antenna or an active loop antenna. Active short e-field (vertical) antennas are said to have an advantage in that they do not pick up noise in the near field as strongly as the main field.

I can't speak with much experience with these types of antennas at this instance but improved performance of small antenna elements may simply depend upon where it is placed in the back yard in relation to the noise source.

The use of weak signal techniques and QRSS

There are several softwares available for use in computers, which use the sound card as a modem. They process the signal using fast Fourier transforms to show a sustained single frequency signal as a line on the screen. Argo is most commonly used and this has a range of time constants covering times from 3 second dots to 120 second dots. Argo is free ware and is available from a site www.weaksignals.com. The input to the sound card is at audio frequency. In my case I use an FT990 set on CW, when I set the receiver to the nominated frequency the audio tone comes out at 700 Hz.

These weak signal techniques are similar to methods used by amateurs for E.M.E. and meteor scatter techniques used on UHF and PSK used on HF.

The transmission of very slow morse known as QRSS can be as morse code with a single frequency and dots and dashes in the standard manner or more usually, frequency shift morse code is used. QRSS FSK seems to be a new invention. In it, all the dots are the same length (e.g.. 120s) with no spaces in the letter. The morse is sent with a higher and lower frequency, the higher dots representing dashes and the lower dots representing dots.

See the examples. The result on the screen is intended to be read by eye. There are softwares that have text capability one of which is known as Jason.

The transmitted frequency and the receiver must be very stable over the period of the transmission. Any morse transmission has to be keyboard entered with appropriate QRSS software. It is quite impossible to hand send or ear read this mode. The receiver for QRSS must be of high frequency stability. Modern transceiver or receivers having a "master oscillator" to lock all local oscillators and BFO and having a frequency stability of 10 ppm are best for the job. These rigs are the type that offer a TCXO or OCXO upgrade to 0.5 ppm although the upgrade does not seem necessary on LF. Of course the receiver must be capable of reception down to 100 kHz to cover the 136 kHz band. For transmission, there is a software known as qrs205.

The main advantage of QRSS is that it can receive signals well below the noise level compared with audible modes even when using a narrow CW filter. Up to -20 to -30 dB improvement is claimed for 120 s. dots. Another advantage is that it can separate the main signal from an interfering signal even when the interfering signal is less than 1 Hz from the main signal. The Argo screen can show several signals in the spectrum of the display and it is therefore easy to pick out the required signal. By comparison if a single very narrow band pass receiver were only used it would be almost impossible to pick out the required signal.

The use of weak signal techniques does cause some differences of opinion in amateur circles. Some people quite interested in LF either do not like the use of computers in radio reception or they do not have the capability in their shack while others who have the capability but are not interested in LF. This division of opinion occurs both here and in New Zealand. If you can't use good old hand sent CW then it isn't worth using. I personally am not very keen on computer aided techniques but at least they do allow you to get an idea as to where you stand with signal level. For example, if the signal is readable with 1 watt radiated power with QRSS 120 second dots you could say that it might be readability 5 with 1 kW and using hand sent morse (actually 1 kW radiated power is a bit beyond our capability but QRSS is quite useful for people who like breaking records). If the QRSS signal is readable with 3 second dots it is reasonable that quite a good QSO could be made even if a bit slow.

Practical results with transmissions from Quartz Hill

Quartz Hill is an area about 15 km South West of Wellington and overlooking Cook Strait. The area was used by the New Zealand Broadcasting service as a receiving station and by the New Zealand Post and Telegraph Department for fixed and maritime mobile services.

The Wellington Amateur radio club had been looking for a site for a club station when in 1996 the club learned that the broadcast receiving station was to be relinquished and sold to the Electricity Commission of New Zealand. The club negotiated with the new owners to manage the site and use the buildings until required. The main amateur radio activity on the site has been the construction and use of Vee beams for HF and a rather large end fed long wire inverted Vee for 160 m. The 160 m. antenna made the basis of an antenna which has been used by the LF

group. On 2200 metres the antenna is basically an end fed length of wire with some vertical component approximately 1/10 of a wavelength long. The club station has the special call sign ZL6QH.

About 2 years ago a number of members of the LF group using a station at Quartz Hill with the call sign ZL6QH began making tests using QRSS on several frequencies around 184 kHz. The tests were made on pre-announced Saturday nights and were carried out between NZ sunset and sunrise with the hope of being copied in America or Europe. The author has copied some of the transmissions here in Melbourne.

Last year the Wellington LF group obtained permission to operate in the European LF Amateur band on a frequency of 137.7888 kHz. The group use an EIRP is 5 watts on 180 kHz and 4 watts on 138 kHz.

So far the results from Quartz Hill have been extremely good. Signals from Quartz Hill were originally transmitted on 174.4 kHz and since December 2001 transmission on 137.7888 kHz. The good results from Quartz hill are probably due to the use of their large antenna.

When transmitting a signal intended for very long distance, 120 second dots with 0.4 Hz frequency shift is used. The transmission from Quartz Hill send only the letter Q. The letter Q consists of two up dots, one down dot and one up dot, see examples. Faster transmission was intended if good reception was indicated. Transmissions from Quartz Hill have been received at several trans. Pacific locations mainly just before dawn at the receiving location. The signals are always detectable in Melbourne from just before sunset.

Four Argo screens are shown here as typical examples, Figs 1, 3, and 4 are for reception at the authors QTH, they are - Fig 1. Reception of ZL6QH on 30th June 2001 at approx. 8.0 pm local time on 184.4 kHz, 1 Hz shift (note 700 Hz offset in receiver when receiving CW). The transmission is at 120 Hz dots and the reception is as for 10 second dots. Note that this is a strong signal.

Discussion

1. Figures 3 and 4 represent reception from ZL6Q on a daylight path and a night path. According to calculations of path loss (see table below) winter daytime ionospheric propagation is quite possible. The result shown in these tests indicate that the daylight path is not as good as expected.

   The following are the calculated path losses, which are in addition to the normally expected losses based on the normal spreading and geometry of the path. This is based on the following, a path length of 2568 km, reflection layer height, day 75 km. and night 90 km. They consist of ground loss at the low launching angle modified by the effect of convergence and loss in the

Fig 3 Reception of ZL6QH on 21st September 2002 at approx. 3.00 pm local time on 184.4 kHz and 2 Hz shift, this was an all daylight path. The transmission and Argo setting are for 30 second dots. The dashes are at 699.5 Hz and the dots at 697.5, other lines are interference. Reception at in the next time period on 138 kHz was similar. While a winter ionospheric path should be possible this result was about readability 3. The ticks are 60 seconds part.

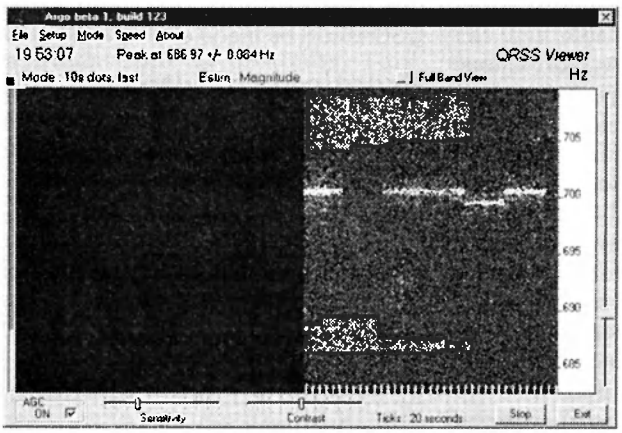

Fig. 1 shows the full screen, the subsequent diagrams as half screen.

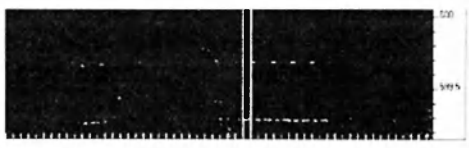

Fig 2 This is an Argo trace taken by Steve VE7SL just before dawn of ZL6QH on 22nd September 2001 on 184.4 kHz. The transmission and Argo setting is for 120 second dots and 0.4 Hz shift. Note that the Trace is inverted with the dots at the top, this is because of inversion in Steve's receiver set up. The two vertical lines are calibration line 240 seconds apart and the ticks are also 240 seconds apart.

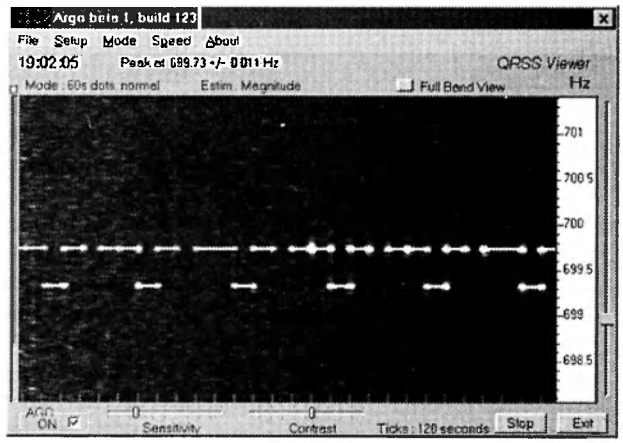

Fig 4 Reception of ZL6QH on 21st September 2002 at approx. 7.00 pm local time on 137.7890 kHz and 0.4 Hz shift. The transmission is at 120 second dots and Argo setting is for 60 second dots and 120 second ticks. This is a very strong signal. The Argo was later set as for 3 second dots and the signal was still very clear although, in this case, the frequency shift was too small for 3 second dots setting. The signal would have been readability 5 at 3 second dots and would have been easily copyable by ear in a quiet location. On this occasion there were no reports of long distance copy.

reflection coefficient of the ionosphere. See Ref. 3.

Additional loss on the darkness path on 138 kHz - 13.5 dB
Additional loss on the day light path for a winter day on 138 kHz - 24.4 dB
Additional loss on the darkness path on 184 kHz - 18.0 dB
Additional loss on the day light path for a winter day on 184 kHz - 33.0 dB

Table 1

From this theoretical calculation the daylight path should have been quite good on 138 kHz. This did not agree with the observed result but more testing is required to obtain a better average result. Calculations indicate that surface wave would be too far down even 138 kHz. Even a path over seawater would not be any use.

2. The improvement in readability using Argo was enormous even on 3 second dots. There is a lot of spurious carrier interference at this QTH as well as the usual atmospheric noise and man made noise and this makes it very difficult to hear anything by ear. If a comparable narrow band filter were available in a receiver (say .01 Hz wide for example) it would be almost impossible to find but still uncopyable because the ear is unable to differentiate between the noise and the signal. Therefore is there anyone versed in information theory who could analyse these results to show the benefits of using this type of DSP. This could be an interesting exercise for someone doing a university thesis.
3. One additional reason why DSP using fast Fourier transforms will work in this case is that "low frequency" electromagnetic signals propagate with a very high phase and frequency stability. This method could not be used on HF because of multipathing causing continual phase instability. It would be interesting to test the method on MF namely 160 metres and see what improvements in readability could be made using QRSS.

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   www.lwca.org/library/lfprop/adcock/lfprop1.htm
   www.lwca.org/library/lfprop/adcock/LFEXTRA.htm
   Also visit the "Long Wave Club of America". www.lwca.org/

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600 metres and beyond: *A long wave adventure*

Developments are currently taking place in the low frequency spectrum, an area long neglected by amateurs. *Dale Hughes VK2DSH* shows that amateurs can still be in the forefront of technical advances.

Figure 1: the NDB at Canberra Airport, one of many similar beacons scattered around Australia

Radio technology is now over 100 years old. During that time, it has progressed from spark transmitters and 'cats whiskers' to the latest solid-state technology operating at 100 GHz and beyond. Early intercontinental transmissions took place at low frequencies, which required huge antennae and high transmitter power. This technology was soon overtaken by short wave systems, which could provide worldwide coverage using much lower power and much smaller antennae. Amateur radio operators played a large part in opening up the short wave spectrum and we continue to make major use of that spectrum today. However, low frequencies (LF) and very low frequencies (VLF) are still used for many purposes and some countries have LF amateur allocations. For the purpose of this article, I will refer to LF transmissions as those with a frequency lower than 500 kHz, that is, a wavelength longer than 600 metre. The early history of radio is fascinating and I would encourage the reader to read references 1 and 2 as they provide much interesting information and history.

The spectrum below 500 kHz is used by a number of services, some of these are:

- Non Directional Beacons (NDBs) are used by aircraft for navigation. In Australia, NDB's occupy a range of frequencies from 200 kHz to 450 kHz. Their location can be identified by the two or three letter code that is transmitted repeatedly. NDB's are easily heard using simple receivers and a small antenna. More sophisticated receiver systems can receive NDB's over ranges of up to 2000km. From my location in southern New South Wales, I can receive NDB signals from New Zealand to Woomera in South Australia.

  Some NDBs transmit terminal information by voice. For example:

Terminal	Frequency	Call sign
Canberra	265 kHz	CB
East Sale	350 kHz	ESL
Wagga Wagga	221 kHz	WG
Richmond	347 kHz	RIC
Nowra	359 kHz	NWA
Edinburgh	311 kHz	EDN

  Terminal information gives weather and runway information for the site. Figure 1 shows a typical NDB transmitter site.
- Standard time and frequency transmissions are transmitted by a number of nations on low frequencies. In Australia, time signals can be heard on 40.000 kHz (JJY Japan) and 60.000 kHz (WWVB USA). JJY transmits its call sign in Morse code at 15 minutes past and to the hour. These signals are easily recognised by the time pips sent every second. The pips vary in length, and can be decoded to give the time. Transmissions are also made on 25 kHz, 75 kHz and 77.5 kHz from Europe.
- Navies of many nations use low frequency systems for reliable long-range communications. These signals are very strong and easily received. They are all encoded, however some of them are still use Morse code and transmit their call sign on a regular basis. Presently the Australian Navy transmits on approximately 13 kHz from the former Omega facility near Sale in Victoria. Signals are also transmitted from North West Cape in Western Australia. The Indian station VTX3 is occasionally heard on 18.2 kHz transmitting fast Morse code along with its call sign at regular intervals.
- A number of commercial broadcasters transmit on LF, mainly from Europe. Their carriers can be sometimes heard in this part of the world. So far, no program material has been received at this location.
- LF Amateur allocations exist in a number of countries e.g. New Zealand, USA, Great Britain and

some European countries. In addition, several Australian amateur operators transmit using special scientific class licences on various spot frequencies.

- While not a service, natural radio signals exist at VLF. Whistlers and other phenomena can be used to probe the ionosphere and are a topic of active academic research. Several web sites exist which are devoted to monitoring these signals.

Amateur activities

Receive only activities can be as simple as listening and logging NDB's and other transmissions. There are several web sites devoted to reception of LF and VLF signals, these sites offer much information on what signals can be heard as well as various reception techniques.

As has happened in most other areas of life, the computer is making it's presence felt and a number of programs for reception and transmissions of LF and VLF signals are available. These programs are designed to extract signals from a very noisy reception environment and can enable signals to be received that would be inaudible to the ear. Software for reception and transmission of LF and VLF signals can be downloaded from a number of web sites, see reference 4 for details. These programs are discussed in a later section.

Receivers

It is relatively easy to build LF receivers and transmitters. Such equipment does not require sophisticated test equipment to get going, however there are some subtleties to designing such equipment. In important fact to consider is the receiver dynamic range as weak and strong signals can be very close together. Avoiding inter-modulation depends upon the ability of the receiver to handle strong and weak signals at the same time.

A number of LF converters, loop antennae and transmitters have been described in Amateur Radio magazine ; reference 3 lists some of these. These articles show the 'state of the art' for home made LF equipment, and indicate what is possible to build. Some operators make use of Selective Level Meters that were formerly used for long line carrier systems. Such instruments make sensitive and stable receivers.

Antennas

A suitable antenna is critical for reception of LF and VLF signals. For amateurs, there are two that are commonly used:

- The loop antenna.
- The active whip.

Loop antennae offer the advantage of being able to maximise signal strength or null out noise by rotation. However loop antennae need to be tuned for best efficiency.

An active whip antenna consists of a vertical rod, typically 0.5m to 5m long, with a low-noise amplifier at the antenna base. This type of antenna does not require tuning, however it can be more susceptible to electrical noise than the loop antenna. As I live in an electrically quiet location I chose to use the simpler whip type antenna 4 metres in length.

From reference 5, p 228, the radiation resistance of a short vertical antenna over a perfectly conducting ground is given by:

$R_r = 40\ \pi^2\ (h/\lambda)^2$

And its capacitance (in pF) is given by:

$C_a = 24.2\ h/(\log(2h/a) - 0.7353)$

Where h = The antenna height (m)
λ= The operational wavelength (m)
a = The whip diameter (m)

While the above assumes a perfect ground, which is not usually the case, the values obtained are indicative of the true electrical parameters. Thus a four meter whip, with a diameter of 10mm, at 200 kHz (λ = 1500 m) appears as a

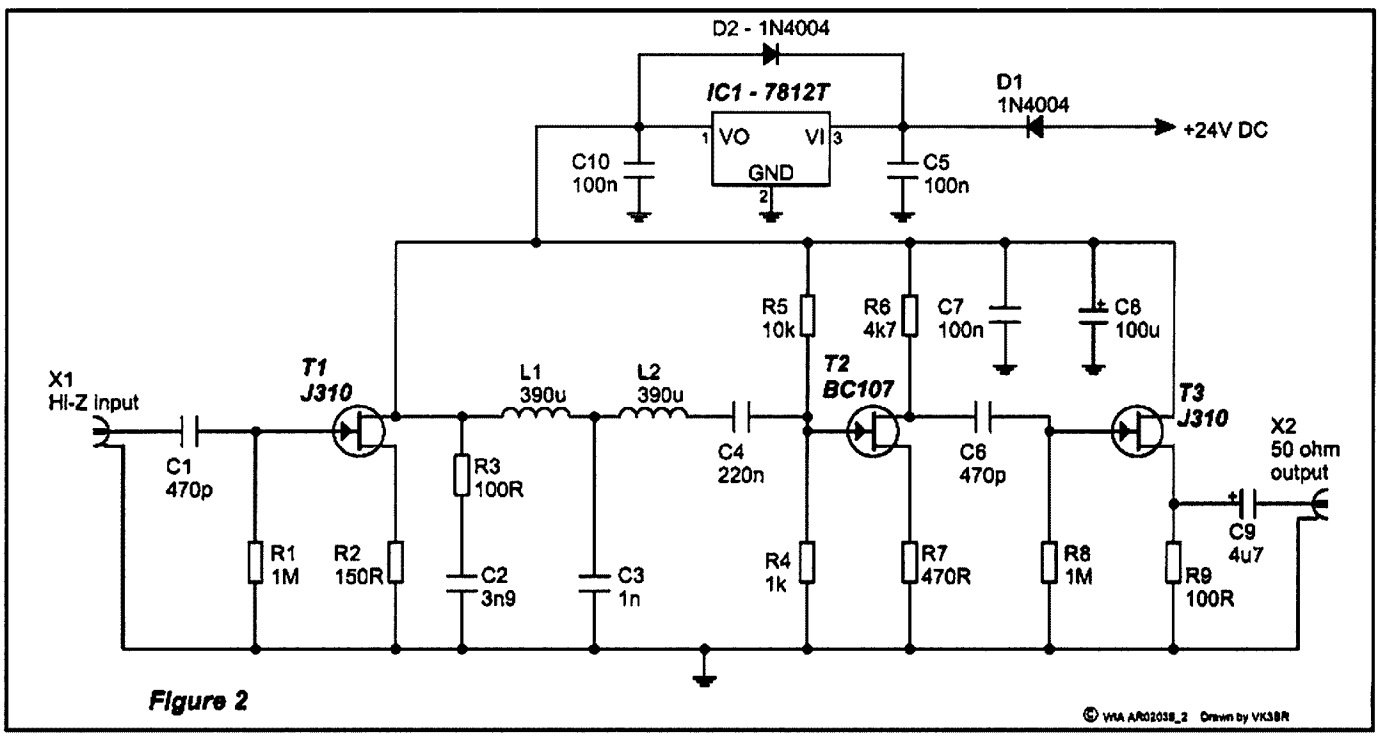

Figure 2. A pre-amplifier suitable for low frequency active whip antenna.

0.0028 ohm resistor in series with 44.6 pF capacitor.

It can be seen that the equivalent circuit of the whip is a low value resistance in series with a small value capacitor. Thus some sort of impedance matching and pre-amplification is required. An amplifier with a 50 ohm input impedance would 'short' out the signal from the antenna, so high input impedance is required.

A suitable circuit is shown in figure 2. The input stage (T1) is a source follower and its' input resistor, R1, sets the input impedance. The source follower then feeds a low pass filter with a cutoff frequency of 400 kHz so that strong medium wave broadcast stations are significantly attenuated, thus reducing inter-modulation effects. Figure 3 shows the measured frequency response of the unit. A small amount of voltage gain is provided by T2, T3 provides a low impedance output for driving a coaxial cable. The circuit should be mounted at the base of the whip antenna for best results. The overall voltage gain is about 2 or 6db, however the power gain is very high and the circuit is very effective when used with a whip antenna.

With this pre-amplifier, my receiver is capable of receiving LF signals from Japan, America, New Zealand and many parts of Australia. It has very good strong signal capability and does not suffer from any inter-modulation effects from strong NDBs or medium wave transmitters. The unit was built using point-to-point wiring on a length of tag strip and is housed in a small die cast box, which is mounted at the base of the whip antenna.

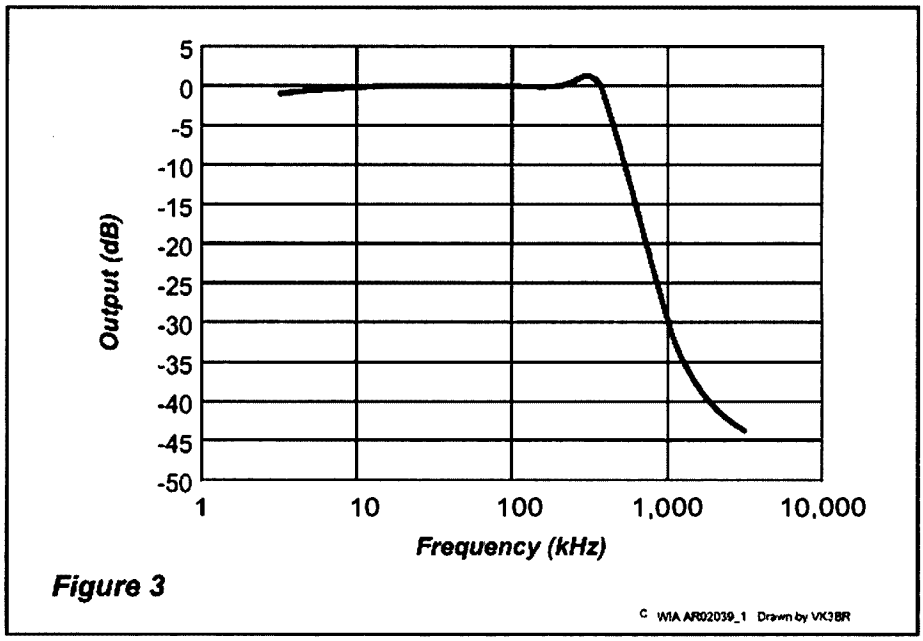

Figure 3. Frequency response of the pre-amplifier circuit.

Unwanted Noise pickup

As noise pickup can be a serious problem at low frequencies the pre-amplifier and antenna can be placed some distance from noise sources so that noise pickup is minimised.

Most computers generate considerable radio frequency interference at low and medium frequencies, so it will be necessary to implement some sort of noise control. I have found the following effective:

- Use a 240 Vac isolation transformer to power the PC and associated monitor.
- Use a separate earth for the radio equipment and computer equipment.
- Supply power to the radio equipment through a high quality interference filter.
- Use an audio isolation transformer between the receiver output and the PC sound card.
- Some PC power supplies are much noisier than others so try swapping power supply modules if noise is severe.
- Build a screened box (Faraday cage) to house the PC, and fit RFI filters or chokes to all cables into and out the box.
- Try changing display settings if the VDU causes interference on desired frequencies.
- If buying a computer, select a unit that is well screened. 'Name brands' usually generate much less Radio Frequency Interference than cheaper types.

Software

Commercial and government LF broadcasters use all the common forms of modulations. Due to restrictions on power and bandwidth, amateurs have developed modulation schemes, which operate with very small bandwidths. This usually means some form of frequency shift keying and using spectral analysis to extract the signal. Several programs are available to the amateur:

- Argo (by I2PHD & IK2CZL)
- Spectran (as above)
- Spectrogram (by R. S. Horne)
- Spectrum Lab (by DL4YHF)

Each program offers the user some different facilities and ease of use. Argo is by far the simplest to use and offers the user preset controls for the popular modes. Spectran is very similar.

Spectrogram was one of the earliest of these programs and it started life as a general-purpose spectral analysis program. It is available in various versions, some of which are more suitable for radio applications than others. Spectrogram offers a convenient facility of being able to record the incoming audio as a wave (*.wav) file. The file can be later analysed or replayed much like a tape.

Spectrum Lab offers a huge range of options and settings; it also has a terminal mode for sending and receiving various modes. It's flexibility and power comes at the price of complexity and it takes some time to master. In addition, Spectrum Lab has a basic 'soft receiver' with which to experiment.

A mode of communications that is growing in popularity is QRSS or very slow Morse code transmissions. In this case, very slow means that each character can take ten minutes or more to send, as the dot length can be 120 seconds or more. Key-down transmits one frequency and key-up transmits a slightly different one. Figure 4 shows a typical display; note that the frequency

spectrum is graphed against time.

What advantage does this mode offer? It means that the transmission occupies a very narrow bandwidth, typically 0.4 Hz, and that the signal can be inaudible, yet receivable using appropriate software. The very slow transmission speed means that the usual aural mode of receiving the Morse code is not practical so that some sort of computer assistance is required. The programs listed above provide that assistance.

Note the very narrow bandwidth as shown by the vertical scale. The narrow bandwidth means that the receiver frequency stability must be very good, excessive frequency drift can cause the signal to quickly drift out of the display range.

A variation of the above display is where the time axis is vertical and frequency is horizontal. In this case, the display is known as a 'waterfall' display. These programs are useful anywhere that very weak signals are received, so these techniques have also been used in EME and HF QRP communications.

These programs can be used to receive ordinary Morse code as well and are especially useful where a number of stations are transmitting on closely adjacent frequencies.

The soft receiver

The idea of a 'soft receiver' has recently been developed. This idea does away with the usual concept of a receiver and instead substitutes a computer, a Sound Blaster card and spectral analysis software which act as a simple receiver. The radio signal is connected to the microphone input of the Sound Blaster. Spectrum Lab contains an interesting soft receiver that demonstrates the idea. The receiver covers the range from DC to 22 kHz and allows the user to tune to a specified frequency and listen to the signal. An adjustable band pass filter is also provided. It's an interesting experience to see the spectrum on the screen and be able to move the cursor to a signal of interest and hear it - and it's all done in software!

The receiver is tuned by moving the small diamond shaped cursor on the frequency scale. The signal may also be heard via the sound blaster card. An adjustable band pass filter is available to help extract signals from the noise. The receiver is set to 14.8 kHz, at the time a navigation signal was heard from Russia. In figure 7, the signal can be seen as a series of pulses.

The continuous lines at approximately 13, 18 and 20 kHz are naval radio transmissions. The thin line near 16 kHz is interference from the 15625 Hz TV line frequency. The slow pulse groups at approximately 10 and 15 kHz are VLF navigation signals originating from Russia. The yellow lines right at the bottom of the display are from the 50 Hz mains and it's first few harmonics. This image was recorded by connecting the four metre whip antenna and pre-amplifier to the microphone input of the Sound Blaster card in the PC - very basic soft receiver.

Conclusion

Low frequency transmission and reception are a fruitful area for amateur experimentation and many operators through out the world are enjoying developing and exploiting new techniques of communications. Long range communications are possible using relatively simple equipment in conjunction with sophisticated signal processing software. Hopefully Australian amateur operators will soon have transmit privileges and will be able to take part developing in two-way communications using a very interesting part of the radio spectrum.

References and further information:

(1) *Early Radio - In Marconi's footsteps*, Peter R Jensen.

(2) *From the Wireless to the Web*, Peter R Jensen.

(3) *Amateur Radio* LF articles:

Sones G, *Active Door Loop Receive Antenna*, October 2001.

Rogers R, A *Low Frequency Beacon Transmitter*, February 2001.

Butler L, *The Active Loop Converter at VLF*, January 2001.

Butler L, *Antenna Noise and Signal Canceling at LF*, December 2000.

Butler L, *A HF to LF Transmit Frequency Converter*, November 2000.

Butler L, *An Active Loop Converter for the LF Bands*, July 2000.

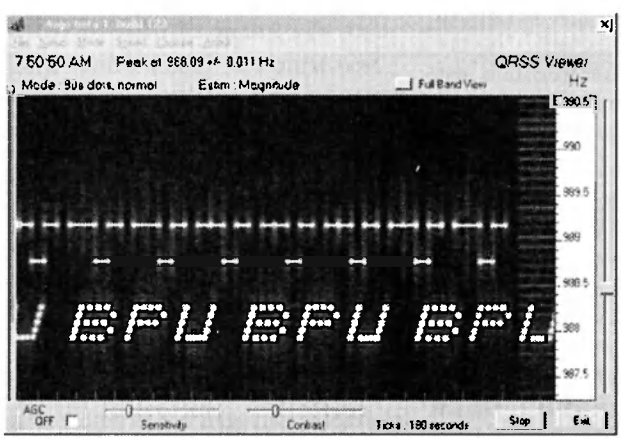

Figure 4. Argo display of QRSS (upper trace) and multi-frequency Hellschreiber (lower trace). Image courtesy of ZL1BPU.

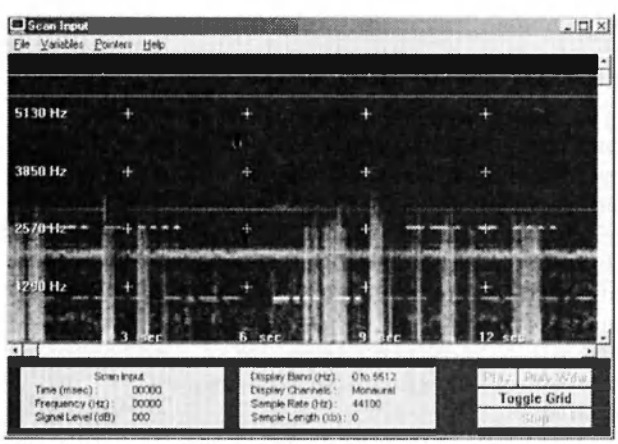

Figure 5. A Spectrogram screen capture of a number NDB's transmitting their callsigns. BN (Brisbane, QLD) over WYY (Wynyard, TAS) on 302 kHz and GTH(Griffith, NSW) on 305 kHz are clearly visible.

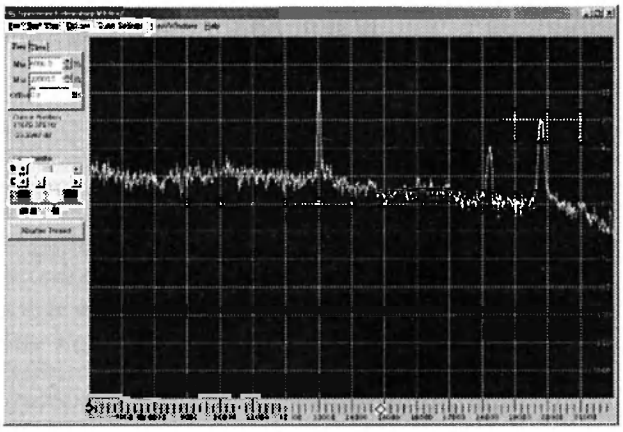

Figure 6. Spectrum Lab Soft Receiver front panel.

Diamond D, *LF Receiving Converter with Loop-stick Antenna*, May 2000.

Butler L, *An experimental Low Frequency Band Transmitter*, February 2000.

Butler L, *An LF Antenna Bridge*, October 1998.

(4) Useful LF web sites:

Argo and Spectran software can be downloaded from:
http://www.weaksignals.com/

Spectrogram can be obtained from:
http://www.monumental/rshorne/gram.html

Spectrum lab can be downloaded from:
http://www.qsl.net/dl4yhf/

Wave files of various transmission modes can be found at:
http://marconi.careless.net/hadarc/digsound.html

This is useful in identifying particular signal types and sources. A wide range of Sound Blaster programs for various modes of reception and transmission can be found at:
http://www.muenster.de/~welp/sb.htm

Long Wave Club of America web page contains much long wave information, articles and links to other LF sites:
http://www.lwca.org/

WWVB time signal information can be found at:
http://www.boulder.nist.gov/timefreq/stations/wwvb.htm

JJY time signal information (in Japanese only) can be found at:
http://jjy.crl.go.jp/JJY-pamp/jjy.html

(5) *Communications Receivers, DSP, Software Radios, and Design*, Ulrich Rohde and Jerry Whitaker.

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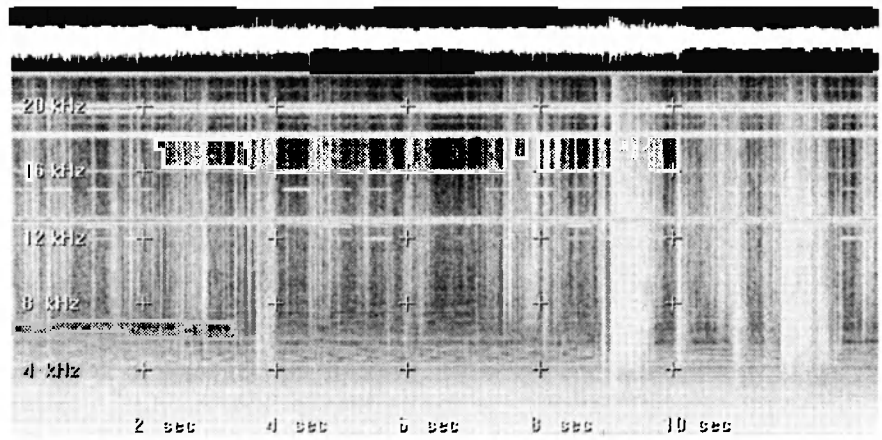

Figure 7. VLF signals between 0 and 22 kHz, seen using Spectrogram. This image was created using the Spectrogram screen capture facility.

Silent Key

Joseph Nelson VK2KJN

Joe Nelson passed away on May 16th, 2003 in hospital after a long illness. He was 76.

He loved radio and in his boyhood days he built crystal and valve sets as a hobby. In his retirement, he qualified as an Amateur in 1996, after doing courses with the Hornsby Club, HADARC, of which he was a member.

He operated on HF and was a revered participant in Col's Net, talking each weekday to other amateurs living in different parts of Australia. He met each month with the Amateur "Vets" at WIA House, Parramatta, enjoying the company of other "hams" over lunch.

For many years, Joe worked as shift foreman electrician at Lysaghts Wire Plant at Fivedock in Sydney, but did his training and apprenticeship in Melbourne

Joe helped at the Volunteer Coastal Patrol Radio Centre at Terry Hills, doing his weekly early morning shift. A highlight of his retirement was his participation as a volunteer at the Sydney Olympic Games. He worked in the "Communications Centre" in an organising role and continued in the same way during the following Para-Olympics.

He loved fishing and swimming, doing laps at the Ryde-Eastwood Gym, Pool, sometimes three times a week. He was an avid follower of AFL Football. He was a gentle and kind man, always ready to help others. He leaves a fine family, his wife Joyce, daughter Sue, and three sons, Jim, Peter and Bill.

Joe will be missed by his many friends and we extend our sympathy to his family.

Submitted by John Stacy VK2JJS

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Lesotho 7P8 DXpedition —July 18-25 2003

Tom Anderson, WW5L

Three Texans and one Canadian will comprise the operators of a major week-long DXpedition to Lesotho (7P8) July 18-25, under the aegis of the Texas DX Society and the Lone Star DX Association.

The operation will be an all mode, all band operation. "We hope to have at least one station on the air 24 hours a day," said Charles Frost, K5LBU, of Missouri City TX, vice-president of the Texas DX Society. "Two of our operators are excellent SSB operators and the other two are specialists in CW and the digital modes," he added.

Team members will be at the Hotel Mount Maluti (http://www.seelesotho.com/mountmaluti.htm) near Mohale's Hoek (30.16 S and 27.48 E). Equipment includes Tribanders for 10-15-20, a 2 element WARC Band antenna, a Tennadyne T-6 LPG, and Alpha Delta 40/80/160 dipoles. Kenwood TS850S, ICOM 706MKIIg, plus 600 W and 1 KW amps. The equipment is already in country.

QSLs will be handled by each operator separately via their home calls as each will have their own 7P8 call.

Team members include:

Charles F. "Frosty" Frost, 7P8CF/K5LBU, (http://www.k5lbu.com) of Missouri City TX a long time Texas and world class DXer earning DXCC from more than 15 countries where he has operated since first becoming licensed at age 18 in 1960. A daughter, **Elizabeth White,** is **KA2UCA/3DA0EW/7P8EW** and is expected to accompany the 7P8 Dxpedition in July.

Frost, who is vice-president of the Texas DX Society, has held the following calls or guest operated from the following DX stations: 9G1LL - GHANA; K5LBU/ST0 - SUDAN; K5LBU/5Z4 - KENYA; K5LBU/TJ - CAMEROON; K5LBU/OA - PERU; K5LBU/6Y5 - JAMAICA; HZ1AB - SAUDI ARABIA; 9J2CF - ZAMBIA; 9L1CF - SIERRA LEONE; VK4CBU - AUSTRALIA; 3DA0CF - SWAZILAND; ZS6/K5LBU SOUTH AFRICA; SU1ER - EGYPT; 7P8CF - LESOTHO; and is planning on a C91 - Mozambique operation later this year. He is a graduate of Texas A&M University's Institute of Electronic Science. He formerly worked in LTV's Electronic Warfare division in Garland TX and also at Galaxy Electronics in Iowa for several years. In 1979 became member of Jungle Aviation and Radio Service (JAARS) which is part of Wickcliffe Bible Translators and went to Ghana to install new antennas and received the call of 9G1LL among his many African call signs. He came back to Texas in 1983 to Houston and owned a ham radio store there several years before returning in 1990 to Zambia 2 years and in 1993 to Sierra Leone for 2 years. He is currently a middle school industrial education teacher in Missouri City TX, where he installed a ham station at Olle Middle School (call sign K5OMS), which places annually in the ARRL"s school roundup contest. He is also a member of 10-10 International.

Madison Jones, W5MJ/7P8MJ, is president of the Texas DX Society (http://www.tdxs.net/), and first started building Heathkits in 1953 and built his first transceiver from a schematic in 1959. His father used to run spark gap transmitters in California in the early 1920s. He is an avid CW single and multi-op contester and has 220 DXCC countries confirmed. He has previously operated as XA5T, XE2FU, XE2KB, XE2Y and 6D2YFM.

Neil King VA7DX/7P8NK was first licensed in 1979 as VE7CVM, and is an active CW DXer and QRPer particularly on 30m. His home station includes a Cubex Mantis II 4L5B at 20m. Runs 2 el on 30 and 40m, 4 el on 10, 12, 15, 17 and 20. Also a 4 el 6m quad buried in the array. Rigs include TS930S, FT100MP, FT847, FT897, FT100D and FT817. Amps include SB221 and Acom 2000. He is also a VHF/UHF mountaintop contester. He is a member of Radio Amateurs Canada and treasurer of the Coquitlam Amateur Radio Emergency Services Society (VE7SCC). He has operated from 4U1ITU, KH6, and as SV1IS and VK4CAZ. He is an internet technology consultant.

Tom Anderson WW5L/7P8TA has also held the calls V31EF (Belize) and G0/WW5L (UK). He is currently vice president and information director of the Lone Star DX Association (http://www.dxer.org/lsdxa). He has 335 DXCC countries confirmed and has 5BDXCC + 17m DXCC and is nearing completion of 12m DXCC. In 1997 he was a member of the K2BSA operating staff and radio merit badge counselor at the Boy Scouts of America National Jamboree. He is also an active storm chaser. Anderson is a former newspaper reporter and editor and is curently a free lance writer. Anderson is also a member of 10-10 International.

Andre van Wyck, ZS6WPX, is the on-scene coordinator of the DXpedition.

QSLs should be sent via each operator's home call. A web page will be announced later.

For additional information contact Charles Frost K5LBU frosty1@pdq.net or Tom Anderson, WW5L, WW5L@gte.net.

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The Silent Service

David A. Pillay VK2AYD
davpil@midcoast.com.au

While travelling north recently, I stopped by the Museum at SURAT on the Carnarvon Highway of Queensland. Although mostly dedicated to Cobb & Co., there was a small interesting display of WWII memorabilia such as letters to home from the lads at the front. The display that caught my eye was headed "New Zealand DX Club". It was a certificate style letter, somewhat faded and enclosed in plastic that made it hard to photograph. However all the words were readable. This led me on a research trail that took me, via e-mail to Jim Meachen ZL2BHF, who referred me to Barry Williams ZL1ACZ, who passed me to the master, Jack Fox ZL4ND who is the NZ Radio DX League Patron and a Life Member, to a web site www.radiodx.com. *This is Jack Fox's story:*

During WW II the New Zealand DX Club (now known as the New Zealand Radio DX League) were responsible for bringing hope to thousands of Australian and New Zealand families of Prisoners of War in both Europe and the Far East.

These Dxers monitored enemy short-wave broadcasts to pick up names and messages of Australian and New Zealand servicemen as well as civilians who were prisoners. The messages they received were then sent to the next-of-kin given in the broadcast. This led to the formation of the club's "Prisoner of War Monitoring Service" led by a prominent Dxer, the late Arthur Cushen, of Invercargill. By war end an estimate of 6,000 messages had been mailed to families in Australasia. Arthur Cushen became the centre point for pooling reports from other Dxers who created a network of listeners. However as the war progressed, more and more listeners were called into the Services and the weight fell squarely on the shoulders of Arthur.

Jack Fox was one of the listeners who were conscripted into the Services. Firstly in the Army and then later in the RNZAF signals where he was fortunate to be able to assist with monitoring from various locations within New Zealand and in the South Pacific.

One of the problems Jack experienced was the difficulty copying addresses broadcast by the Germans, Italians and the Japanese who had great difficulty trying to pronounce Maori and some Australian names. In those days there were no such technologies as tape recorders and everything had to be recorded by hand. If you didn't get it right the first time there was no second chance. In many cases the receiver was just an ordinary household radio.

During the Italian campaign it was not uncommon to receive messages from men recently captured and to pass them on to the relatives before they were reported missing by the N.Z. Government. This was the result of monitoring a German station known as Radio Debunk. The Germans and Italians provided a good service with names and messages soon after internment, however the Japanese were not so fast and often two years elapsed before a message was received, especially with civilian internees in Singapore.

At the height of the monitoring service, signals were being checked from Berlin, Rome, Warsaw, Tokyo, Shanghai, Peking, Bangkok, Penang, Singapore, Manila and Batavia.

Messages for New Zealand that had been received in Europe, either from broadcasts or via the Red Cross, were sent by telex to N.Z. A typical message would read:

"From Cpl J. Doe POW 12345 Stalag 7A
To Mrs J. Doe 1 Some St W Auckland
Text Am fit and well miss you love Joe"

Jack says there are hundreds of letters still on file from grateful relatives expressing their appreciation of the monitoring services to both them and the prisoners.

This "Silent Service" of Radio Amateurs, particularly Arthur Cushen, brought hope to thousands during a difficult and stressful times.

The message on the certificate reads as follows:

1944-45 Message number 1147
The N.Z. DX Club
The voice of New Zealand Radio Listeners
Prisoner of War and Monitoring Division.
105 Princess Street, Invercargill
N.Z., March 24 1945.

A radio message was broadcast over Singapore Radio on March 21st 1945

Addressed to: Mr. J. P. McCallum, 23...Street, Ipswich Qld, from A.B. McCallum, a Prisoner of War at a Malayan camp.

The message was picked up by Jim Martin, a member of the New Zealand DX Club.

The full text of the message was

"Am well, hope same at home, Geo Muir and Ray Burrows all well; Acknowledge this through Radio, would like Red Cross parcels"
Yours sincerely, Arthur T. Cushen, Official in Charge.

Arthur Cushen was one of the world's leading Dxers and was the BBC's reception monitor for many years. With big broadcasts, such as the Queen's message, he was required to find the best frequencies for Australia and New Zealand. He broadcast every week from Radio Nederlands and also on the N.Z. national system.

(Jim Martin was a great Hockey player and at one time was the Printing Manager for Jack Fox).

The monitoring service did not just end with WW II. It was also used during the Korean War and proved so beneficial, that the United States Government commended them for the work they did. After the end of the war they received many requests from the US Army for details of a number of messages they had received concerning prisoners that were held by the Chinese and Koreans. Their volunteer work was a very valuable asset.

NZ DX CLUB - A wonderful service provided by Radio Amateurs that warrants acclamation and could be classified "above and beyond the call of duty".

If you have any information concerning this and other monitoring services, please email or write me.

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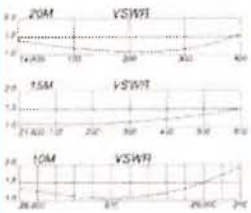

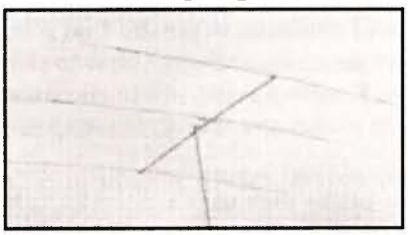

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Aerial experiments

Lindsay Lawless VK3ANJ.

Aerial experimenting is an interesting pastime and on a bright sunny day a welcome chance to spend time in the outdoors. Like all experiments it is necessary to collect the right apparatus. Suitable apparatus is available in most shacks and can be "home brewed" at small expense.

Experiments at wavelengths longer than 20 metres require clumsy apparatus, which is hard to transport and set up; so I mostly don't bother and confine modelling to the shorter waves; the results of modelling at wavelengths at or below 20 meters can provide information useful at the longer wavelengths. There is no shortage of good and reliable information about longer wave aerial experiments obtained by amateurs blessed with lots of space.

A stable signal source is essential and there is nothing better than the station transceiver, operated at about 5 watts or less, or operated into a combination dummy aerial and attenuator. An 8db π section attenuator uses 52 ohm as the input shunt element so paralleling resistors to raise the rating to say 5 watt would be ideal. A suitable lash up unit is described in the RSGB Rad Com handbook sixth edition section 5.50. I use the station stand by FT 707 for a HF signal source and for two metres I use a cast-off FT-2F.

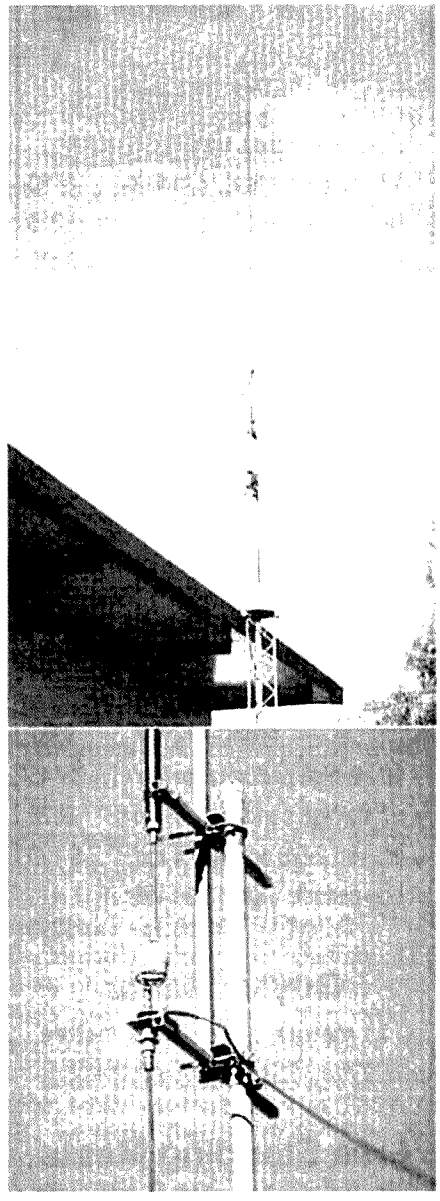
For field work I use a 12 volt power source, a motor cycle battery of about 11 amp hour capacity housed in a cut-down oil container complete with carry handle and fitted with terminals for connecting to a charger and for connecting to the transceiver. For higher power field experiments I use a car battery housed in a standard container available from motor spares retailers.

To raise the experimental models above ground a telescopic aluminium mast intended for use with caravans is ideal; these are available up to about 4 metre high. The CB type aerial insulators similar to DSE part D4056, modified to accept UHF type plugs and sockets and mounted to the mast with U bolts and Vee blocks provide the necessary fixing of verticals. For dipole experiments a centre fed wire strung between two telescopic masts serves. I also use a 2 metre GRP fishing pole (ex Tuna "skull dragger") as a mast extension for inverted V modeling. Another useful platform is a cast off "phased array" TV aerial frame, these have integral V blocks and clamps for mast mounting and two or three horizontal arms for clamping verticals (see photo).

An SWR meter is essential, but it need not be an expensive modern all band model; a cheap CB type transmission line coupler type works OK for most measurements, if the potential inaccuracy is known and allowed for. To calibrate whatever meter is used make up parallel resistor combinations to provide about 10 watt loads of 50, 25 and 150 ohm. I find the SWR resistance bridge type similar to that described in the ARRL handbooks the most convenient; it has the advantage of restricting radiation to a non- interfering level. My version is designed for a maximum input of 10 watts and it serves as a dummy load and SWR meter for that power level.

A collection of suitable length terminated RG58 coaxial cable and one or two fused 12 volt leads and the apparatus is complete except for the aerial models. With that simple collection and a carefully planned method it is possible to construct and tune aerials for operation on 20 metre and shorter waves; the results provide information useful for the longer waves. Note the absence of grid dippers and similar devices. A dipper might be useful for some adjustments but the results can be misleading; it is best to adjust for a minimum SWR match. A field strength meter is useful for more sophisticated measurements and adjustments; there are suitable home brew examples in past issues of AR and other magazines and books; my unit couldn't be simpler, it might be the subject for a future paper.

The test site should be reasonably clear of obstructions for at least 180 degree, I use the front and back verandahs. The front has nearly 200 degree clear all the way to NZ and beyond. Both are conveniently close to power points and other amenities, but don't be discouraged if there is nothing similar at your QTH, if necessary load all the apparatus into the car boot and head for the hills.



The photographs show a recently completed bottom loaded vertical for 20 metre. It uses one "radial" which is really the second leg of a vertical dipole. The bottom loading inductance is exactly as calculated from information in the ARRL antenna book 18th edition. It works well on DX via the long path to Europe; construction details might be the subject for a future paper.

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May correction

May *Amateur Radio*, page 24, carried the figure for 'A Crossed Field Loop Antenna for 3.5 MHz'. Unfortunately the parts list which was part of the figure got separated and mislaid. The figure and parts list are printed below.

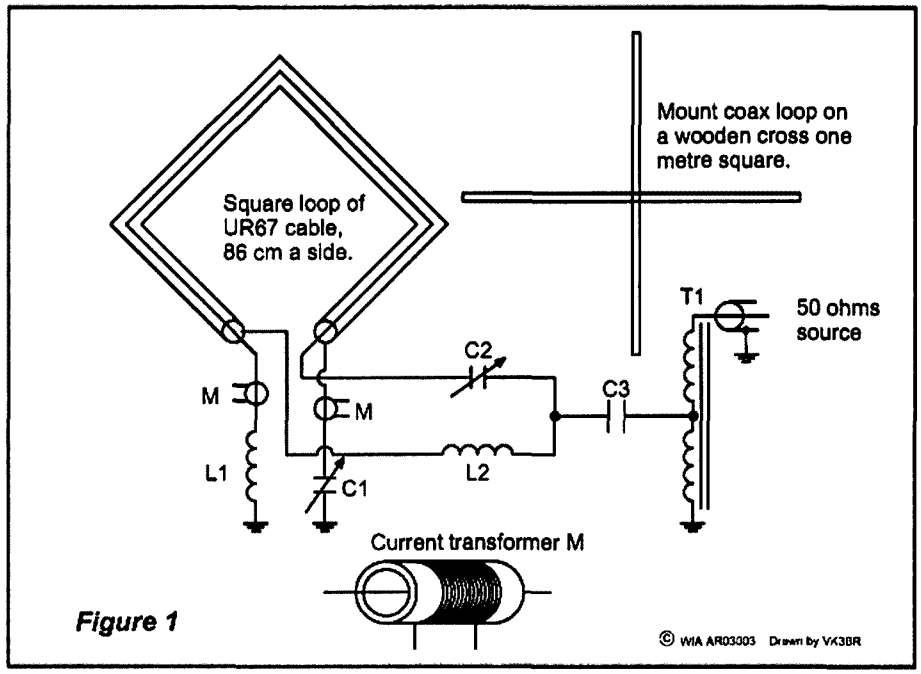


Figure 1. CFA Loop for 80 metres – Circuit Diagram

Component List

- **L1 – 5.5uH, 22 turns, 2 cm diam, spaced 30 mm**
- **L2 – 5uH, 20 turns, 2 cm diam, spaced 27 mm**
- **C1, C2 – 180pF Variable Vane Type Trimmers (Screwdriver Set)**
- **C3 – 680 pF 500V Foil Type Mica**
- **T1 – 2:1 Toroidal Transformer (10 Turns Bifilar on 3 cm Toroidal Core)**
- **M, M – Current Transformers – Phasing Monitors for CRO.**
  Insulating Sleeve, outer diam – 9 mm,
  inner diam – 4 mm, length – 8mm,
  Wire passes through centre of sleeve.
  20 turns of light gauge wire wound around outside.

ERRATA: *Editor denies moving to Victoria!*

MARCH: Page 47

Table 2. System Impedance.

Frequency (MHz)	Impedance (ohms)
75.75	6.8 + j343
2.2	135 - j37
10.14	67 - j12

Printed version corrupted.

MAY

Page 5 **The Editor is still VK5UE.**

Page 27 **Bill Wells is VK4UA and in para 1 ZF2FG should be ZL2FG**

Passive components at radio frequency

Pieter J. Kriel

For those who are still designing their own circuits - especially at higher frequencies extending into the GHz region, the last few years have seen a shift away from the *Black Magic* approach to a more scientific approach using reliable CAE programs. These programs are however still relatively expensive.

Nevertheless, knowledge about the parasitic non-ideal behavior of components coupled with low cost (sometimes no-cost) CAE programs can still produce effective design that approaches the accuracy of the more accurate and expensive programs.

In this article we look at a few components to illustrate the usefulness of this approach and hopefully reduce some of the mystique surrounding RF design.

The CAE Packages

There are currently many non-commercial CAE packages available for the PC. However, for the purposes of this article we will concentrate on two. The first is APPCAD available from Hewlett-Packard (1). APPCAD is a desktop RF calculator with many useful functions. The most useful of which is a two-port analyzer that can display swept results up to 18GHz in both tabular S-Parameter form or graphical form. The second is PUFF available from CIT (2) for a nominal fee well below $50.00. An excellent investment by any standard. PUFF was developed to teach advanced students concepts surrounding microwave design and it will display four-port results in X-Y and Smith-Chart form. Readers should not be put off by the presence of the Smith chart - this program is extremely useful for the designer moving up from APPCAD towards the commercial CAE world.

Both of these programs are DOS based but they run equally well under Windows when configured correctly and their usefulness far outweighs any inherent drawbacks due to their DOS heritage.

S-Parameter Design.

If available, S-Parameter data should always be used for best results. Both APPCAD and PUFF will use S-parameter data and this takes all the guesswork out of the component characteristics. In recent years many manufacturers have started to provide S-parameter data in electronic form.

A complete treatment of S-parameter design is outside the scope of this article but for those not yet familiar with it, application note 95-1 from Hewlett-Packard and AN-215A from Motorola provides excellent treatment of the subject. Briefly, S-parameter data consists of measurement data that accurately represents a component at particular frequencies and if S-parameters are not available for a particular component, it is probably not intended for use at high frequencies and readers should be cautious about incorporating them into an ongoing design.

Non S-Parameter Design

What does one do when S-Parameters are not available and the show must go on? Then one uses an educated guess. This is not as bad as it may at first appear. RF Designers has been doing it successfully for many years before S-Parameters became freely available and we are still forced to do so in the case of large signal design for active devices such us power transistors. S-Parameter data is obtained under small signal level conditions and remain valid for passive components under large signal conditions, but for large signal active devices, as a rule S-Parameters are not available due to practical measurement difficulties. However, manufacturers will normally supply input and output impedances of their transistors thus enabling the designer to easily design external matching networks.

CAE packages are particularly useful for just such an occasion. APPCAD has for instance a section dedicated to impedance matching with the most popular topologies at your finger tips. Once a particular approach has been initially validated using this facility, the next step is to plug the values into the two-port analysis or alternatively use PUFF. APPCAD is good for lower frequency work where some parasitics can be ignored or easily modeled whilst PUFF provides the extra flexibility where all parasitics need to be incorporated and the resultant model tends to become quite complex.

Design Example

To illustrate some of the points we will take a fairly simple design example.

The requirement is for an output network to match an MRF1946 Power transistor to a 50 ohm load.

The Data sheet lists the device output impedance as 2.3 -j0.40 at 150MHz. This low impedance has to be transformed up to 50 ohms by a factor of roughly 25. Such a high transformation ratio is normally achieved by cascading two second order sections, each contributing about equally to the total ratio. This also allows some flexibility in choosing values close to standard numbers as well as allowing for bandwidth spreading through stagger tuning. For simplicity we will confine ourselves to the single frequency case - in this instance 150MHz.

Using APPCAD we obtain an L-Section match to take us from 2.3-j0.4 to 10+j0.0. The match can be realised in either a low or high pass form. We choose the low Pass form for two reasons: First, this will reduce the harmonic content significantly and secondly, we can incorporate the parasitic (Inherent) inductance of the transistor collector lead into the series matching inductance.

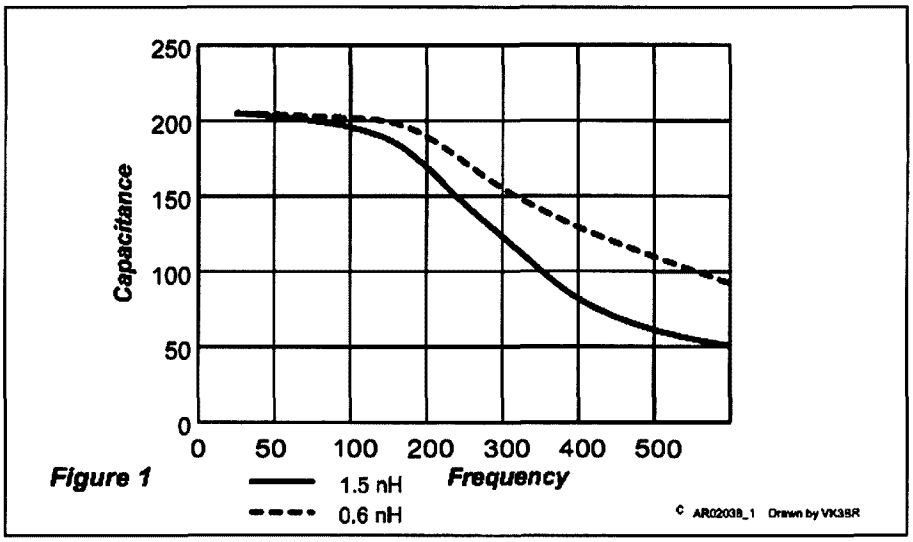


Figure 1

Figure 1 Effect of Lead Inductance on Capacitance

Next we turn our attention to the capacitance required. In power amplifier design two types of capacitor are predominantly used. The leaded mica/metal type which has about 1.5nH lead inductance and porcelain chip capacitors with about 0.6nH inductance. This parasitic inductance has an effect on the effective capacitance and must be taken into consideration. A first order approach is to calculate the effective capacitance using the following formula:

$$C_{eff} = \frac{C}{1 + [(2\pi f)^2 LC\ 10^{-9}]}$$

Where

C = Marked Capacity of Capacitor in pF.

C_{eff} = Effective Capacitance in pF resulting due to the effect of lead inductance.

L = Parasitic Inductance in nH

f = Frequency in MHz

Figure 1 shows the effect of inductance on capacitance.

This procedure can be tedious even with the help of a spreadsheet. A better solution is to use a CAE program like PUFF and model the capacitance with its appropriate parasitic inductance. This way any change can be observed directly in terms of effect and adjustments made even before the prototype is assembled. Smaller changes will then be required and time spent tweaking the circuit significantly reduced.

The results in Fig. 1 illustrate just how important parasitic effects are and as the curve shows, even high quality low inductance chip capacitors are no longer accurately modeled in the UHF region without incorporating its parasitics.

Next we focus on the inductors. Normally we would wind an inductor using enameled wire and estimate its parameters using coil winding data contained in published tables. Then after we have built the prototype we spend some time tweaking it for best results. The problems usually arises when we attempt to obtain repeatable results within the manufacturing environment.

At UHF this problem is often alleviated by the use of printed inductors. Printed inductors are very repeatable and cost effective should space allow. The problem of parasitic capacitance is also eliminated. Even at VHF frequencies we often find it practical to implement printed inductors.

Using our current design we use PUFF to fine tune the design with both matching sections in place using ideal inductors. Once satisfied with the design we substitute one inductor at a time with a printed transmission line section, fine tuning the length and impedance to equal or better the performance of the ideal inductor

At VHF some compromise might be required to reduce the length required. Normally for maximum efficiency we would choose a low impedance section which results in a wider (more copper) but also longer section. By choosing a higher impedance line section we can reduce the required length significantly although we lose some efficiency due to the narrow line's increased resistivity.

A first guess normally starts you on your way and after only two or three iterations, the final results will start to emerge In this case we chose a line width of 5.5mm which matches the collector tab width resulting in a 32 ohm line 21mm long for the first inductance. To minimize length we chose a compromise impedance of 75 ohm for the second inductor which is 1.3mm wide and 47mm long. On long line lengths it is often possible to use a u-shape line in order to conserve space. We can also minimize resistive losses through the use of thicker copper plating (2 oz vs. 1oz) The board material used is standard G10 or FR4 epoxy glass which is effective up to 1GHz. Figure 2 visualizes the concept employed.

continued next page

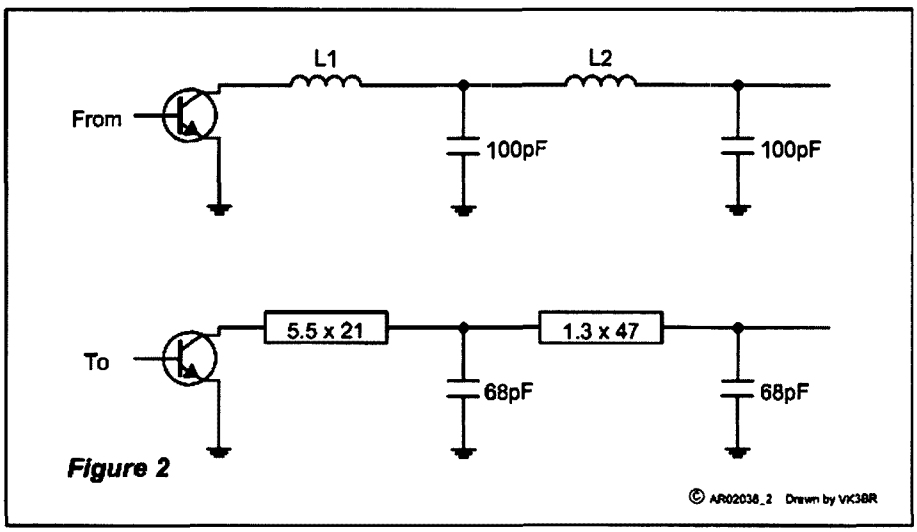


Figure 2

Figure 2 Inductors Replaced with Printed Transmission Line Sections.

Measuring Aerial Field Strength

Lindsay Lawless VK3ANJ

Aerial field strength measurement is useful for tuning models to resonance, for comparing performance and plotting field patterns. Sophisticated equipment is not required for these purposes, the collection of apparatus in the picture is adequate for aerials of 20 metre or less

The apparatus left to right in the photograph is

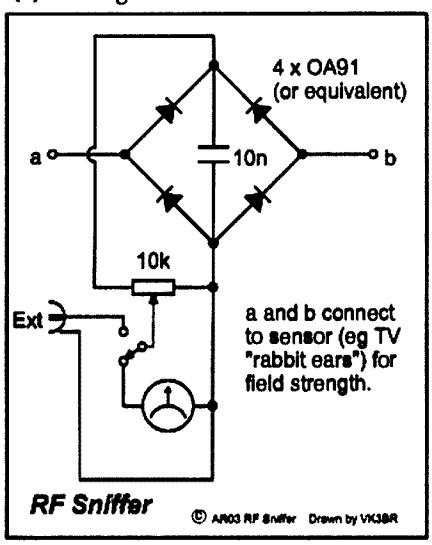
(a) TV indoor "rabbit ear" aerial with about one metre 300 ohm ribbon for connecting to (b).

(b) RF sniffer with internal one mA meter and provision for switching to an external microammeter circuit at Fig.1.

(c) Multimeter or separate microammeter

(d) Electronic millivoltmeter.

(e) Field glasses.



The heart of the collection is item (b) the RF sniffer which serves also, with special attachments, as an absorption wavemeter, a line current meter and GP RF detector. The integral one milliamp meter is best for high level measurements, if higher sensitivity is required the 0 to 1 volt or 0 to 50 mA scale of an analogue multimeter can be used in the external mode; alternatively the 0 to 200 millivolt scale of a digital meter or an external large scale microammeter.

Item (d) is an electronic analogue millivolt meter using the LM386 metering circuit included in Drew Dimond's FS meter described in August 1998 AR and also included in Drew's Milliwatt/Watt power meter in AR April 2002. There are. Several other suitable circuits described in the literature but I find the 386 version the easiest to get going and with the advantage of requiring one only 9 V battery.

The field glasses are necessary if the sniffer meter or the external meter is remotely located and cannot be read by my old eyes, mounting them on a tripod is a good idea

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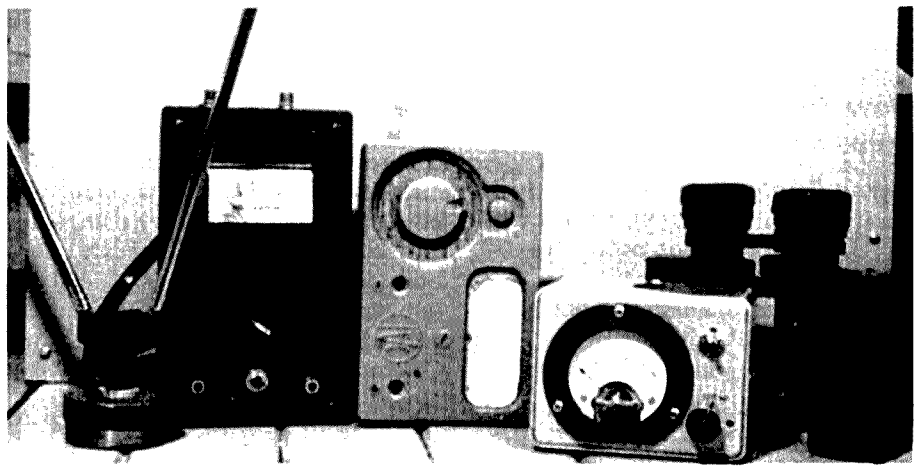

Passive Components at Radio Frequency *continued*

Results

Transmission line inductors due to their distributed nature also results in slightly wider bandwidths (lower Q) and coupled with stagger tuning often eliminates the need for tuning over a wide bandwidth. The result is a cost effective repeatable and robust design suitable for mass production relatively untroubled by parasitic effects. The final design yielded 45W output with less than 0.6dB variation over the design bandwidth of 135 to 180MHz. Efficiency ranges from 61 to 75%.

Conclusion

This brief article demonstrates how effective design can be realised at higher frequencies using the simplest of tools and knowledge regarding component parasitics. For efficient and more complete design the high-end CAE packages certainly come into their own and we will no doubt find them becoming more affordable time passes. In the meantime it is perhaps a good idea to spend some time with the basics of component design and re-familiarize ourselves with the foundations of good design which are found in some of the lesser tools.

References

1. APPCAD is available from Hewlett Packard. Usually at no charge to design engineers. Part Number HAPP-0001.
2. PUFF is available from California Institute of Technology for around US$20.00. They can be contacted at Puff Distribution, Electrical Engineering M/S 136-93, California Institute of Technology, Pasadena, CA 91125. See also the WebSite link on PKE's Homepage - The RF & Microwave Group at Caltech.

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Telegraphy is not dead!

5th IARU World Championship for High Speed Telegraphy. *IARU-News 474*

Vladimir Sidorov, EU1SA, President,
The Belarussian Federation of Radioamateurs and Radiosportsmen (BFRR)
IARU Member-Society

Extracts from the report

The 5th IARU World Championship for High Speed Telegraphy took place at a picturesque site of the sport complex "Raubichi", nearby Minsk, the capital of Belarus. Participants from 13 countries of the World took part in the Championship. Belarus presented two teams, the 2nd of them did not participate in the team competition.

The final Teams classification is as follows:

1.	Belarus-	1 5535.9 pts
2.	Russia	5092.9
3.	Romania	4087.8
(Not qualified)	Belarus-	2 3641.5
4.	Hungary	3205.9
5.	Czekh Republic	2166.4
6.	Macedonia	2030.2
7.	Ukraine	1657.8
8.	Germany	822.4
9.	Bulgaria	741.5
10.	Lithuania	518.1
11.	Georgia	396.7
12.	Belgium	126.3
13.	Moldova	93.6.

96 medals gained by participants of the following countries:

		Golden	Silver	Bronze	Total
1.	Belarus	21	7	7	35
2.	Russia	6	13	7	26
3.	Romania	1	6	7	13
4.	Hungary	4	0	0	4
5.	Macedonia	1	2	3	6
6.	Ukraine	0	2	1	3
7.	Bulgaria	0	2	1	3
8.	Czekhia	0	1	1	2

New World records were set up as follows:

- ***Iryna Tsiaterskaya*** – two World records, in Reception and in Transmission of mixed texts accordingly
- ***Denis Kostyrko, Russia*** – two World records in Practical exercises
- ***Anastasia Lagoutsina*** – Practical exercises (pile-up, PED)
- ***Tanja Azderska, Macedonia*** – Practical exersises (calls, RUFZ).
- ***Andrei Bindasov, Belarus,*** has successfully performed an attempt to beat Guinness records for transmition of letters, numbers and mixed texts. The new respective records were set up for transmission of letters (271 digits per minute) and mixed texts (216 digits per minute).

For the first time in all HST World Championships there were implemented: - the monitoring of process of transmission and practicing tests, so that other participants and spectators can watch the process on large computer monitors installed in special halls and corridors. Instant computing of results of all kinds of competition, since all computers used for competition were networked, the instant monitoring of the overall competition process, as the main monitor in the press-center was presenting results of every competitor and the frames with results were updated every 10 seconds. The above implementations made the competition very spectacular and accordingly the Championship attracted quite a number of visitors.

The Championship has attracted a substantial attention of local TV, radio and other media.

We would like to extend our appreciation to the IARU for granting Belarus the right to organize and perform the 5th IARU HST World Championship. We would like also to thank all participants of the Championship for their activity and enthusiasm which made the event a success.

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Cover photo

Ron Wilkinson Award 2003

The Ron Wilkinson Achievement Award has been presented to an achiever, and mentor for others, Doug McArthur VK3UM.

He was honestly surprised when told the news and delighted at receiving the award, which was personally presented to him in Melbourne by the WIA Federal President, Ernie Hocking VK1LK.

The award certificate citation states: "In recognition of creating a world-class moon-bounce station through personal determination that exemplifies the essence of the amateur radio spirit, and for an outstanding record of achievement in his chosen field of activity."

A previous winner of the award years ago, Doug had no knowledge that he had been nominated by two radio amateurs who made a submission to the WIA Victoria Council, which was endorsed and forwarded to WIA Federal.

Photo courtesy VK3 Division

Southern Cross Award

The Southern Cross Award is issued by the Eastern and Mountain District Radio Club inc. to licensed amateurs and SWLs who confirm through the submission of a signed log the required number of contacts as follows:

- VK3 stations are required to work 15 financial Club members plus ONE of the Club Callsigns, VK3ER, VK3BNW, VK3COD or a Special Call run by the Club, e.g. VI3GP.
- DX and interstate stations require 5 contacts plus ONE of the Club Callsigns as above.

A member and/or Club callsign can only be claimed once per application. Contacts made on the Club Repeater VK3REC are legitimate. However, contacts with either Club members or a Club callsign during both the Wednesday night and Sunday morning Club nets are not eligible for the purpose of the Award. An applicant must submit a legible log showing the date, time, band (MHz), mode, callsign, and operator name of the station worked. The full name, address, callsign (except SWL) and signature of the applicant are required on the log.

Band or mode endorsements are available upon request.

The following fee is to accompany the application:

$A5.00 if the log is handed in and the Award (framed) is collected at a Club Meeting,

$A5.00 if posted within Australia.

$US3.00 or 3 IRCs for DX stations.

Additional band or mode endorsements - $A1.00 for VK stations and

$US1.00 for DX stations.

Applications for the Southern Cross Award are to be forwarded to:

Awards Manager
EMDRC
P.O. Box 87
Mitcham Victoria
Australia 3132

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Carl VK3EMF, President of EMDRC, holding the blank Award Certificate

Log Sheet
for the
SOUTHERN CROSS AWARD
Eastern & Mountain District Radio Club Inc
P.O. Box 87 Mitcham Vic 3132

Submitted by:

Operator Name .....
Address .....
Call Sign .....
Signature .....

DATE	TIME UTC	STATION WORKED	NAME OF OPERATOR WORKED	FREQUENCY	MODE	SIG REPORT Tx	SIG REPORT Rx

Ham Shack Computers

Alan Gibbs VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 26 – Linux for Amateurs

Only about 3% of the world's personal computers use Linux as the prime operating system, yet roughly 53% use Linux (and/or its derivatives such as UNIX) for professional networks and Internet servers. (7). Clearly, Microsoft Windows has the commanding share when it comes to the broad spectrum of computer users. Almost every new computer advert says that their PC systems "...come with Windows XP pre-installed ready to go". Try finding a new computer with Linux pre-installed "...ready to go", or ask the sales staff which computer they can offer with Rad Hat 8.1 or Mandrake 9.0 pre-installed? Their facial expressions are fascinating to watch. Most PC sales staff won't understand what you talking about. Conversely, the majority of Amateur Radio packet networks use Linux as the operating system and FBB as packet engines. Whilst the majority of Amateur Radio users still run Microsoft Windows, there's an increasing number who prefer Linux. So, what's all the fuss about, and is it really an option?

Open Source Code

Last month, the *OpenOffice Review* (Part 25) highlighted the huge cost savings and apparently seamless interchangeability between Microsoft Office and OpenOffice products. It's worth the effort many times over for business and consumers alike. Based upon open source code, Linux is free for experimenters to modify and improve applications provided their products and new source code is available to others. Conversely, Microsoft products and code is closed – hidden in the vaults of Microsoft Corporation and protected by copyright. If you want it, you have to pay a high price to Microsoft even though there might be bugs lurking inside their code! With Linux, it's free to use, with the bugs, but you are welcome to de-bug Linux and offer the solution to the world.

The UpSide

Overall cost savings on software.

Free of copyright and non-restricted use.

Plenty of free software on the Internet.

Help from other RAs and hundreds of "HowTo's" online. Available on CD-ROMs. Choice of operating systems with increased stability. Multi-user environment and network functionality included. Firewall, anti-virus and a modern "look-and-feel". Both windowed and command line operation. Click and go environments. Free and easy plug-ins, regular upgrade options. Ideal business and educational solutions ... and that's just for starters.

The DownSide

Users must learn a new operating system from scratch. Newer Linux GUI releases are generally slower than Microsoft products. Difficult to obtain Linux operating system software except by mail order. Many different systems to choose from, and multiple releases of the same product. Some systems require specialised plug-ins to operate common software applications. Not all hardware is identified when installing unlike genuine Microsoft PnP devices. More difficult to install and configure for newcomers. HowTo's difficult to understand when looking for quick fixes. Far less AR related software available compared to MS Windows. Windows software will not work directly under Linux unless addition "conversion" software is added. Resource sharing with the wider community is more complex. Try sending a "filename.tar.gz" to a Windows friend and see how far you'll get. Linux maintenance tools are impossible to find quickly. Almost impossible to find a Linux beginner course at local colleges and universities. Mainstream retailers don't offer "boxed Linux packages" off the shelf to consumers. If it don't work – you have to fix it yourself. Don't expect your local dealer to bail you out!

It all seems daunting at first, but remember when you first started to use computers. DOS and Windows seemed impossible at first. The more you use and experiment with the Linux system, the more comfortable and productive things become. University IT students studying programming and the UNIX system find Linux a natural progression. The commands are similar, and the systems are highly configurable. However, most RA computer users won't have the same background in programming but they are keen to learn.

In offering Linux to the wider community, recent developers have added Graphical User Interfaces (GUI's), easy installation, auto configure and hardware detection systems, a full set of Internet tools, and "Office Suites" making Linux a real competitor in the computing marketplace. In summary, the UpSide is easier and the DownSide is slowly shrinking with the march of time. With exceptional asking prices and crippling licence fees for proprietary software, the Microsoft Corporation could find some real competition that might cost them billions of Dollars in the world's computing marketplace.

Is Linux ready for the onslaught? Without doubt, Linux has the server, firewall, and router markets firmly in its grips. However, business communities are seriously looking at Microsoft alternatives, but the hearts and minds of the home computer market have yet to be targeted. RA's have the advantage of getting in on the ground floor because Linux is already there in growing numbers.

What's Available? (6)

- Xandros (www.xandros.com)
  Based upon Debian, Xandros has become the best stable Linux derivative, and has the capacity to run Windows software with the same look-feel being ideal for MS converts.
  US$99. No free download.

- Debian (www.debian.org)
  For experienced Linux users, highly configurable and very stable. Not easy to use but this won't worry the guru's who like command line power.
  Free download.
- Gentoo (www.gentoo.org)
  Rough going to install but smallest system with a minimalist approach (16Mb) being •uick to download. Ideal for small-dedicated systems. Some applications must be added.
  Free download.
- Lindows (www.lindows.com)
  Some say this is Windows on a Linux kernel. Click-'n-run features like Windows but pending litigation with Microsoft! Being sold with new computers in the USA – but not for long!
  US$129. No free download.
- Lycoris (www.lycoris.com)
  Touted as the "Windows XP version of Linux". Look for the deluxe version that includes OpenOffice. Very easy to use and compatible with MS Office.
  US$20 or free download.
- Mandrake (www.mandrake.com)
  Delightful to install and available locally on CD's (2&3). From France but reported as being currently bankrupt (6). Widely used but future is doubtful unless taken over. Some minor bugs reported.
  US$30 or free download.
- Red Hat (www.redhat.com)
  Widely used and trusted. Online update for registered users. Not as advanced as Mandrake, more development needed. A first class Red Hat printed manual.
  Aus$40, US$30 or free download.
- Suse (www.suse.com)
  German developed lacking step-by-step installation. Suse looks sleek and comes with excellent printed manuals. More development needed.
  US$40-80. No free download.
- Knoppix (www.knoppix.net)
  Knoppix comes as a bootable CD-ROM and will run on a 486DX2/50 with 16Mb of RAM. Ideal if you want to try Linux but you can't install other applications.
  Free download.

There are many other Linux systems and newer versions due later this year. But, which one should you try?

A Test Case

Having never seen or used Linux, the writer took the plunge and chose Mandrake version 9.0. Mobile racks were installed on networked Pentium 1/166 and Celeron 500/256 machines. A spare 4GB hard drive was selected as "a Linux Test Drive". In both machines, Mandrake installed flawlessly and identified the conglomerate of hardware including network cards, printers, and surprisingly parallel port external Zip drives. Whilst the Celeron was faster, the P1/166 seemed much slower than Windows 98SE. However, the P1/66 configured as a workstation and Internet station functioned delightfully with KDE as the launch platform. It even identified the networked Celeron/Windows XP and automatically configured the default IP/TCP gateway from the P1/166. The writer was on the Internet within one hour on the ham shack P1/166 using Kmail and Mozilla for browsing. Many hours of enjoyment followed when exploring the new Linux system, and the true extent of configuration became apparent. Almost everything can be styled from Icons, backgrounds, and screen savers. Great learning experience for a first time Linux user.

Amateur Radio Options

Adding packet radio was the first thought and LinPac seems commonly used around the traps. Several plug-in's are needed when installed to Mandrake. A quick Internet search found logging programs, contest resources, BBS software, PSK31, maps and GPS software – the list is still growing. The Internet offers chat rooms for like-minded RA Linux users, and packet users offer helpful advice for struggling new comers. The anomaly being that you need connectivity with a DOS/Windows system while experiments are being done on a separate Linux distribution. This can be difficult if readers opt for dual-boot systems with just one shack computer! That's why the writer has three networked computers in the shack. One old 486 dedicated to packet radio and DOS applications, the P1/166 does all the shack operations with Windows 98SE, and the Celeron/XP handles the Internet and office tasks. If anything "hits the fan", productivity and Amateur Radio remains operational at all times. Whichever system you choose, stay with FAT32 before considering Linux. Dual-boot with NTFS using XP is a disaster!

Summary

None of the Linux distributions tell you how to use Linux (2,3 &4) but the online (CD's) have plenty of HowTo's to get you started. Most computer users will have an intuitive idea and be operational within one quiet evening. Just follow the installation guide, insert critical information like the secret root password, username(s), password(s) and the like. Don't make root directory changes unless you have the right information. If you stay in the user directory you'll be safe to experiment.

So, which one should I choose?

Read last months Ham Shack Computers about OpenOffice and hunt for the APC Linux Pocketbook (4) – do some serious reading – then decide for yourself!

Ham Tip No. 26. Buy a "Mobile Rack" (5) to allow hard drives to be removed easily, or to swap between operating systems. If your Linux drive still needs work, swap back to the Windows drive and continue your shack activities, then back again to the Linux drive when time permits.

Ham Shack Computers, Part 27 – next month called "*Home Brew*" looks at building a brand new computer from scratch at a budget price – half the price you'd expect to pay at "emporiums". Ideal for proactive Radio Amateurs wishing to upgrade or just "get with it" in today's world!

(1) Ham Shack Computers Web: http://www2.tpg.com.au/users/vk6pg

(2) *The Linux Minibook.* (3rd ed) IDG Communications. ISBN:0-9580627-7-3.

(3) *Operating in Linux.* (4th ed). Next Publishing. ISBN. Not listed.

(4) *Linux Pocketbook.* (revised edition). ACP Publishing. ISBN. 1-676587-18-0.

(5). Mobile Rack. (IDE/USB with internal fan) Jaycar Electronics XC-4670. $25:00 each.

(6) *Linux Smackdown.* Australian Computer Magazine. April 2003. ISSN. 0745-4415 (pp 66-81).

(7) *The Lure of Linux.* Australian Computer Magazine. December 2002. ISSN. 0745-4415 (pp 118-124).

Written with Linux using Mandrake 9.0 and OpenOffice 1.1 Write on the P1/166. - Then converted to MS Word 97 ready to forward by email to the editor.

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Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

Middle East Iraqi Amateur Operation reported

Amateur Radio Newsline report Ham radio will hopefully re-emerge in Iraq now the war has ended. YI1DZ, is one of the primary operators at the Baghdad Radio Club YI1BGD station in Baghdad. He reported that just prior to the outbreak of hostilities in Iraq that he had dismantled the station. Daily D-X Editor Bernie McClenny, W3UR, says that he doubts there will be any activity in the near future from YI1BGD or any other Iraqi Amateur Radio station. The YI1BGD club station went on the air in the 1970s and the Iraqi Association for Radio Amateurs remains an International Amateur Radio Union member-society. But further, the Daily D-X has reported that Jim KT4CK, of Tennessee, has been active from the Middle East on 15 meters SSB!! April 7, he was identifying as YI/KT4CK saying he was in the desert of Southern Iraq. The Daily DX says that K1XN, has confirmed that Dunkerton is—or has been—with the 101st Airborne. Meanwhile, The Daily DX says Ed Giorgadze, 4L4FN, now is in the Middle East after wrapping up his North Korean (P5) operation. He has been in Turkey, very close to the Turkish/Iraqi border, for the last month and awaits his next UN World Food Program assignment—which could be inside war-torn Iraq. Keith Martin, EI4JM, will be stationed in YA, Afghanistan, for the next year. He is working with the aid agency Concern, looking after their HF communications and computer IT systems. He hopes to be QRV on the amateur frequencies once he gets his YA licence sorted out.

(Qnews)

Broad-band over power line

Broadband Over Power Line" (BPL) is a form of carrier-current technology typically known as power line communication (PLC). Whatever its name, the technology is raising serious interference concerns within the Amateur Radio community in the USA, since BPL would apply high-frequency RF to parts of the power grid. It poses a HF interference threat.

The U.S. FCC are proposing to invite public comment on the concept of using existing electrical power lines to deliver Internet and broadband service to homes and offices. ARRL Lab Supervisor, Ed Hare, W1RFI who chairs the PLC Work group of the IEEE said, "Entire communities will be affected, so every amateur in that community could have part of the radiating system 'next door' on the power wiring on his or her street."

The so-called "access BPL" would use medium-voltage (1 kV to 40 kV) power lines to deliver Internet and broadband applications. Hare says access BPL is likely to be a more significant interference source than in-building PLC technology "because overhead electrical wiring is a much better antenna than the electrical wiring within a building." The new digital power line designs use multiple carriers spread over a wide frequency range—from 2 MHz up to 80 MHz—and capable of high data rates—up to 20 MB/s, the FCC said.

Tests of BPL are under way in several states, including Alabama, Maryland, Missouri, New York, Ohio, Pennsylvania and Virginia. Hare says ARRL Lab personnel will visit some of the test cities this spring to take field measurements to quantify the potential for interference to Amateur Radio operations.

We are keeping an eye on the progress here in Australia as many countries in Europe and elsewhere are considering similar systems.

(ARRL N/L)

From LF to Laser – new distance records claimed

Three British Amateurs have achieved the unusual feat of setting new UK distance records for bands at the opposite ends of the spectrum. G3GRO and G8LSD teamed up with G0MRF to set new distance records for 73kHz in the LF spectrum and for Laser communications at a wavelength of 670 nanometres.

On the 73kHz band contact was established from Ayr in Scotland to Lands End on the evening of April 1st. The distance covered was 610 kilometres.

Four days later G8LSD and G0MRF using Laser, spanned 49.3 kilometres between Dover and Fairlight. After three hours waiting for the atmosphere to clear and precisely locating each other, calls and reports of 559 and 579 were finally exchanged. Both stations used modulated CW achieved by switching the laser on and off at 488Hz. When the lasers were aligned, even over nearly 50 kilometres, they were among the brightest objects on the horizon.

(GB2RS via APCNEWS)

Amateur radio is not dying!

On Tuesday, April 29, students of Dr. John Weiss, WB8KLO, of University of Wisconsin USA, Stout's College of Technology, Engineering and Management achieved another first, when 81 of them sat for and passed their Federal Communications Commission technician class amateur radio license exam and received their amateur radio license grants within 24 hours of sitting for the exam. In so doing, the students became the largest test session yet that has employed online submission of test results and applicant data to the FCC.

Weiss, an Associate Professor at UW-Stout, specializes in advanced telecommunications technology and teaches courses in Telecommunications

Administration, Policy & Regulation, Telephony and Networking. He is also an attorney and a member of the Federal Communications Bar Association as well as the American Radio Relay League. His wife, Diana is also a licensed ham operator.

Weiss gave his students the option of earning their radio licenses in partial fulfillment of class requirements. "This is a great way to broaden the experience of students in my Introduction to Telephony class," he said. "Students study FCC rules and regulations, basic radio communications technology, and proper operating procedure in order to earn their right to operate an amateur radio station."

"Students that do not own their own amateur radio equipment are able to use their new license grants immediately, employing their laptops and a software program called EchoLink that links amateur radio stations around the world using new voice over IP technology."

"Earning their license gives them something else to put on their resume and, for some, it will serve as an introduction to a life long passion. Some of the newly licensed students are already on the air operating."

The rapid license grants were made possible by using newly available VE-to-VEC-to-FCC electronic submission technology developed by the W5YI volunteer examination coordinator. While students were waiting for their test results, they were treated to pizza by the examining team, which helped ease the anxiety of waiting for scores. At the end of the night, many smiles were seen on the faces of the large number of successful candidates.

Using password-protected electronic forms posted to the W5YI-VEC website, John Burningham, WB8PUF began keying in the test results right after the exam session and all 81 applications were waiting at the VEC Office when they opened the following morning. After routine screening, all applications were electronically retransmitted to the FCC. Within an hour, the FCC issued the licenses and call signs which were immediately forwarded over the Internet to Burningham.

The 21st Century is here! YES 81 new Radio Amateurs licenced and all students.

Well done UW.

If you have news of Amateur Radio happenings around the world, please share them with us.

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Technical Abstracts

Gil Sones VK3AUI
30 Moore Street, Box Hill South Vic, 3128

Adding a Crowbar

A crowbar is a circuit which protects your transceiver from excessive voltage if your mains operated power supply should suffer a component failure. A design which could be fitted to an existing power supply appeared in the *In Practice* column of Ian White G3SEK in *RadCom*, January 2003.

The design is intended for a typical transceiver power supply and uses a thyristor to blow a 20 amp fuse. This requires a thyristor, or SCR, which has a sufficient surge rating to handle the current needed to blow the 20 amp fuse. This is much more than the 20 amp the fuse can carry without blowing. A 30 amp thyristor with a surge rating over 500 amp is used.

The fuse blowing current is found from the I^2T rating of the fuse and this determines the current which must be carried by the thyristor. The current is much higher than the carrying current rating of the fuse and the high current blows the fuse in a short time.

A typical power supply circuit is shown in Fig 1. The crowbar circuit is connected between A and B and to point C, the + ve output, and to the – ve output rail. The crowbar circuit is shown in Fig 2. Another addition which may be worthwhile would be a diode connected between the + ve output, C, and the regulator input, B, to protect the regulator circuitry from a discharge path from any capacitors on the output lead when the thyristor TH1 fires. This diode is D1 shown added in Fig 1.

The fuse used, F1, 20 A, is a small automotive blade type. These are small and small holders are available. The thyristor is a 30 amp plastic type, BTW69200, which was obtained from Farnell, part No 251940. Other equivalent thyristors or SCRs could be used. A heatsink is not used as the current which blows the fuse only flows for a very short time. Zener diode ZD1 is a 15 V 0.5 W type such as BZY88C15 or BZX55C15 or equivalent. The diode D1 needs a surge rating which may approach that of TH1 if the output DC line has large bypass capacitors across it either in the power supply or in the transceiver.

D1 could be one of the heavy duty diodes which you might find at a hamfest or you could use a diode in a diode bridge. Resistor R2 is included to provide a bleed for the power supply filter capacitor C1. The whole circuit can be built quite small and included in your power supply.

You can test the operation of the circuit by using a resistor in place of F1 and temporarily connecting ZD1 to a variable voltage source. Then, when you know the circuit triggers, use the fuse in F1 and see if the circuit will blow F1 when the voltage applied to ZD1 reaches the trigger voltage. You will also know then if TH1 is big enough. You can check this by conducting a second test with F1 replaced by a resistor. If all is well you have a crowbar protected power source for your transceiver.

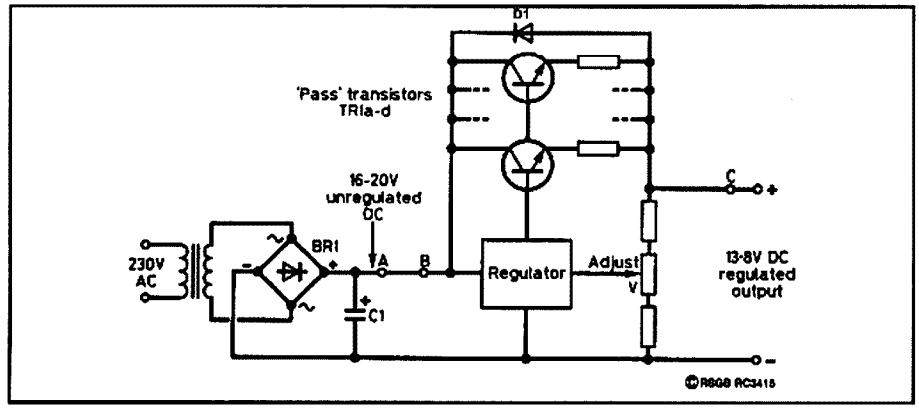

Fig 1. Typical transceiver power supply. Diode D1 is added to protect the regulator as described in the text.

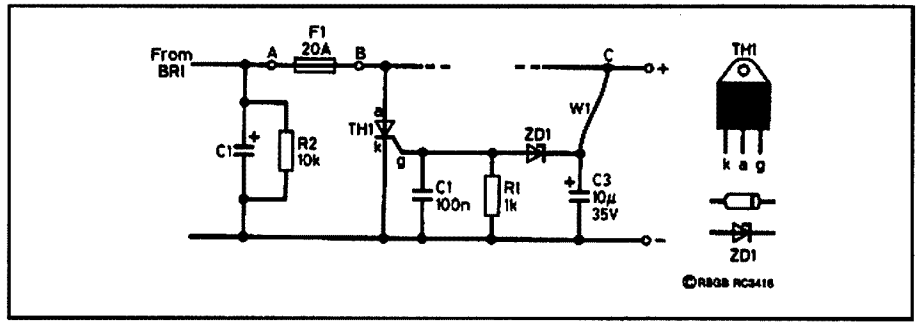

Fig 2. Added components for thyristor crowbar.

PLAN AHEAD

***GippsTech 2003 Conference* – 5 & 6 July 2003**

http://www.qsl.net/vk3bez/

A Large Low Loop

A large low loop intended for NVIS operation on 80 metres was described in the *Technical Topics* column of Pat Hawker G3VA in *RadCom*, October 2002 by Peter Ball G3HQT. This was based on a design by Peter Pennell G2PL in the *Technical Topics* column in *RadCom*, July 1968. The idea was to work short skip and NVIS on 80 metre. Peter varied the original by feeding the short sides. This was to make the currents in each branch in phase. The antenna is shown in Fig 3. The feeder is a short length of open wire line to an automatic antenna tuner, SGC type SG230, located nearby which allows operation on all bands from 160 metre to 10 metre.

Peter G3HQT found that the antenna not only worked as intended for NVIS on 80 metre but also provided reasonable performance and DX contacts on higher bands.

The antenna attracted Dr John Belrose VE2CV who was interested in the antenna and the performance and ran a computer model of the antenna using EZNEC/4. This appeared in the *Technical Topics* column of Pat Hawker G3VA in *RadCom*, January 2003. The results of the modelling which explain the good performance are shown in Fig 4.

The antenna is an NVIS radiator for the 80 metre to 16 metre (8 MHz) bands but produces lower angle lobes for 15 metre and 10 metre. The lower lobe is in the X-Z plane (endfire) for 15 metre and is in the Y-Z plane (broadside) for 10 metre.

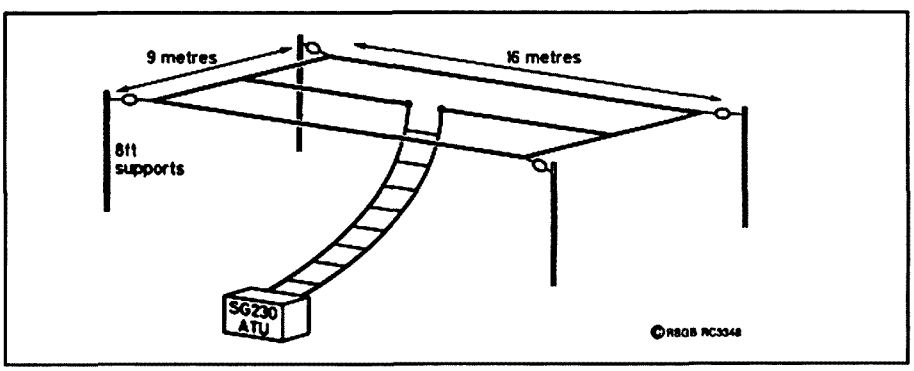

Fig 3. G3HQT's low large loop. The supports are 8 ft (2.4 m) and the perimeter is 50 metre. Feed is across the two short sides using open wire feeder and an SG230 tuner.

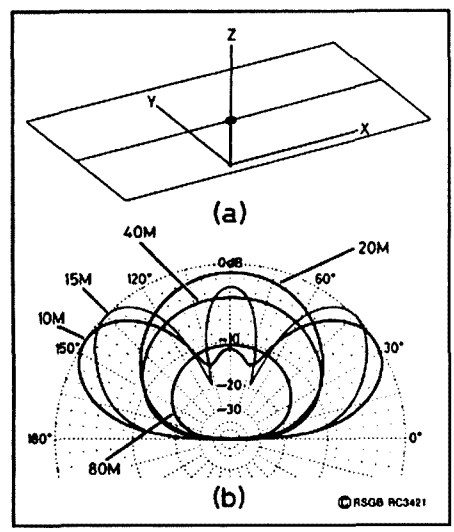

Fig 4. VE2CV's EZNEC/4 modelling of the vertical radiation pattern of G3HQT's antenna for 80, 40, 20, 15 and 10 metre.

A Simple Power Attenuator

A simple and different power attenuator appeared in the *In Practice* column of Ian White G3SEK in *RadCom*, January 2003. The idea came from Geoff Pike GI0GDP and was from an item in the ARRL book *Solid State Design For The Radio Amateur* by Wes Hayward W7ZOI and Doug DeMaw W1FB.

The idea is to use a toroid transformer with the primary formed by a single wire passing through the centre carrying the current flowing to a dummy load. The secondary consists of 10 turns wound on the high permeability toroid. The arrangement is shown in Fig 5. With both terminations of 50 ohm the –20 dB coupled output is transformed into 0.5 ohm in series with the main load of 50 ohm. The main load impedance is essentially unchanged. This attenuator can be used either as a through line sampler or as a 20 dB attenuator. The termination in the main line needs to have an adequate power rating for the RF Power used.

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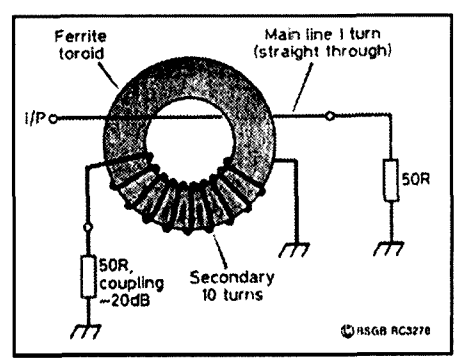


Fig 5. Using a small toroidal transformer as an RF sampler or attenuator. The 10:1 turns ratio gives –20 dB coupling to the branch line.

Division News

Forward Bias

VK1 News

Peter Klopponburg VK1CPK

Good news about the Division's efforts to avoid interference from Low Interference Potential Devices (LIPDs) to its ACT repeaters. The least complicated option was to change the input frequency of Black Mountain's 70-cm repeater on to a new LIPD-free channel pair.

The increasing use of cordless headphones is causing much concern to amateur radio clubs with 70-cm repeaters surrounded by suburbia.

LIPDs transmit wide-band broadcast audio for extended periods on frequencies that drift in and out of the repeater's input frequency. Accordingly, the repeater is frequently activated for long periods of time.

Many lower level inputs, typically from Hand-Helds, are blocked by the nearby LIPDs. The output stage of the repeater can become overheated, with the potential of failure, and normal use of the repeater becomes impossible. An option was to fit CTCSS to the repeater's input, but ACT Division's committee rejected this because it would have simply masked the problem, and heavy de-sense of the repeater's receiver would still remain. The old and new frequencies of the "70-cm repeater" are:

Old: 438.525 MHz out
433.525 MHz in

New: 439.950 MHz out
434.950 MHz in (IRLP)

Black mountain now has two 70-cm repeaters, with the second one on: 438.025 MHz out - 433.025 MHz in, and intended for linking to other repeaters.

More good news! ACT-WICEN team members had a new experience at the Subaru Rally of Canberra in April. The team assisted the rally organisers in trialling a commercial automatic tracking system alongside the proven method of voice reporting from the start, intermediate, and finish points. Each point was equipped with a SKYNET-device that, with a reader set up pointing across the track, and a data transmitter, relayed tracking data to a circling aircraft that relayed to Rally Control at Rydges Lakeside, Canberra.

Each rally car had a unique identifying tag - similar to shop goods - which was 'read' as the vehicle passed the reader. This data, and timing information, was passed automatically to a screen at Rally Control. Interestingly, the tag readers employed LIPD spectrum. The trials demonstrated the potential of the system, although 10 % of the data was corrupted, apparently due to faulty tags.

In the words of Alan Hawes (VK1WX): "This rally has proved that Radio Amateurs are, if nothing else, versatile and able to overcome equipment problems. The first duty of the trackside operator was to key-in the stage number and location. When the node had logged in, the display showed an Alpha description of the location. As each passing car registered in the Black Box, its registration number and the time of passing were displayed, together with an indication whether or not the data had been transmitted to Rally Control. That was the theory, and for much of the time it worked. However, there was still operator intervention required!

In the weeks prior to the rally, ACT-WICEN was informed that Rydges Lakeside Canberra is used for the location of a 148-MHz paging transmitter. Arrangements were made for filter cavities to help reduce the interference to reception of the WICEN portable repeaters around 147 MHz.

When the team arrived at Rydges, they found two 300-watt paging transmitters! The team installed a UHF/VHF cross-band portable repeater in the suburb of Fyshwick to overcome this interference. A WICEN portable repeater was set up on Mt Jerrabomberra to cover Kowan Forest.

Murphy's Law struck. The repeater hated cold nights and would not function till the sun came up. "Like some of us" said Alan. The qualities of experience, ingenuity, and persistence were well represented in all the volunteers who assisted with the rally. Special thanks go to the HQ team: Phil (VK1ZPL), Paul (VK1TEE), John (VK1ET), Michael (VK1TMT), Neil (VK1KNP), and Mark Hawes, who kept it all glued together for a job well done.

WIA-ACT President, Alan Hawes (VK1WX), sent E-mails to all volunteers to thank them for their efforts. Alan said that the Subaru Rally of Canberra is a world-class event, and by supporting the rally, ACT-WICEN is assisting with income to the Canberra community.

The next general meeting will be on Monday, June 23, 2003 at Scout Hall, Longerenong St., Farrer, at 8.00 pm. Cheers.

Silent Key

Cec Bardwell Ex VK2IR

It is with sadness that we learn of the April passing of Cec Bardwell, ex VK2IR, after a long illness. Cec was a Life Member of the NSW Division. A private funeral was held on the 21st April

Born at Broome Western Australia Cec started his working life as a Radio Officer in the Merchant Navy. Later he became associated with the Marconi School of Wireless in Melbourne and then in Sydney. He became Manager and he stayed with the Marconi School until it closed in 1991

Many Amateurs will remember Cec, who set up and conducted the Correspondence Course for the NSW Division. Cec also taught classes for almost 20 years. When Division was at Atchison Street, the class teaching and morse training room was dedicated as the "Cec Bardwell Classroom".

The background to Cec is to be found in a paper written for the reunion of ex-students of the Marconi School of Wireless, which was held in Sydney in 1997. The paper may be found at http://www.suburbia.com.au/ calinc/marconi/bardwell.html

Any condolences for Cec may be sent to his son, Derek and Sandra Bardwell, c/o Parkway Funerals, 15 Pacific Parade, Dee Why 2099.

Advised by Ted Miles VK2FLB (mailto:tedmiles@tpg.com.au) and Tim Mills VK2ZTM

VK3 News

WIA Victoria Councillor, Barry Robinson VK3JBR
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

We thank volunteers

On Sunday May 4, WIA Victoria hosted a celebratory luncheon for VK3 radio amateurs who are volunteers for either WIA Victoria or WIA Federal.

The WIA Victoria Council decided that the volunteers deserved a celebratory lunch, to formally recognise their contributions, and also give them a rare opportunity to meet with fellow volunteers and discuss mutual interests.

A total of 33 invitations were issued and 22 attended. Think about that for a moment, we have 33 WIA volunteers in Victoria.

Apologises were received due to other commitments ranging from being overseas to trying to running uphill against the Puffing Billy steam train in an annual event.

WIA Victoria President, Jim Linton VK3PC, addressed the luncheon. He expressed the view that being a volunteer put some balance in the lives of volunteers, it can become a hobby in itself, and be a way of personally putting something back into amateur radio.

Jim VK3PC said that some of the volunteers had served for 40 years or more, and could be identified by their thick skin, adding the observation that one needed such an attribute to survive.

Past WIA Victoria President, Herb Stevens VK3JO, responded with recollections of the production of AR magazine during the years of WWII, and how important it was for volunteers to keep the WIA going.

Each volunteer at the luncheon was presented with a certificate of appreciation, and had their photograph taken. Certificates have also been mailed to those unable to attend. The general feeling was that the luncheon was a pleasant surprise, gave an opportunity for socialising among the volunteers who often never meet, and the view that it should be done again some time in the future.

Radio mast case ends

Banyule City Council in Melbourne's north-east has finally withdrawn its demand that a small amateur radio mast be removed from the backyard of a home in suburban Bundoora.

The council engaged in a very hard fight against the radio mast claiming it was a Telecommunications Facility and therefore required a planning permit.

Mark Stephenson VK3PI said he was delighted to learn that Banyule Council was not going to prosecute its case against him by seeking an enforcement order in the Victorian Administration Appeals Tribunal (VCAT).

The decision to withdraw the pending action was taken by Banyule Council after another recent VCAT hearing reaffirmed that amateur radio masts under 14-metres in height do not need a planning permit, and are not a Telecommunications Facility.

Mark VK3PI thanked WIA Victoria and its President Jim Linton VK3PC, and Greg Williams VK3VT, who provided support and advice.

He said he was indebted to WIA Victoria, Melbourne radio clubs – in particularly the Western and Northern Suburbs Amateur Radio Club, North East Radio Group, Eastern and Mountain District Radio Club, and Moorabbin District Radio Club – and to many radio amateurs throughout Australia who heard of the case, and offered their support.

In January, WIA Victoria made a detailed submission to Banyule Council pointing out it was in error by describing the radio mast as a Tele-communications Facility. Despite the submission, the council then served Mark VK3PI with notice that it was to seeking an enforcement order under the Planning Act in the Victorian Administrative Appeals Tribunal (VCAT).

WIA Victoria President Jim Linton VK3PC said the Council was dogged in its approach and clearly had another agenda beyond amateur radio masts.

The council planning staff were convinced that although the radio mast was not a satellite dish, it was similar, and a victory in VCAT would help its cause in seeking to limit or ban satellite dishes in residential areas.

Congratulations to Banyule Council for acting quickly to withdraw its proposed action against Mark VK3PI, so soon after learning it had made a mistake.

WIA Callbook 2004

The callbook has had its production and other difficulties in recent years, and the WIA Victoria Council wants to make a worthwhile contribution to try and avoid a repeat of history.

It is calling on its members to make written suggestions about how to improve the timeliness and accuracy of the 2004 callbook, both its hard copy and CD version.

If you have a comment or view, please forward them to the Callbook 2004 Review, WIA Victoria, 40g Victory Boulevard, Ashburton 3147.

The exercise aims to identifies the failings of the callbook and in a supportive and constructive manner, provide these as a "things to do" and "things not to do" for the information of the WIA Federal Council, and as suggested goals for those directly responsible for all aspects of its production.

Silent Keys

William O Hill VK2AVH

William died on 25 April 2003. He lived at 15 Morgan St., Petersham, NSW, 2049

Ron Daniels, VK3AEO ex VK2ADA,

We are saddened to accounce the passing of Ron Daniels VK3AEO, ex VK2ADA on 1 May 2003. He was a brother in law of Trevor VK2TM.

Advised by Dan Clift VK2DC

Division News

VK4 News

Qnews

By Alistair Elrick VK4MV

SSTV on HF

VK4ZU Trev is experimenting with SSTV on 10.138 MHz. The SSTV USB transmissions are in accordance with the WIA 30-metre band allocation and should have no/negligible interference with other stations. His system will also act as a repeater at times during the day to provide a facility to enable you to see a replay of your pictures. An access tone of 1750 Hz is required.

Any expressions of interest or constructive comments are welcome, either on the 10.138 MHz channel or the City of Brisbane packet station VK4WIE.

That is VK4ZU @ VK4WIE.#BNE.QLD.AUS.OC

Radio Scouting

TeleText page 958
http://jota.scouting.net.au
http://www.scouts.com.au/discover/index.html
http://www.scout.org/jota
JOTA 2003 - October 18 and 19 2003.
JOTA HF Voice Calling Frequencies 3590, 7090, 14190, 21190, 28590 kHz 14290, 18140, 21360, 24960, 28390 kHz (DX)

The 46th Jamboree on the Air will take place on the 18th and 19th of October 2003. Anyone seeking information regarding JOTA can contact the VK Co-ordinator via the jota.scouting.net.au site.

You can bet on this

As featured in Backscatter this month came the news that theTARCinc. has been successful in obtaining a grant from the Gaming Trust to completely makeover the VK4RAT 2m Voice Repeater.

All the parts have arrived via Navcom Electronics (thanks to Barry VK4TBD and Lucia) and the repeater is currently on test on Barry's torture table.

A working bee at Mount Stuart to do the installation is planned for all day Saturday May 31st. Lots of hands needed as the installation includes rack mounting equipment, installing lightning suppressers, new coaxial feed and new antenna. Sausage sizzle lunch will be put together by the club with mien chef being Phil VK4JOK with his flip down travelling kitchen making baking cooking all the while!

An extra special something will be happening at the site - watch this space!

This is in addition to the experimental 23cm beacon on air as VK4RTL, which gives something more than just the Airport Radar to tune into on the 23cm band in Townsville. The deployment on 21st April of VK4RTL 1296.444 beacon at Mount Stuart is for a trial run. This mighty little beacon puts out a massive 2.5 watts and can be heard on most modern tri-band handhelds around Townsville and Thuringowa.

Engineered by Don VK4MC and installed at theTARCinc repeater site by Don and Tony VK4TJS, with help from Kerry VK4TUB and Gavin VK4ZZ, the 23 cm beacon transmits a continuous identification message, which cycles every minute. Reception and range reports requested - send to vk4wit@wia.org.au or hand them to Don/VK4MC next time you see him.

Regional VK4 students get futuristic

Queensland students are getting the chance to go sci-fi this month with a range of workshops and competitions in robotics in a number of regions. Innovation Minister Paul Lucas said students in Rockhampton, Tully and Cairns would get the opportunity to learn how to build a robot, and program it to perform tasks such as kicking a soccer ball.

Mr. Lucas said "Robotics is used in all sorts of industries these days, and these workshops are one way that we can show students how high-technology careers can be exciting and rewarding. Our SmartFuture website www.smartfuture.qld.gov.au is aimed for 13-18 year olds and is designed to encourage them to consider a career in science and technology."

(For further information on the Robocup workshops: phone Paul Whittem in Tully on 4068 4555).

NQ man honoured for electricity foresight

A man who was at the forefront of the expansion of electricity supply in North Queensland has been honoured with a substation now bearing his name. Alan Sherriff was an alderman for 18 years with the Townsville City Council and spent 18 years on the Townsville Regional Electricity Board - 14 years as Chairman and oversaw the construction and commissioning of the Collinsville Power Station.

Other significant power projects underway in Townsville include the under-grounding of selected 11,000-volt power lines to improve the reliability of power supply during the curly wind season.

73s from Alistair

VK7 News

Justin Giles-Clark, VK7TW

Divisional

Our eighth VK7 Divisional Councillor to fill the last Council vacancy is Reg Emmett, VK7KK who is also the Divisional Education Officer. Welcome Reg. Our thanks Mike Jenner, VK7FB who stepped down as Broadcast Officer (and President) at the Divisional AGM. Mike has performed the Divisional Broadcast Officer's job for a number of years which involves creating a broadcast script each week from a range of sources and many times Mike also read the broadcast.

We welcome Rex Moncur, VK7MO and Trevor Spargo, VK7TS back from a very successful digital DXpedition to Lord Howe Island. Many meteor scatter contacts were made along the Eastern seaboard. Contacts were made with VK2, 3, 4 and VK7, including Joe Gelston, VK7JG and Dave Marsden, VK7DM operating Rex's home station. Three weak signal moonbounce contacts were made to Rex's amazement, two US contacts and one Swedish. I am sure Rex will be telling more of this successful DXpedition in future editions.

For greater access to the VK7 Divisional broadcast by both amateur and non-amateurs we now have a VK7 Divisional News email list courtesy of Yahoo Groups. Anyone can register their email address and receive the Divisional Broadcast text and relevant Divisional news free via email. The easiest way to subscribe and receive the broadcast via email, is to send a blank email to: vk7divisionalnews-subscribe@yahoogroups.com

Once you become a member of the group you can view and search the archived broadcasts. Membership is open to anyone and messages sent to the list are moderated. The addresses are:

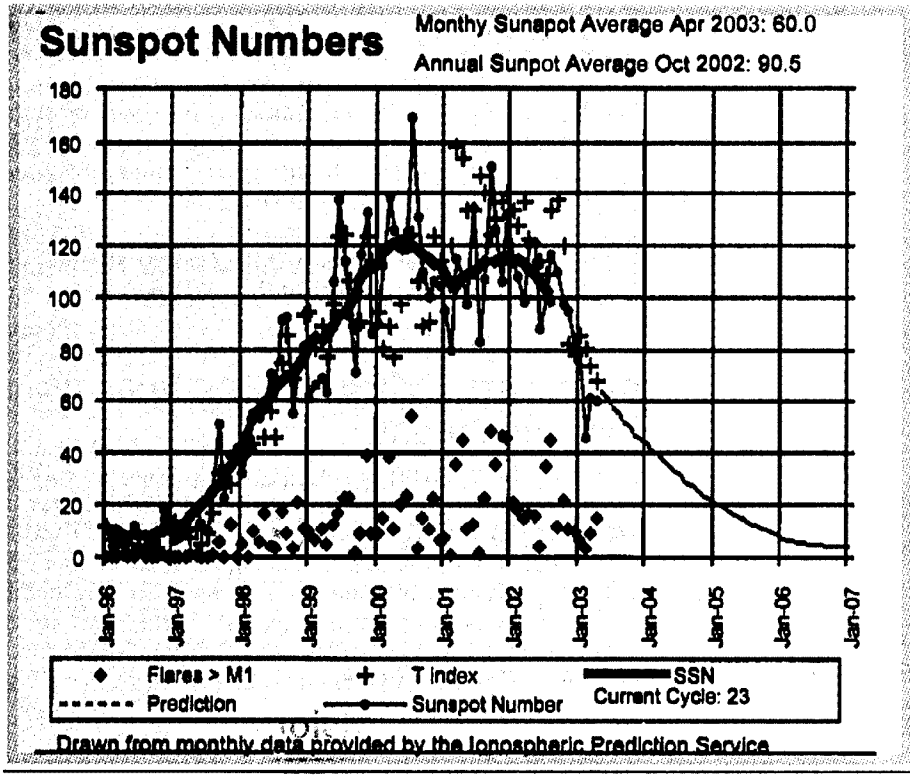
Post message: vk7divisionalnews@yahoogroups.com

Subscribe: vk7divisionalnews-subscribe@yahoogroups.com

Unsubscribe: vk7divisionalnews-unsubscribe@yahoogroups.com

List owner: vk7divisionalnews-owner@yahoogroups.com

The VK7MO presentation notes and simplified assessment form for assessing compliance with the new EMR regulations can now be found on the VK7 Divisional web pages at: http://www.wia.org.au/vk7/.



Branch Meetings

The North West Branch May meeting was well attended for a talk by Jim Hiley, VK7JH. Jim is the NW Branch's resident IT expert and talked about computers, Internet viruses, hackers and firewalls. An informative evening, thanks Jim.

The May Southern Branch presentation was given by the Southern WICEN group's Roger Nichols, VK7HRN, Ron Brown, VK7ZRO and Gary Duence, VK7JGD and was a talk outlining just what is involved in providing the communications infrastructure for an event like Targa Tasmania and the Subaru Safari.

Ron, VK7ZRO is the Communications Manager for Targa and filled us in on the vast array of repeaters utilised, channels, nets and over 200 radios required to cover the premier Australian tarmac rally. Over 250 entries and 3000 volunteers are involved in the five days of the event. WICEN's primary role is the provision of the Stage net and Safety on Stage points. They are recognised by the organisers for providing high quality radio communications. This year Targa ran from May 13-18, 2003.

Gary, VK7JGD outlined the Subaru Safari communications. This is a very different event both in terms of the motor sport and WICEN involvement. The Safari involves 46 mostly professional rally entries on forestry tracks in the Southern Tasmania forests. WICEN's role is to set up and run the command/results network. This involves VHF and UHF repeaters to get signals back to the command centre in Hobart. The system has been designed and built up by Brian Welch VK7BW and Stu Braunholz, VK7NXX and it is a credit to them.

Thanks to Roger, Ron and Gary for sharing their experiences, it was great!

Contests

Reminder. Wadda Cup will be held on the 21st of June. This is an 80 metre, 60 minute dash for the Wadda Cup. Contest rulesin the May 2003 edition of AR or from the Central Highlands Amateur Radio Club of Tasmania's website at: http://www.vk2ce.com/vk7cht/wadda.htm.

ar

ALARA

Christine Taylor VK5CTY
vk5cty@vk5cty or geencee@picknowl.com.au

AGM Report

As has now become the practice, ALARA held its AGM on the first Monday in May. As usual it was well attended. The number of participants on a normal Monday Net varies between three or four and eight or nine. For the AGM there were 16 attendees. They came from all the states. It was good that Bev, VK6DE made the effort although she cannot hear very much from the West because it is still daylight over there so 80 metres is extremely noisy. It was noisy for Margaret VL4AOE as well as the Queenslanders have quite a bit of interference from the South Asian stations. Both Susan VK7LUV and Helene VK7HD were present. It is some time since Helene was heard on a Monday night although Susan is quite often part of the Nets.

The outgoing President, Bev VK4NBC was heard by all this year. She was staying with Judy VK3AGC at the time, helping with the farm activities while Judy recovers from the new operation on her wrist. We all hope this rebreak and reset will give her back a really usable wrist. It is over six years since she broke it in the first place.

Not everyone could hear everyone else but there is always someone who can hear and act as a relay if necessary.

Bev thanked the outgoing committee for their support. The new committee was accepted without a vote as the number of nominees matched the number of vacancies. There are not any really new faces, just a rearrangement of positions.

THERE IS STILL A VACANCY FOR A JUNIOR VICE-PRESIDENT. If any ALARA member feels they would like to have a turn on the committee please get in touch with our new President, Robyn VK3WX or out Secretary Margaret, VK4AOE. QTHR the callbook.

The New Committee

President Robyn Gladwin VK3WX
Snr. Vice President Susan Brain VK7LUV
Jnr. Vice President TBA
Secretary Margaret Schwerin VK4AOE
Treasurer/Souvenir Custodian Bev Clayton VK4NBC
Minute Secretary Bron Brown VK3DYF
Publicity Officer Christine Taylor VK5CTY
Editor Dorothy Bishop VK2DB

Office Bearers State Representatives

Awards Custodian Jean Shaw
Contest Manager Marilyn Syme VK3DMS
Sponsorship Secty Maria McLeod VK5BMT
Librarian Kim Wilson VK3CYL
Historian Christine Taylor VK5CTY
VK 1 /2 Dorothy Bishop VK2DB
VK3 Judy Atkins VK3AGC
VK4 Margaret Schwerin VK4AOE
VK5/8 Jean Kopp VK5TSX
VK6 Poppy Bradshaw VK6YF
VK7 Susan Brain VK7LUV

Advance Notice

This year Susan VK7LUV and OM Alan will be participating in the International Lighthouse and Lightship weekend again. This is what Susan wrote recently:

"As usual there is information about the ILLW on the website of VK2CE (http://www.vk2ce.com), however Alan and I will be operating from Low Head Lighthouse again this year. This lighthouse is at the entrance to the Tamar River where the Devil Cat used to go into Georgetown - this is also the Port for Launceston, which is further south on the river. This year's event will be from 0001UTC on 16th August to 2359 UTC on 17th August."

I hear that Dave ZLIAMN, long time operator of the 222 net for YLs worldwide, will also be at a lighthouse. More information later about this.

Note that the ILLW is usually on at the same time as the RD. An opportunity to kill two birds with one stone. Make one contact get two points!!

Remember also that the RD is just before the ALARA Contest as well. Just the right time to test your radios.

Did you contact June VK4SJ?

If you had a contact with June (or Doug) when they were in the Cook Islands, don't forget to send a QSL card through the bureau.

June has been a regular on the 222 Net while she has been in the Islands so YLs have had a special opportunity to obtain an interesting callsign.

In June's absence Dave ZL1AMN has enjoyed renewing friendships with "his girls". He was a long time co-ordinator of the 222 Net so has many pleasant memories of those years.

That special VK5 luncheon became those luncheons

In the last column mention was made of a luncheon in VK5 to be held a week early while Marilyn VK3DMS was in Adelaide. Jean VK5TSX, Shirley VK5JSH and Christine VK5CTY joined Marilyn that day, along with three OMs. Due to extra doctor's appointments Marilyn was still in Adelaide for the next Friday so we saw her again at "Bertie's" for lunch.

This time Meg VK5YJ and Tina VK5TMC met Marilyn and Christine. Both lunches were times of good friendship and much talk, of course.

Special event station in Darwin

The Darwin Amateur Radio Club of the Northern Territory, Australia will be operating a special event station with the callsign of V.I.8.N.T to celebrate 25 years of self government.

The station will be opened officially on the 1st of July 2003 (Northern Territory Day) and run until the 31st Dec 2003. This special Amateur Radio callsign V.I.8.N.T is allowed to be used by any Licenced VK8 Amateur. Only one Amateur will hold the callsign at any one time, meaning only one station on air at a time.

We have many VK8s who are interested in operating one-week periods on all bands and modes and the Darwin Amateur Radio Club will partake in all major contests with this special callsign. A special QSL card is being made up by the QSL Mgr Neil, VK6NE.

All QSLs will be accepted directly or via the Buro.

Adelaide Hills Amateur Radio Society

AHARS had a talk by Phil VK5NN at the April meeting. Phil had been involved in the development and building of the radio comm network for the local Electricity Supply Company ETSA from the beginning so had many tales to tell.

The system was designed in the early 40s. Phil was the draughtsman for the first circuit diagrams and became involved in some of the later modifications as the comm system expanded. One of the early, though not from the first series, radios was on show at the AHARS meeting, courtesy of the ETSA Museum. Similarly, some circuit diagrams were available that night.

The earliest equipment consisted of a super-regen detector with RF stage and the transmitter was a self-excited oscillator and final amplifier. Modulation was AM. The frequencies used were in the 31 MHz band. The initial system comprised a transmitter and receiver at Osborne Power House, one mobile set on the only emergency vehicle and a transmitter at Kelvin Buildings (the headquarters of AESCO/ETSA) and a remote receiver at Mount Osmond. This equipment was designed and installed after the War broke out in 1939 to ensure that loss of phone lines due to enemy action would not disrupt operations.

This elementary equipment was superceded by crystal locked transmitters and receivers on a large number of mobiles and similarly crystal locked sets at Kelvin building and Osborne after the War. These used frequencies of 31.1 MHz and 31.2 MHz using a single crystal for both transmitter and receiver and a 100 kHz IF stage in the receiver. These units were designed within ETSA and manufactured both by ETSA and by local contractors.

Ultimately the ETSA network was transferred to the 160 MHz band where it is used today.

An interesting piece of South Australia's development of one of the first ever radio systems in Australia, shown by someone involved in its introduction.

Remember, if you are visiting Adelaide you are welcome to attend a meeting of AHARS, on the third Thursday of each month. Contact Geoff VK5TY or Paul VK5PH QYHR the callbook for more information.

Gippsland Gate Radio & Electronics Club

At our recent Annual General Meeting, a slight change in Committee took place with the new office bearers listed as: Peter VK3VB President; Ian VK3KSZ Secretary; Valerie Benson Treasurer plus Paul VK3TGX and Graham VK3KCS as general Committee Members.

The 2003 – 2004 year promises to be a big year for GGREC with the new Committee guiding us into it. Existing projects such as our IRLP Repeater will be placed high on the agenda as even in its temporary location, it is getting good use. The Annual mid year dinner is organised and will be held on June 28th. Look in the magazine for further details. Of course our Annual Hamfest is coming fast with the new venue booked and rearing to go. The date is July 19th and promises to be our best yet. We are looking forward to everyone being there either to buy or sell. There should be a bargain for all.

Until next month 73s.

Bass Amateur Radio IRLP Group Inc.

VK3IRL Node 6330 presents a net schedule for the remainder of the year for the YL International IRLP Net:

This net goes to air on Tuesdays as follows:

June 3rd & 17th
July 8th & 22nd
August 5th & 19th
September 2nd &16th
October 7th & 21st
November 4th & 18th
December 2nd & 16th

10.30am for check-ins
10.45am crosses over
Notices will be posted on
http://www.qsl.net/ylradio/irlp.html

Graham Williams VK3JBO

Calling all Amateurs to join in the fun...

Australian Scout Jamboree 2004

5th – 15th January 2004, at Woodhouse, Adelaide.

The Australian Jamboree is on again in Adelaide, January 2004. We are expecting thousands of scouts from Australia and some overseas to participate in this Grand 10 day Event.
Jamborees have been a regular fixture on the Australian Scouting calendar for over sixty years.
Held every three years, Jamborees traditionally are hosted by the five larger states in rotation.
Jamborees are for 11 – 15 year old Scouts across Australia and overseas.

For Scouts, a Jamboree is an adventure and experience not to be missed. It is almost impossible to describe what it is like to attend a Jamboree. The sheer exhilaration of every new day and the new excitement and challenges it brings is beyond comparison.

The magic of the night time entertainment at the huge outdoor concert arena, often with big name stars giving the absolute best for the Scouts at the Jamboree. The spirit of friendship and mateship that pervades the whole Jamboree... a city filled with friends. The memories that you bring home from your Jamboree will stay with you forever.

JOTA at the Jamboree is on again as promised. As a part of the Special Activities Section we will be running a JOTA station near the precinct of where all the youth are going to be.

We will put together a number of activities throughout the 10 days.

Anyone interested in running one of the activities and / or being an Amateur Operator too, please contact Lea Adcock.

We would like to include the following activities:

HF
VHF / UHF / IRLP
Echo linking
Packet Radio

We would also like some flyers and posters to put on show and for the Scouts to be able to read from WIA, WICEN and Radio Clubs in the suburbs for display and possible interests.

We are looking to promote the following:

Amateur Radio
Radio in Scouting & JOTA
Foundation Licence possibly coming to Australia
RIG (Radio Interest Group in SA)
WIA
WICEN

In order to make this activity better than the last, we need many Amateurs with expertise in the above activities to to be part of a roster system for each activity, so to give you a break and a chance to see the sights at the Jamboree.

There will be a special call sign for the event with signage for all amateurs to sign their name for participating in the event.

Special recognition cards will be given to the Amateurs involved in the JOTA Station.

So if you are interested in being apart of the fun and excitement at the Australian Jamboree 2004 and help out at the JOTA Station please contact Lea Adcock, JOTA Manager.

Lea Adcock
JOTA Manager, Australian Jamboree 2004
Ph: (08) 8381 5909, Fax: (08) 8381 5953
3 Middle Gully Ave, Sheidow Park SA 5158
Lea.Adcock@senet.com.au

GippsTech 2003 Conference – July 2003

The Eastern Zone ARC (Inc) is pleased to announce preliminary details of the annual GippsTech Conference to be held in Churchill, Victoria on Saturday July 5 and Sunday July 6. This event has a well-recognised reputation as the premier technical conference in VK considering techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts.

The event formally commences at 0930 on Saturday and finishes early afternoon Sunday - provided we have enough speakers! Conference registration includes the technical sessions, morning and afternoon tea and a BBQ lunch on both days.

Importantly, the Conference runs a social program for partners not wishing to attend the technical sessions. A Conference Dinner is planned for Saturday evening at a local venue.

First call for Papers

Amateurs (& others with material to contribute) are invited to submit titles and outlines for topics to be presented at GippsTech2003. Presentation slots can be brief (5 -10 Minutes) through to 1 hour. Anything longer - you will need to justify!!

Presentations can be formal or informal, or display. We use a lecture theatre for the formal (& semi-formal) presentations. Displays are open during coffee/tea breaks and after lunch. Potential presenters are welcome to contact me direct for further information or to suggest a topic.

The conference is held in Churchill about 170km east of Melbourne.

Further details can be found at the Eastern Zone Amateur Radio Club web site at: http://www.qsl.net/vk3bez/

On the website, you will find information on location, accommodation options and the topics that have been presented in the past.

We request that all who plan to attend register as soon as possible using the on-line form at the web site. No money is required up-front, but pre-registration will assist us greatly with our detailed planning.

The Club looks forward to seeing you all in July.

Peter Freeman VK3KAI
Chair, Organising Committee
(vk3kai@qsl.net)
Phone: 03 5122 6416 or 03 9902 6416
Fax: 03 5122 6738 or 03 9902 6738
School of Applied Sciences
Monash University
Churchill Vic 3842, Australia
peter.freeman@scl.monash.edu.au

Education Notes

Ron Smith VK4AGS
Federal Education Co-ordinator

"It's in the words"

This is a continuation of a series of articles looking at different methods of assessment in learning and training. So far the two methods that have historically been used in Australia for entering amateur radio have been looked at in previous issues of "Amateur Radio". This article looks at one that has not been used in amateur radio. Please note, that by mentioning it here I am not advocating its use but rather providing information to help with any future decisions.

One of the biggest problems associated with examinations of any type is the fact that they are single events at the end of some course. Candidates do not receive any formal feedback as to their progress until the end, although informal methods, such as trial or sample exams are frequently used.

A second issue is that in an exam system it is not easy for a candidate to demonstrate research skills, creativity, or holistic views. Now all educational and training systems seek to address these issues by having students complete assignments or projects as they are progressing through their study. The range of the different types used is quite large. In some courses completing this type of task can take a high proportion of a student's time and contribute significantly to the final award.

One of the confusing issues, which really has not been sorted out in the wider educational scene, is whether the assignment is to help with learning, be part of the assessment system, or both.

With regards to objectivity and subjectivity, issues mentioned about exams, assignments are similar to extended answer question exams. The marking system is usually subjective. Highly skilled markers are required.

One of the biggest concerns though, frequently expressed in the public domain, is the ownership of the actual answers. Since assignments are usually, but not always, written in a home environment, sometimes by students working in groups, who is the actual author is raised as a matter of concern. Linked closely to this is the issue of access to resources and expert knowledge.

A new issue about assignments which has appeared in the school and university scene in the past few years is the ready availability of "off the shelf" assignments on the Internet. Students can do some cut and paste and not too much thinking to have a rather good looking, quality answer.

So assignments have obvious problems. They do however have two significant advantages if they are well designed. They give the student the opportunity to express ideas as the student sees the learning situation. This is done as the student progresses through the course. If we remember that all people are uniquely different then this difference is being recognised to an extent.

So far three different methods have been looked at. Have you reached any conclusion yet about the suitability of any method for amateur radio?

Next time I will look at the most accurate of all methods, but it is the least acceptable in today's society. What is it?

ar

Silent Key

James (Jim) William Stanley Edge, VK2AJO.

It is with regret that I advise of the passing of Jim Edge, VK2AJO, at Penrith, N.S.W., on 8th April 2003.

Jim was born in Shropshire, England, on 16/9/1916. He came to Australia with his parents and brother Doug in 1923 settling as share farmers at Methul, near Coolamon in South Western N.S.W.

He married Sylvie Charter in 1941 and during WWII, worked in the Munitions Factories at Lithgow and Bathurst. After the war Jim returning to Coolamon. He completed by correspondence the Marconi School of Wireless Course and started his own Radio-Electrical Business in Coolamon. (He later moved the business to Wagga Wagga and was then partnered by his brother Doug).

During this period, Jim, with his good friend, Lyndsay Furner, VK2ANI, studied for their A.O.C.P. Jim gained his Amateur Licence, VK2AJO, in 1952. Using a BC 348 receiver and modified ATS transmitter, Jim worked HF bands, obtained his DXCC and conducted Amateur Radio classes at his home in Coolamon. Many Amateurs in the Riverina obtained their A.O.C.P. from Jim's efforts.

During the 1950's many Field Days were held in the Riverina area, some at Coolamon and other regional towns. Jim was elected South West Zone Officer of the N.S.W. Division of the WIA He built equipment and operated on 6 metre and 2 metre bands.

In 1970 Jim moved to West Dubbo in N.S.W. where he was active in the Orana Radio Club and, for a time, Secretary. He participated in the building of the clubs 2 metre VHF repeater at Needle Mountain, Coonabarabran. In 1975 I married Jim's eldest daughter, Ardel. Jim and I then had regular contacts on HF.

In 1983 Jim retired and moved to Harrington, N.S.W. He was active on HF and 2 metre bands until December 2002 when because of ill health he moved to a nursing home at Penrith, N.S.W. with his second wife, Dorothy.

Jim was a member of the N.S.W. Division of the WIA, Radio Amateurs Old Timers Association and a member of the Hunter Radio Group.

He is survived by his first wife, Sylvie (Coolamon) children, Ardel and Rodney Prout VK2CN & family, Sandra Edge and family, Bryson VK2VV and Judy, brother Doug VK2HWE, (all from Newcastle,), and second wife, Dorothy & family, (Sydney)

Rodney C. Prout, VK2CN.
Secretary/Treasurer Hunter Radio Group.
21 John Street. DUDLEY. N.S.W.

How's DX?

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic
E-mail vk3wac@aoi.com

Tribalism has no place in Amateur Radio

Although the world is becoming 'smaller' due to the wide spread use of information technology (radio, including amateur radio, was one of the first forms of electronic IT) it is obvious that some of us still behave in a very 'tribal' fashion.

We have all experienced the thrill of having a chat with a foreign amateur and exchanging the basic QSO format of equipment being used and signal/ weather report.

However, during the recent Iraqi conflict I heard some especially unsavoury behaviour on the HF bands from some very 'agitated' hams in the west (no not WA, much further west!). The content of their QSOs was not exactly in the form of international friendship or the 'amateur spirit' and as such must reflect badly on hams worldwide as a whole.

While we might not agree with the opinion of another person, or the behaviour of another race, we must respect there right to disagree with us and ours. We hams have at our disposal an effective tool with which to forge lasting friendships and goodwill all over the world, but some of us, probably a very small minority, have the potential to spoil and mar the reputation of the hams worldwide.

As radio amateurs, we should be attempting to 'bridge' the gaps between ourselves and foreign hams using respect and courtesy. We can discuss, if not all subjects, then at least most, even if at times we need to phrase our words carefully when we know that the person at the other end may be sensitive about the subject under discussion, after all we can politely agree to disagree, can't we? The amateur bands should not be the place to air derogatory language against others, hams or otherwise.

Personally, I have many friends of many different races and I have often discussed the differences between their culture and mine. It has always been enlightening and informative when a story comes directly from the lips of someone, instead of from a history book (remember, history is written by the victors), and we have always remained friends at the end of our discussions.

Amateur radio should't be a medium used to relay racial or cultural abuse.

The DX

J2, DJIBOUTI. Look for Karsten, DL2LAH, who will be in Djibouti until the middle of June. He says he will be active on HF and 6 metre. QSL via DL2LAH. [TNX DL2LAH and The Daily DX]

3X, GUINEA. Leonid, UT1WL, is currently active as 3XY1L from Conakry, Guinea. He will be there until the end of the year on a business trip. His equipment is a TS50 and operates on 15, 20 and 40 metre using SSB. Leonid says that there are problems with the reliability of the local electricity supply and has installed a 140A/h battery with the possibility of a petrol generator in the near future. On weekdays he is normally on air around 1800Z on 15m (try around 21200kHz) and at 2000Z will be on 20m, and at the weekends he will try and get on 40m too. Eventually he hopes to be able to operate on all HF bands. QSL via UY5XE. [TNX UT1WL and The Daily DX]

5Z, KENYA. Don Gardner, KC7JDC (ex 7Q7DC) has relocated to Nairobi where he plans to settle. He has been issued with the call 5Z4DE and says that he is the first US citizen in 12 years to be allocated a 5Z callsign. Don will be on air as soon as he can get antennas up in the air, he is planning on putting up a mast and some yagis. QSL direct only to G0IAS, ALLAN HICKMAN, THE CONIFERS HIGH STREET, ELKESLEY, RETFORD, NOTTINGHAM DN22 8AJ, U.K. [TNX G0IAS]

BU2, TAIWAN. Mark, JJ1TBB, has been granted permission to use the new Taiwanese prefix BU2. He will be signing as BU2/JJ1TBB and will be operating mainly CW and SSB on the 40 – 10 metre bands. Mark expects to be in Taiwan for as long as four years which should put the prefix in a good number of logs, previously Mark has been 9V1AN in 1995-96, VK9XB in 1996 and XV2A in 1991. QSL via JL1ANP. [TNX JJ1TBB and The Daily DX]

HS, THAILAND. Charlie, K4VUD, is active again from Thailand signing HS0ZCW. He says he will be there until about the 15th of June. Charlie says that he cannot operate on any of the WARC bands nor on 80 or 160. Apparently, Thailand has not granted HS hams access to the WARC bands. QSL via K4VUD. [TNX K4VUD and 425 DX News]

KC4, ANTARCTICA. Ernie, W1MRQ, will be active as KC4USM from the American McMurdo Station on Ross Island (AN-011), Antarctica until late August. QSL via K1CA, LAURENT J BLOUIN, 52 WARNER HILL RD, DERRY NH 03038, USA. [TNX W1MRQ and The Daily DX]

OZ, DENMARK. Ben, OZ6B, will be active from Bornholm Island (EU-030, also counts as BO-001 for the Danish Islands Award) from the 19th until the 26th of June. Ben says to listen around +/- 14265 kHz. QSL via bureau or direct to OZ6B, BENT PEDERSEN, LOEGET DAM 3, DK-7100 VEJLE, DENMARK. [TNX OZ6B and 425 DX News]

S9, SAO TOME and PRINCIPE. Duarte, CT1CPP will be operating as S92UN from Sao Tome and Principe until the end of June. He says that he will try to operate on 14270, 21270 and 28470 kHz SSB as much as possible. QSL via CT1CPP. [TNX CT1END]

SP, POLAND. Helmut, DL7VOX will be active on all bands 80 – 10 metre using CW, with a possibility of some SSB, signing as SP1/DL7VOX/p from Wolin Island (EU-132). He plans to be there from 26th of May until the 14th of June. QSL via DL7VOX via the bureau or direct to Helmut Radach, Riesaer Str. 93, D-12627 Berlin, Germany. [TNX DL7VOX and 425 DX News]

SV5, DODECANESE ISLANDS. Ermanno, IK2WZD says he will be active using digital modes as SV5/IK2WZD from Lipsi Island, Dodecanese (EU-001) from the 24th of April until August. QSL via IK2WZD via the bureau or direct to IK2WZD, ERMANNO ANDREA MARAZZINI, VIA LEONARDO DA VINCI 13, 20013 MAGENTA – MI, ITALY. [TNX IK2WZD and 425 DX News]

SV9, CRETE. Jan Erik, SM2EKM, will be operating as SV9/homecall on whatever HF bands he can erect antennas for from Agia Marina, Crete (EU-015). He will be there from the 29th of May until the 12th of June. QSL via SM2EKM either via the bureau or direct to SM2EKM, JAN ERIK HOLM, LOVAGEN 15, S-961 68 BODEN, SWEDEN. [TNX SM2EKM and 425 DX News]

YA, AFGHANISTAN. Nick, G4KUX, has returned to Kabul, Afghanistan and will be on air as YA4F until April 2004. He has put up a GAP Titan multiband vertical antenna for use on 80 – 10 metre. He has been heard on a net on 7047.2 kHz, around 1800 to 1930Z. Nick says that there are at least two other hams in Afghanistan, they are YA1CQ, who operates mainly on 10 metre, and a French operator (call unknown). Nick has a website with some very impressive photographs of himself and the local scenery at http://www.xs4all.nl/~gouwelee/ (click on the YA4F button). No QSL route but try G4KUX via the bureau. [TNX G4KUX and The Daily DX]

YB, INDONESIA. Kadek, YC9BU and a group of other hams plan to be active on 20, 17, 15, 12 and 10 metres signing as 8A9R from Rote Island (OC-241). No exact dates were given but Kadek indicated a period of about 10 days sometime in mid June. QSL via YC9BU. [TNX YC9BU and 425 DX News]

5T, MAURITANIA. Frank, DL8YHR, is heading to Mauritania in early summer (European). He'll concentrating on 6 and 2 metres (mainly EME) with some HF activity. He will be on air from the 28th of June until the 7th of July. Frank will be operating from the QTH of 5T5SN, equipment will comprise of a FT920 and an IC706MKIIG. QSL via ON4ANT. [TNX DL8YHR and The Daily DX]

XX, SOUTH SHETLANDS. Lee, DS4CNB, will continue to operate as D88S from the South Shetlands until the 30th of November. Activity will be on 40 – 10 metres including WARC using CW. QSL via DS4CNB. [TNX DS4CNB and The Daily DX]

ST, SUDAN. Marco, ST1MN, plans to be on air from Sudan until sometime in late June, exact date unknown. Since Marco is not used to pileups he is pleading for some patience and tolerance when he is operating. QSL via IV3OWC. [TNX ST1MN and The Daily DX]

Special Events

International Lighthouse and Light Ship Weekend (ILLW). GM4SUC would like everyone to know that this year the ILLW will be held on the weekend of the 16/17th of August, from 00.01Z on the 16th until 23.59Z on the 17th. This very popular event attracts hundreds of stations set up in or near active lighthouses and lightships, last year a total of 316 sites in 45 countries took part. The Amateur Radio Lighthouse Society offers a number of awards and certificates for achievements in various categories. So for a great weekend of fun and amateur radio register on line at http://vk2ce.com/illw/ or Email your stations details to illw@vk2ce.com. All registered stations will appear on the list at http://vk2ce/illw/2003.htm [TNX GM4SUC and 425 DX News]

TM0, FRANCE. The French Government Service, ART, has granted permission to Jean Marc, F8IXZ, to use the special callsign TM0GAY. The station will be on air from the 20th of June until the 4th of July and will play a part in publicising the 'French Gay Pride' activities. Activity will take place on all HF bands from 40 -10 metres mainly on CW with SSB a possibility. QSL via F8IXZ either direct (including enough postage in IRC or USD, see Bill, W9OL's website at http://www.qsl.net/w9ol/ircchart.txt) or via the French REF Bureau. Direct cards with insufficient postage will be returned via the bureau.

F, FRANCE. ON4LBV, of the SFDXAG, says that he and a group of friends will be on air using the callsign F/ON6JUN/P from the 'Pegasus Bridge' memorial museum from the 5th until the 8th of June. The special event station commemorates the D-Day invasion of WWII. There is also a website at http://www.qsl.net/on6jun with more information on the special event station. QSL via ON4AFU. [TNX ON4LBV]

F, FRANCE. The special event station TM6ACO will be on air from the 7th until the 15th of June to celebrate the 71st event of the '24 Hours of Le Mans'. QSL to F8KFI via the bureau or direct to P.O. Box 22088, 72002 Le Mans Cedex 1, France. For further information see http://asso.proxiland.fr/aras72/ [TNX F5TJC and 425 DX News]

The special event station ZS90SAP will be active until the 31st of December on the 80, 40, 20, 10 and 6 metre bands. The callsign celebrates the 90th anniversary of the Police Department. The station is being manned by members of the Vaal Triangle ham club. [TNX The Daily DX]

VE, CANADA. Operators VE3UUH and VE3GID will be signing as VB3MCC, a special event station, from the 27th of June until the 4th of July to celebrate the 100th anniversary of Canadian Military Communications. Permission has been granted to all VE's by Industry Canada to substitute the following special prefixes into their callsigns between the 1st of July until the 31st of August: XM for all VE's, XL for all VA's, XN for all VO's and XO for all VY's. [TNX VA3RJ, VE3UUH and 425 DX News]

SP, POLAND. The special event station HF6UE will be active until the 10th of June to celebrate Poland's European Community Accession Agreement (joining the European Union). The suffix 'UE' represents 'Unia Europejska' (European Union). QSL to SP6ZDA preferably via bureau or direct to Scouts Radio Club SP6ZDA, P.O. Box 41, 51-673 Wroclaw 9, Poland. [TNX SP6NIC, SP5UAF and 425 DX News]

SP, POLAND. Club station, SP4KSY, will be on air as HF650O celebrating the 650th anniversary of the town of Olsztyn. The station will be on air from the 1st of May until the 31st of July. QSL via SQ4NR, direct to Grzegorz Gawel ul. Herdera 16/14, 10-691 Olsztyn, Poland or via the bureau. [TNX SQ4NR and 425 DX News]

Dxpeditions

VP9, BERMUDA. Chris, W3CMP, is planning a DXpedition to VP9, Bermuda. He hopes to be on the 6 metre band from the 27th of June until the 5th of July. Apparently he has received special permission and a high power permit from Bermuda Telecom (with some help from VP9GE) to run a 3CX800 linear amplifier into an M2 nine element yagi. Chris will also be running 200 watt on 2 metres and is hoping for some sporadic-E propagation into Europe, Africa and the Americas. Little hope of reaching VK but you can never be sure on 6 metres! [TNX W3CMP and The Daily DX]

SV9, CRETE. Costas, SV1XV, is part of a Dxpedition to Gavdos Island (EU-187) which will also count as SV9 (Crete) for DXCC over the period of the 1st until the 10th of June. Activity will be on 10, 12, 15, 17, 20, 40 and 80 metres RTTY. QSL direct only via SV2DGH, CHRISTOS SFYRIS, P.O. BOX 4200, 57019 PEREA-THESSALONIKI, GREECE. [TNX SV1XV and The Daily DX]

Round up

F5RQQ is in French Polynesia, where he will try to be the first to operate from the closed French nuclear test site at Mururoa Island (Atoll), IOTA OC-066. On the official IOTA list the spelling of the name is slightly different, Moruroa. [TNX F5RQQ and The Daily DX]

Some DX news from Stuart, VK8NSB, who sent a short note to me with some details of some interesting DX stations;

Call	Time	Freq.	Sigs	QSL
UTC	kHz		via	
5Z4IC	1055	28495	5 x 8	MW0AIE
OD5NH	1120	21240	5 x 6	QRZ.COM
S92UN	1200	21257	5 x 5	CT1CPP (IOTA AF-023)

There have been a number of reports in the various DX news bulletins that some US Military personnel have been operating as YI/home call from Iraq. Operators heard on air include Jim (YI/KT4CK), a member of the 101st Airborne, who was spotted on the DX cluster system. Another has been Mark (YI/NG5L), who is with the 82nd Airborne and was reported to have been in the vicinity of the town of Nassaryia. A spokesman for the ARRL, Wayne Mills, N7NG, says that activity from Iraq will only be recognised for DXCC accreditation if the operator has written permission from their CO (commanding officer) British or American. When a legal and stable government is finally established in Iraq all amateurs local, and visiting, will require official authorisation before going on air. Remember, in cases such as these "WORK FIRST, WORRY LATER". [TNX The ARRL Letter]

United Nations employee **4L4FN** (ex P5/**4L4**FN), Ed Giorgadze, says he will be leaving Pyongyang, North Korea very soon. He'll head for Beijing and then to the Middle East. Ed, who is works for the United Nations World Food Program, does not know exactly where in the Middle East but Iraq, YI, is a strong possibility. QRX for more details soon. [TNX 4L4FN and OPDX]

Bill, W9OL, has an excellent website that carries all sorts of information regarding IRC and Greenstamps. The site is an excellent tool for finding out just how many IRCs or Greenstamps are required to cover postage from various countries around the world. Have a look at http://www.qsl.net/w9ol/ircchart.txt for more information. [TNX W9OL]

A bit of sad news from Stephen, VK2PS who sent me a note reporting the passing of Dr Selim El-Rifai, OE6EEG. "Selim", as he liked to be known, died in his sleep in hospital on the 30th of March 2003 after a prolonged period of pain. Selim, who had mastered several languages, conducted the 'European DX Net' that operates on 14243kHz at 0600Z every weekend. The net mainly catered for rare DX and stations in the Middle East, Pacific, Central and South America and Africa. He was probably responsible for many VK and ZL operators' first rare DX contacts. His wife Isabella to whom we send our deepest condolences survives him. Vale Selim, OE6EEG. Selims QSL address is correct in all DX call books. Incidentally, the European DX Net is still functioning at the weekends and is now handled by Bandi, HA5CQ.

This month the DX information was provided by the following individuals and organisations; W9OL, 4L4FN, F5RQQ, W3CMP, SQ4NR, SP6NIC, SP5UAF, VA3RJ, VE3UUH, F5TJC, ON4LBV, GM4SUC, ST1MN, DS4CNB, DL8YHR, YC9BU, SM2EKM, G4KUX, IK2WZD, DL7VOX, CT1END, OZ6B, W1MRQ, K4VUD, JJ1TBB, G0IAS, UT1WL, DL2LAH, VK8NSB, VK2PS, OPDX (BARF 80), 425DX News, The Daily DX, RSGB and the ARRL.

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Over To You

Maritime Amateur Radio

Since the demise of many coast stations, official maritime communication has narrowed down to emergency only traffic via satellites and a few HF stations. Other digital or voice communication goes via expensive satellites (Inmarsat, mobile phone etc.) or commercial providers such as Penta-Comstat. Many yachties have therefore taken recourse to AR with legal or illegal callsigns for personal ship/ship contacts or exchange of safety and personal messages via maritime amateur nets. They usually work between 14.300 and 14.320 MHz. where small wire or vertical antennas are effective.

As there is at sea often a need for a talk with a real person I would encourage HAMs to listen out for (legal) m/m stations. They have often interesting or serious things to say.

AR could also give some info about maritime nets and operators.

VK4CPG/mm

Note. I could even think about MM contests, certificates, maritime (sea) days to add to field days, for the people who like these things. Technically a few things are still interesting such as making a good earth without galvanic corrosion, rigging backstay antennas, interference, reviews of equipment in a hostile environment, suitable satellite antennas etc. A bit of a new area and I don't know of much attention given to it.

73, Krispy

Contests

Ian Godsil VK3VP, Contest Manager

Contest Calendar June–August 2003

Jun	7	VK/trans-Tasman Contest (CW)	(Apr 03)	
Jun	7/8	ANARTS WW RTTY Contest		
Jun	7/8	WW South America Contest	(CW)	
Jun	14	Asia-Pacific Sprint (SSB)		
Jun	21/22	All Asian DX Contest (CW)		
Jun	21	80m Dash for Wadda Cup (SSB)	(May 03)	
Jul	5	Jack Files Contest (CW/SSB/PSK31)	(May 03)	
Jul	5/6	Original QRP Contest (CW)		
Jul	19	Pacific 160 Metres Contest	(CW/SSB)	
Jul	19	Colombian Independence Day Contest (CW/SSB/RTTY)		
Jul	26/27	Russian RTTY Contest		
Jul	26/27	Venezuelan Independence Day Contest	(CW)	
Aug	9/10	Worked All Europe DX Contest	(CW)	
Aug	16/17	RD Contest	(CW/SSB/FM)	(Jul 03)
Aug	16/17	Keymen's Club of Japan Contest (CW)		
Aug	23/24	TOEC WW Grid Contest	(CW)	
Aug	30/31	SCC RTTY Championship		
Aug	30/31	YO DX HF Contest	(CW/SSB)	

Rules: Pacific 160 Metres Contest 2003

Saturday, 19 July, 2003

0700 - 2300 UTC

Object: P2, ZL and VK stations to make as many contacts as possible on 160 metres. DX stations are encouraged to participate, but may only work P2, ZL or VK.

Categories: Single Operator; Multi-operator; SWL

Sections: CW only; SSB only; MIXED

Frequencies: CW: 1810 - 1840 kHz
SSB: 1843 - 1875 kHz
(Note: Guard band 1840 - 1843 kHz. Contacts not permitted)

Exchange: RS(T) plus serial number beginning at 001.

Score:

For P2, ZL, VK -
One point for QSO with own call area;
two points for other call areas in ZL or VK;
three points for Pacific Islands (ZK1, VK9)

For Pacific Islands -
one point for QSO with own call area;
three points for P2, ZL, VK;
five points for QSOs outside P2, ZL, VK.

For stations outside P2, ZL, VK or Pacific Islands - five points per QSO.

Multiplier:

For P2, ZL, VK – total number of VK, ZL and P2 call areas worked, plus OTHER DXCC countries.

For stations outside P2, ZL, VK - total number of P2, ZL and VK call areas worked.

Final Score: Total QSO points times total multipliers.

Certificates: to top scorers in each mode, call area of ZL and VK and in each DXCC country.

Logs: Please show full QSO details of call worked; mode; time UTC: exchange. Include Summary Sheet showing operator's callsign; name; mailing address; category and section entered; points claimed and a signed Declaration.
Logs submitted electronically need only show operator's name in lieu of signature, but must show all other information.

Send Logs:

1. By mail to -
Ian Godsil VK3VP, 363 Nepean Highway, Chelsea, 3196, Australia
2. By e-mail in ASCII/Cabrillo format to: vk3vp@vkham.com by 16 August, 2003.

Rules: A.N.A.R.T.S. WW RTTY Contest 2003

Saturday 14 - Sunday 15 June

0000 - 2359z

Contest Period: The contest takes place on the second full weekend of June each year. Contests start 0000 UTC Saturday and end 2359 UTC Sunday. For 2003 the contest dates are Saturday 14th and Sunday 15th June.

Not more than 30 hours of operating is permitted for Single Operator Stations.

Non-operating periods can be taken at any time during the contest.

Multi-Operator Stations may operate the entire contest period. A summary of operating times is required with each single operator log.

Bands: Use Amateur bands 80, 40, 20, 15, and 10 metres.

Modes: All digital modes are permitted including PSK etc.

Note: No satellite operation is permitted.

Classifications:

(A) SINGLE - OPERATOR (One transmitter)

(B) MULTI - OPERATOR (One transmitter)

(C) Short Wave Listeners

Exchange: To consist of RST, Time (UTC), and Zone (CQ).

Scoring: For each band - Use the "Exchange Points Table (Marked 1994)" to Obtain QSO points for each QSO. Any contact with VK2SG earns double the table points for that QSO. Count Countries/Multi's worked (see definition).

Total all bands used to obtain

(1) Total QSO Points.

(2) Total Countries/Multi's.

World stations calculate "VK BONUS", as follows - 100 points for each VK worked on 14 MHz, 200 points for each VK worked on 21 MHz, 300 points for each VK worked on 28 MHz, 400 points for each VK worked on 7 MHz, and 500 points for each VK worked on 3.5 MHz.

Claimed Score: For WORLD STATIONS is calculated by multiplying

(1) TOTAL QSO POINTS by

(2) TOTAL COUNTRIES/MULTIs, then THAT TOTAL by

(3) the NUMBER OF CONTINENTS WORKED DURING THE CONTEST. (Note that each continent counts once only to a maximum of 6).

To the total obtained ADD the "VK BONUS" to show GRAND TOTAL CLAIMED SCORE.

EXAMPLE for World Station: 720 QSO Points calculated from Points Table (1) X 29 COUNTRIES/MULTIs (2) X 5 CONTINENTS (3) = 104,400 points, plus (+) 6 VK stations worked on 14 MHz (that is 600 VK Bonus Points), giving a grand total of 105,000 points.

Claimed Score: For AUSTRALIAN STATIONS (VK1-VK8) is calculated by multiplying

(1) TOTAL QSO POINTS by

(2) TOTAL COUNTRIES/MULTIs and then that total by

(3) the NUMBER OF CONTINENTS WORKED during the contest with a maximum of six as stated above.

This calculation gives the GRAND TOTAL CLAIMED SCORE.

IN ALL CASES: A station may only be worked once per band, but may be worked on other bands for QSO points and multipliers.

COUNTRIES/MULTIs: Are counted as per ARRL DXCC list of countries, EXCEPT THAT Australia (Areas 1-8) Canada, Japan, and U.S.A. mainland do not count as separate countries. HOWEVER, each call areas VK1 - VK8, and each call area in Canada, Japan and mainland U.S.A. DO COUNT AS SEPARATE MULTIPLIERS. CONTACT with one's own Country/multi counts for QSO points but does NOT COUNT AS A MULTIPLIER. (Remember that call areas VK1 - VK8, and call areas in Canada, Japan, and U.S.A. mainland are Multis).

Logs: Logs must show in this order:

1. DATE
2. TIME (UTC)
3. CALLSIGN OF STATION WORKED/HEARD.
4. EXCHANGE INFORMATION SENT/RECEIVED (RST/TIME/ZONE)
5. POINTS CLAIMED.

Summary Report: Summary sheet must show: callsign of station, name and address of operator, bands used (a separate log is required for each band), the points claimed for each band, the number of countries worked on each band, the number of continents worked and details of VK BONUS calculations for World Stations. A summary of the calculations made to obtain the GRAND TOTAL CLAIMED SCORE as per the "Scoring" instruction will assist checking. The general certification regarding compliance with Rules and the signatures and Callsigns of operator(s) is also required. Multi-operator logs must contain signatures and Callsign of each operator. Single-op logs must show summary of operating times. Dupe sheets will be appreciated for any band log over 75 QSOs.

Awards: A Plaque is awarded to first in World in Classification A. Certificates will be awarded to: 1st to 5th, places in the World, 1st to 3rd places in each of six continents, 1st to 3rd in each country/multiplier in each Classification. THE JUDGE'S decision will be final and no correspondence will be entered into. We reserve the right to list multiple awards on any Certificate and/or vary the numbers of awards given without notice.

Logs become the property of A.N.A.R.T.S.

Closing Date. Logs must be received by the Contest Manager A.N.A.R.T.S., P.O. Box 93, Toongabbie, NSW, 2146, Australia, by 1st September of the year of the contest. Logs can also be sent via E-mail to *ctdavies@bigpond.com*

PLEASE SEND .TXT FILES ONLY.

POSTAGE AND HANDLING FEE: A postal fee is applicable with the following options:

1. Contesters submitting their logs by E-mail will have the Contest results, Manager's report, Contester's comments, and the next year's rules, sent to them via the E-mail address used to submit their log. No Awards will be posted.

Urunga Convention 2003 Results

The 2003 Urunga Convention was held on the Easter weekend 19/20 of April. This year the weather was kind with only a few light showers on the Saturday. The Committee hopes all who attended had an enjoyable time and may come back next year. The convention was a great success with more than 75 people going through over the 2 days.

Thank you to the traders who set up their tables and to Brian VK2BI for organising the children's 80 and 2 metre events.

Here are the results of the various events, have been published already over the packet network. These results are the same as those sent via packet. :

Easter Saturday 19.April 2003:

10am to 11am

3.5 MHz mobile hunt:
1st: VK3YDF Adam Scammell

11.30am to 12 noon

Pedestrian 2m hunt. Multi TX 146MHz:
1st: VK3YDF Adam Scammell.
2nd: VK3TJN Bruce Paterson

2pm to 3pm

2m mobile hunt. Multi TX 146MHz:
1st: VK3YDF Adam Scammell.
2nd: VK3TJN Bruce Paterson

3.30pm to 4pm

Talk-in 2m mobile 146.5MHz:
1st: VK2YMW Chris Williams
2nd: VK3YDF Adam Scammell

Easter Sunday 20. April 2003:

9am to 9.30am

Urunga Scramble:
1st: VK2FA Graham O'Brien

10am to 10.30am

40m fun event:
1st: VK2YMW Chris Williams

11am to 12noon

2m mobile Multi TX 146MHz:
1st: VK2YMW Chris Williams
2nd: VK3YDF Adam Scammell

1.30pm to 2pm

2m Pedestrian Multi TX 146MHz
1st: VK3YNG Brian Ackerly
2nd: VK3XAJ David Beard

2.30pm to 3pm

2m Pedestrian Talk-in:
1st: VK3YDF Adam Scammell
Winner of the Jack Gerard Memorial Award: VK3YDF Adam Scammell
Winner of the Brian Slarke Memorial Award (overall 2 days): VK3YDF Adam Scammell

Saturday junior event:

80m
1st: Stefan Winkler
2m
1st : Carl Winkler
2nd: Reece Austin
2nd: Kelly O'Brien

Sunday junior event:

80m
1st: Stefan Winkler
2m
1st: Kelly O'Brien
2nd: Cameron Williams
2nd: Caitlin Williams

Congratulation to all winners.

Best 73 and see you at next year's convention from the committee.

Marie (xyl 2ZCQ), Arnold VK2ADA, Ken VK2DGT, Col VK2JC, Len VK2BLZ, Wayne VK2JKK

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CONTESTS – Rules: A.N.A.R.T.S. WW RTTY Contest 2003 *continued*

2. Contesters submitting their logs by E-mail and wish to receive all the above items, plus a points table, and/or any award they may have won, Plaque or Certificate, must submit a separate Postal Communication to ANARTS: P.O. Box 93 Toongabbie, N.S.W. 2146, with a remittance to the value of 5 (Five) United States Dollars.
3. Contesters submitting their logs by Post and requiring ANARTS to send them the information mentioned above, must include a remittance to the value of 5 (Five) United States Dollars.
4. Postal logs received without the required remittance will be accepted and processed in the normal way. No awards or other information will be posted in return.

Note: The Postal Fee for Australian and New Zealand Stations in all options above is 3 (Three) Australian Dollars.

Notes on submitting logs by email

Please submit your log using a text format, that is, an ascii .txt file.

Do not use a Rich Text file, or any other type of file, and do not Zip them up.

Logs received in any other form will be put to one side and if time permits we will try to process them.

Please check your log has the following before transmitting: Your callsign, name and postal address, and your email address to send you the results. All items required in the Summary Sheet are correct, that is you have included per band: number of QSOs, number of QSO Points, number of Multiples, number of Continents worked and number of VK Bonus Points per band. Your log cannot be processed if these items are not shown.

Do not name the log ANARTS. Please use your own callsign. Example vk2ctd.sum Many stations have used ANARTS for their log title, which means the Computer puts a little window on the screen saying "There is already a file of that name, do you want to overwrite." All such logs have to be re-titled, so your cooperation please.

Do not send multiple E-mail copies of your log if you do not receive an acknowledgment. For the 2002 Contest several stations sent two copies of their log and one station sent its log 3 times. This resulted in severe confusion in the Register of logs. With dozens of logs beings received each day, it is almost impossible to acknowledge each log. If you do not trust the E-mail system and require an acknowledgment, please send another E-mail requesting the same, but please do not clog up the system with another log. Some Mail programs include the Automatic Acknowledgment facility, use this to get an automatic QSL message. The list of logs received is sent on to the RTTY Reflector rtty@contesting.com and is also sent to Contes@WW and RTTY@WW on Packet Radio.

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AMSAT

Bill MagnussonVK3JT

A Summary of Automatic Antenna Trackers

Last month I mentioned that my radio shack computer is fast approaching its use-by date, and therein lies a problem. That particular computer is host to the ubiquitous Kansas City Tracker/ Tuner, which has served so well for so many years.

"So what", I hear you say. Well - it's not that the KCT/T is in any way deficient or lacking in any of the essential features. It still goes like a rocket, but.... like it or not, computer technology is moving right along and ISA slots, already considered by some to be museum pieces, may soon become a thing of the past. The KCT/T has been around long enough to have been conceived when ISA slots and 486 processors were the latest things in computer technology. As far as I have been able to determine, the makers of the KCT/T, L L Grace and Co. have no plans to redesign it to suit PCI or whatever. To be sure it is still possible to get hold of new computer motherboards with a couple of ISA slots but the way things appear to be headed, that situation may not stay around for much longer. A solution favoured by many is to keep an older computer going as long as possible and to this end one could lay in some spare motherboards with ISA slots while they are still available. Being somewhat frugal by nature that's probably what I'll be doing. The KCT/T was not a cheap item and even though it's served well over many years, the thought of throwing it away is not pleasant. But if you are just starting out you might not like the idea of giving an older, less capable computer any desk space. So – let's see what other choices are around for automated antenna tracking and Doppler shift control. A few years ago devices like the Sattrack-3 were all the go. There were several flavours but they were generally built around something like a Z-80 processor chip and as such could be operated independently of your main computer. Mine was used extensively on mountain top expeditions for this very reason. Many are still in service and the later ones sported digital readout and automatic keps update. As far as I know these particular units are no longer available. Although still around in various forms, the "free-standing" type of controller has given way in more recent times to simpler hardware devices capable of being driven by many of the more popular satellite tracking programs.

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034
Graham's email address is:
vk5agr@amsat.org

UNI_TRAC 2000 by ZL2AMD

This is one of the more popular and successful tracking systems around and is definitely worth a look. The UNI_TRAC is well supported and the design has been kept up to date with modern trends in computer technology. Latest news of this device is obtainable from the author's excellent web site at:

http://homepages.paradise.net.nz/lamontd/UNI_TRAC is well worth a look if you are considering automating your antenna system.

FOD-track by XQ2FOD

Homebrewers could well find this site interesting. If you have a preference for building and debugging this sort of equipment, this could be the one for you. Once again the author gives good support and there's no shortage of detail on his up to date web site. http://www.qsl.net/ve2dx/projects/fod.htm

Manfred has done a great job in developing and supporting this device and it has found favour among home brewers the world over. His description of the theory behind such devices makes this site worth a visit if only for that purpose.

Again – for the homebrewer

I can't vouch for these sites, as I have no first or second (or even third) hand knowledge of their construction. If you're in the market, have a look and make up your own mind.

ARSWIN http://www.ea4tx.com/products/ars.htm

Satellite Tracker http://www.ultimatecharger.com/dish.html

SAEBTrack http://camel.campbell.edu/~hammond/ham/SAEBRTrack/

APRStr from Bob Bruninga of PCsat fame

Bob still offers his very simple tracking system to those who do not require extreme accuracy, that is folks who may be using simpler, low gain antennas for working Low-Earth-Orbiters like PCsat.

APRStr uses a very simple means to move ONE azimuth rotator with the antenna set to [say] 30 degrees elevation and left set there. This would be by far the cheapest way to achieve "tracking" and could suit many users' requirements, particularly beginners. It's a bit like the "tilted mast and one rotator" system we used so successfully on our mountain top expeditions on the past. You can read what Bob has to say about this very simple yet useful system by pointing your web browser to Bob's site at: http://www.ew.usna.edu/~bruninga/rotator1.html

Another piece of tracking software to try

While on the subject of tracking satellites, I came across yet another piece of software devoted to this purpose the other day.

It's called by the unlikely and rather unfortunate name of "SCRAP" which is of course another of those [dreaded] acronyms we have become so familiar with in this computer age. It stands for: Satellite Contact Report Analysis & Prediction. Scrap is written by Bill Bytheway, AA6ED and is offered as an on-going project welcoming suggestions from users. It is similar in character to some other tracking software in that it uses public domain maps and earth textures for the display. It seems to be geared towards APRS as well as satellite tracking and may find application among those users of specific APRS satellites like PCsat and future similar offerings. It features Internet updating of keps and also uses an Internet connection to download and subsequently display APRS connected stations. I haven't tried this feature yet but it could be interesting. I found the program a little clumsy to get going [could be my advancing years]. It does not pretend to be "software to drive your antenna by". Although designed for and tested in the Windows environment, the author claims it does not poke about in your registry or put any "nasties" into your computer. It simply unzips into a directory structure that can be entirely deleted if you decide not to keep it. It is freeware. It requires a fast, capable computer. I have tried it on my laptop running Windows 2000 Pro and on a friend's super dooper machine running Windows XP Pro. My overall reaction was that while it has some intriguing features it would not displace Instant Track as my tracker of choice. From memory, this was my exact same reaction to "Nova".

Good things to come

In a recent AMSAT President's newsletter, Robin Haighton VE3FRH outlined the latest developmental news from the teams involved with "Echo" and "Eagle". In his words:

"Firstly let me comment on the status of Echo, our satellite that we hope will be launched later this year. Progress is good, and we hope to have the satellite under test during the late spring or early summer. Final testing prior to shipment will be carried out in our new facility at NASA's Goddard flight Center. I said "new facility" but in fact it is the same facility that we had many years ago when AMSAT first came into existence. Your Executive Vice-president Rick Hambly and Astronaut Ron Parise worked together to reacquire this building, close to the visitors center at Goddard for AMSAT's use. Rick Hambly will be at the Dayton Hamvention as one of the speakers at the AMSAT Forum, he will be giving a detailed update on ECHO".

Hopefully I'll be able to include a summary of that report next month along with the six-monthly update. Robin goes on:

"The design concepts of the structure of Eagle have been completed and limited work is continuing based on our available income for this project. We have purchased the two Earth Sensors that were subject of a Financial Challenge, issued at Fort Worth and have designed the Can-Buss internal communication system for use in Eagle. The CAN-BUSS Boards will be first flown on P3E by AMSAT-DL and various other organizations are looking at the AMSAT-NA design to determine if it would meet their requirements. This system will also be the subject of a paper at our Dayton Forum when Bdale Garbee will be presenting a paper on the topic".

Next month I'll include the regular six-monthly summary of all currently operational amateur radio satellites.

PLAN AHEAD

June 21 **80m Dash for Wadda Cup (SSB)**

July 5 **Jack Files Contest (CW/SSB/PSK31)**

(rules in May Amateur Radio)

VHF/UHF - An Expanding World

Weak Signal

David Smith VK3HZ – vk3hz@wia.org.au

There has been a bit of resurgence on the bands with a slow moving high across the Bight producing some excellent conditions to the west from VK3. From Melbourne, I managed to work Colin VK5DK in Mt Gambier on 1296 MHz with signals 5/9+. Colin also heard Charlie VK3FMD in Melbourne on 2403 MHz – Colin using his 1296 MHz antenna! The Esperance beacon was also audible in Melbourne but, unfortunately, no stations could be raised at the other end.

Unfortunately, the numbers across the Bight have diminished, at least temporarily. Bill VK6AS from Esperance is currently spending an extended period in Perth and his large antenna array on 2 m (8 x 16 element yagis) has succumbed to wind damage, suffering a broken horizontal boom and requiring extensive repairs. This leaves 91 year old Wally VK6WG, in Albany, as the only resident serious weak signal operator on the south coast of Western Australia.

6 m has also been fairly lively of late. Stations reportedly worked from VK include JA, W6, W7, KH6, XE (Mexico), BG (China), EZ (Turkmenistan), BG9 (China) and HL (Korea).

Doug VK4OE has been active "hotel room portable" around the countryside on 144 MHz, 2.4 GHz and 10 GHz. Earlier in the year, he was active in inner Melbourne and managed a number of contacts. Then, in May, he worked Wally VK6KZ while in Perth.

Ian VK1BG reports working his 100th VK3 SSB station – VK3ESE – on 2m. It has taken him 20 years to achieve this but, after the initial rush, he has seen a steady build up of new VK3 stations in recent years. Ian is a regular on the morning aircraft net and is always a good signal into Melbourne, working stations on 2m, 70cm and, occasionally, 23cm.

Speaking of the aircraft net, Gordon VK2ZAB raises a good point. In general, most of the net operation occurs up the east coast of Australia, between Melbourne, Sydney and Brisbane. However, the upper limit for aircraft-enhanced contacts is generally accepted to be around 700 km – or about the distance from Melbourne to Sydney and Sydney to Brisbane. Thus the Sydney stations find themselves as the meat in the sandwich, needing to beam north and south. To overcome this, the net is divided into two for the Sydney stations, with 7am to 8am set for contacts to the north and 8am to 9:15am for contacts to the south. However, stations to the north and south of Sydney should not just operate within these time blocks. For a chance to work further than Sydney, southern stations should start before 8am and northern stations should continue operation after 8am. Hopefully they will find that the upper limit is greater than the currently accepted 700km.

...the Sydney stations find themselves as the meat in the sandwich, needing to beam north and south...

VHF DX Net IRLP linkup

Guy VK2KU reports that the weekly FM net of the NSW VHF DX Group is now accessible to anyone who has access to an IRLP linked FM Repeater. This net takes place each Sunday at 11 am EAST on the Blue Mountains Repeater on 147.050.

The net has provided an opportunity for VHF DXers to get together to discuss any issues of interest, technical or otherwise. But more importantly, it provides an opportunity for other stations not equipped for weak signal SSB to listen or join in the discussions.

The Blue Mountains Club has now arranged for their repeater to be connected (for the net) to their IRLP Reflector. Anyone that wants to join the net from a remote IRLP node will need to connect to reflector 9505. All you need to do is send DTMF tones 9505 in a single transmission to your node, and it should connect.

It is hoped that VHF DX friends from across Australia (and beyond) will join in the discussions each week.

GippsTech 2003 – July 5 & 6

The 2003 Gippsland Technical Conference is just around the corner. For anyone interest in building and operating in the VHF, UHF and Microwave bands, this event is not to be missed. The venue is in Churchill, which is approximately 170 km east of Melbourne. Formal sessions will be held on Saturday followed by a Conference Dinner. Sunday will have some short talks, and demonstrations of equipment and techniques. Lunch is provided on both days and the cost is included in the (very modest) registration fee.

For more details and online registration, go to http://www.qsl.net/vk3bez/.

New VK4 24 GHz record of 90.5 km.

Russell VK3ZQB reports on his microwave exploits up north in late April:

Colin VK5DK, Bill VK3AMH and I travelled up to VK4 to conduct some microwave contacts and have a holiday as well. We met up with Errol VK4ZHL and set up some contacts with Neil VK2EI. Our first contact was from Mt Matheson north of Lismore to Point Lookout in the New England ranges near Dorrigo, a distance of 230.7 km. We had good signals from Neil on 10 GHz, but could not hear anything on 24 GHz. We returned the next day but were driven off the hill by drizzly rain.

We moved to another location near Cape Byron and Neil VK2EI set up near his home QTH on a hill called North Brother. Contact was made on 10 GHz but signals were very poor. I used my transceiver with its 2 watts output and Neil was able to hear me on SSB. Neil only has 250 mW and had to use CW to pass on his report.

We went back to Errol's QTH at Beachmere and planned our trip north. Our mission was not to break records but to look at some suitable microwave sites and be a tourist. Colin, Bill and Errol called in on VK4TZL at Hervey Bay and had some contacts with him on 10 GHz.

I met up with the group again at Rockhampton where we spent a couple of days looking at suitable microwave sites. There was little or no propagation and we had a few contacts on 10 GHz with average results. We tried 24 GHz from a few spots with distances of 100 - 130 km but without success.

I was going to drive to Cairns and Colin, Bill and Errol were returning south. We had one last contact from Mt Archer near Rockhampton to lookout hill in Gladstone. I worked Colin, Bill and Errol at Gladstone on 10 GHz with 5-9 reports, then again on 24 GHz with 5-5 signal reports. The 24 GHz contact extended our previous VK4 record of 74 km to 90.5 km. The National 24 GHz record is owned by Colin VK5DK and myself, a distance of 200.8 km.

The equipment used in this expedition was a 10 GHz 1 watt Qualcom transverter with 432 MHz IF owned by Colin VK5DK, a 2 watt 10 GHz DB6NT transverter with 144 MHz IF owned by VK3ZQB and 2 24 GHz 70 mW DB6NT transverters owned by Colin and myself.

Digital Modes

Leigh Rainbird - VK2LRR

This month, the usual writer of this column, Rex VK7MO is out on a DX-pedition with VK7TS at Lord Howe Island, grid square QF98. The two are operating under the call sign of VK9LS and are activating the Island on many bands including 2 m, 70 cm and 23 cm using modes such as FSK441, JT44, VFSKCW, CW and SSB. Lord Howe Island is within meteor scatter range of VK2, VK3, VK7, southern VK4, eastern VK5, ZL and FK8.

Equipment being used is an IC-910H, running 100 W into a 10 element 2.3 wavelength Yagi on 2 m. 75 W into a 17 element Yagi on 70 cm. 10 W into a 45 element Yagi on 23 cm.

Unfortunately, so far, Rex has had a poorer than expected location for troppo paths using JT44 and SSB. Bad weather had also damaged some of the antenna's requiring urgent repairs, and so has been mainly making contacts using FSK441 meteor scatter, but has also had some success with JT44 via the Moon (EME).

At time of writing, Rex had completed FSK441 contacts with – VK4TZL, VK4KZR, VK2FZ, VK2AKR, VK2KU, VK2AWD, VK2JKK, VK2FLR, VK2TK, VK3KAI and VK3FMD.

Rex had copied signals but not completed contact on FSK441 with – VK4ZR, VK1BG, VK2EI, VK3UM, VK3CY, VK3DD(U?) and VK3AFW.

Rex had managed to work three stations on 144 MHz EME using JT44. These have mainly occurred at Moonrise or just after. First contact was with Dave W5UN, completed in just over an hour. Rex also completed JT44 EME with KB8RQ and KJ9I. Also VK2CZ reports that he was able to partially decode signals from VK9LS at moonrise.

Rex will be back with a full report next month.

2m & 70 cm DX

Leigh Rainbird VK2LRR – vk2lrr@teistra.com

I mentioned in last month's report that, as we get into the colder months, we will see less duct openings and only shorter distances workable. I must admit, the month of April hasn't gone too badly and it's still looking good at the time of writing.

Significant ducting conditions occurred around 4 times during April.

The morning of the 9th saw good conditions around VK3 and also into VK5RMG Mt. Gambier repeater at around 650 km.

Saturday the 12th was an interesting one in that there appeared to be an Evaporation Duct, which formed after extensive rainfall on Friday night and early Saturday morning followed by a warm mid morning and afternoon. The duct itself began to appear just before midday and gave good enhancement down through central and western VK3 until some time in the evening. Some of the stations contacted were VK3ANW who at midday was 5/9+20dB, Ararat repeater was 5/9 at 410 km.

On the 14th of April a duct occurred around midnight, which took in what I'd call the Murray River path. This takes in Swan Hill, Robinvale and Mildura. This only lasted about an hour.

The big one for the month lasted a number of days starting on Easter Sunday morning, the 20th of April, and was last noted Wednesday morning the 23rd, but much weaker. This developed after an intense HIGH pressure cell wound its way from the Bight, moved to the south of Tasmania, travelled north across the centre of Tassie and ended up in the Bass Strait. A LOW-pressure cell near NZ was blocking its easterly travel and so it moved west and steadied near Mt Gambier. It was at this point that the good conditions began. Very good signals were noted in the far south of VK3 and across to VK7, with stations east of Melbourne making effortless contacts to Mt Gambier and closer areas as well. Repeaters noted this way included Mt. Gambier 650 km and Naracoorte 600 km in VK5. In VK3 most distant were Otway Ranges 486 km, Ararat 410 km. Furthest simplex from here made to Geelong with VK3VSW 404 km, 5/9; and VK3KOS at Sunshine, around 350 km at a 5/7 signal. Chris VK3VSW also reported simplex contacts from Geelong to Penguin in Tasmania with VK7LCW Peter, on 2 m was 5/7, on 70 cm was 5/2 at 360 km. Kevin VK5OA in Mt Gambier reports that simplex contacts were easy for him right across to the eastern side of Melbourne, which still saw S9+ signals at over 445 km. No doubt there were many other interesting contacts made during the strong duct conditions.

Stations noted as working from hilltop portable during April were VK3VTX Gavin, on Mt.Tamanic near Glenrowan was 5/9; VK3KBF Bert, was up at Mt. Buffalo with a 500 mW handheld and was a 4/3 signal here; VK3FIQ Geoff, went to the Grampians and peaked at 5/5; VK5KCX/3 Barry was at a Hill top near Castlemaine, signal to 5/7; VK2LGB Lachlan, was on a hill at Batlow with a handheld and not copied here.

As the saying goes "Activity creates activity", this is what I have been trying to get happening lately by being more active and calling on the National FM Calling frequency of 146.500 more often. There have been some interesting times had with operators making contacts and watching the varying conditions from the bottom of VK3 up into southern VK2, with most stations able to hear each other seemingly around 50% of the time without strong ducting. Stations active for April included VK3ANW Noel, VK3HEN Darren, VK3TEX Les all at Kyabram; VK3XDP Peter, VK3GOM Graham, VK3JGL Graham all at Bendigo; VK3VSW Chris at Geelong (404 km); VK3DSF Max at Shepparton.

I'd like to hear from other Amateurs around Australia who may have made long distance contacts on 2 m and 70 cm FM, on simplex, or to distant repeaters in the previous few months, for possible inclusion in future columns.

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HF Predictions

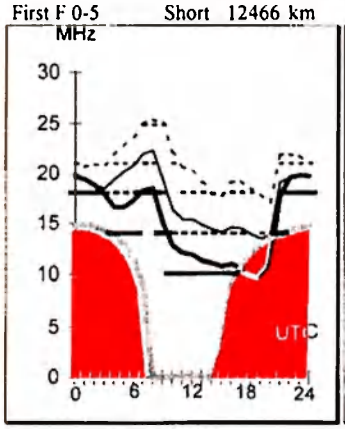
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

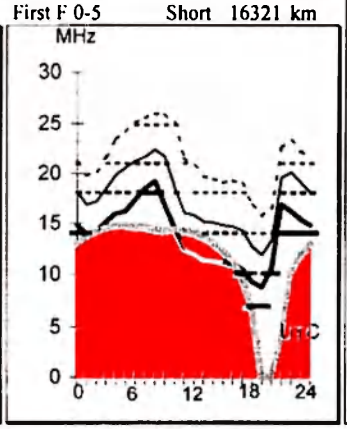
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

Adelaide-Anchorage 30
First F 0-5 Short 12466 km



Brisbane-Berne 315
First F 0-5 Short 16321 km



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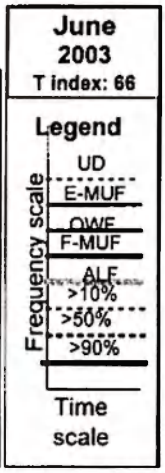
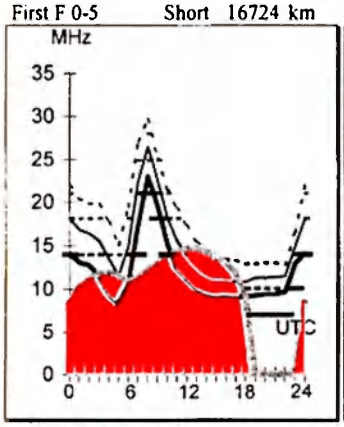
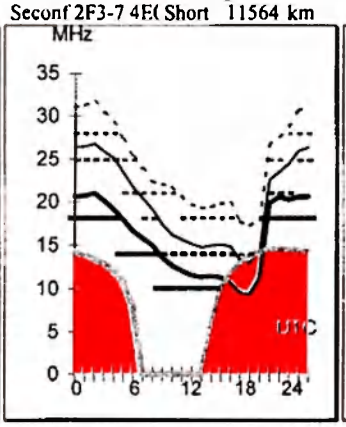


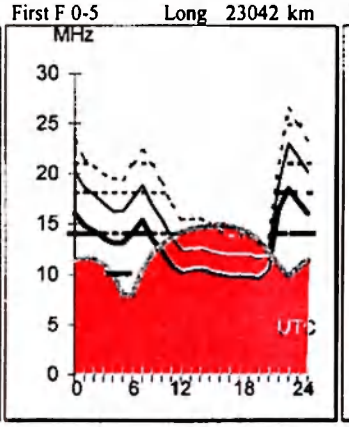
Adelaide-Dakar 233
First F 0-5 Short 16724 km



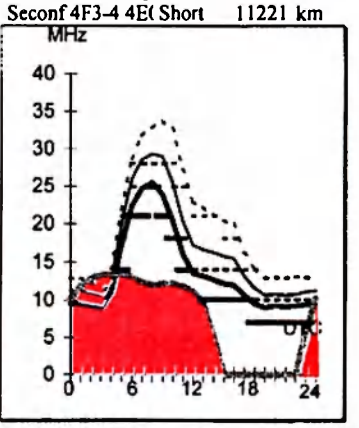
Brisbane-LosAngeles 59
Seconf 2F3-7 4E(Short 11564 km



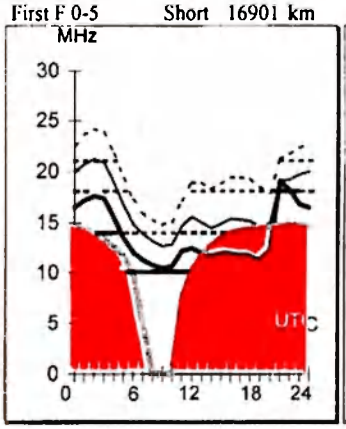
Canberra-London 136
First F 0-5 Long 23042 km



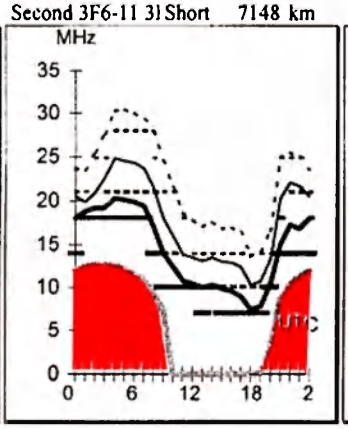
Darwin-Capetown 231
Seconf 4F3-4 4E(Short 11221 km



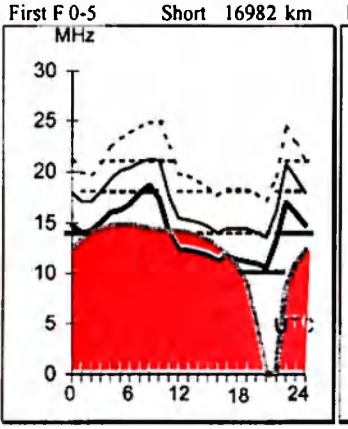
Adelaide-Ottawa 58
First F 0-5 Short 16901 km



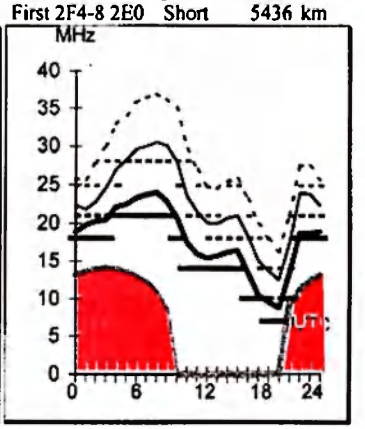
Brisbane-Osaka 344
Second 3F6-11 3I Short 7148 km



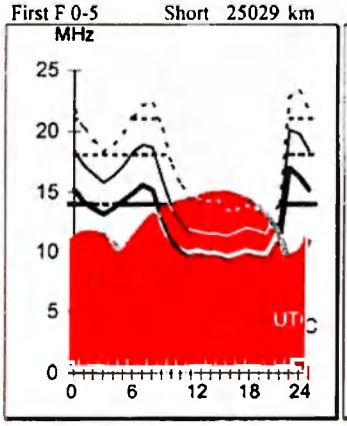
Canberra-London 316
First F 0-5 Short 16982 km



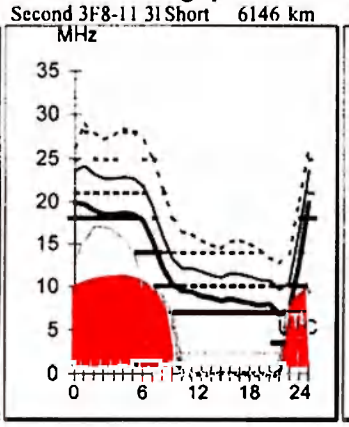
Darwin-Tokyo 10
First 2F4-8 2E0 Short 5436 km



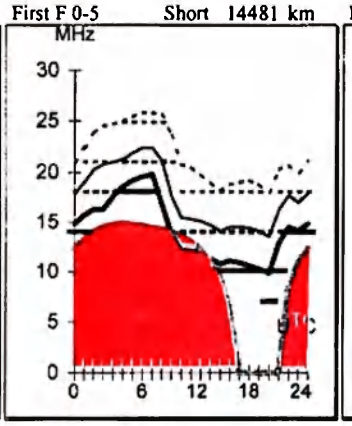
Adelaide-Stockholm 142
First F 0-5 Short 25029 km



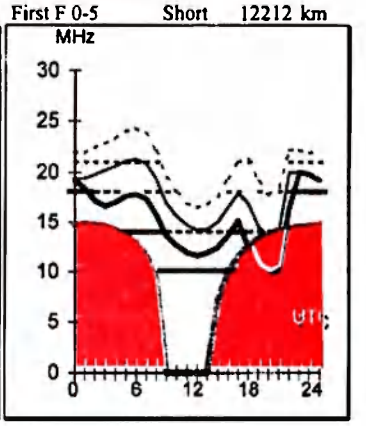
Brisbane-Singapore 293
Second 3F8-11 3I Short 6146 km



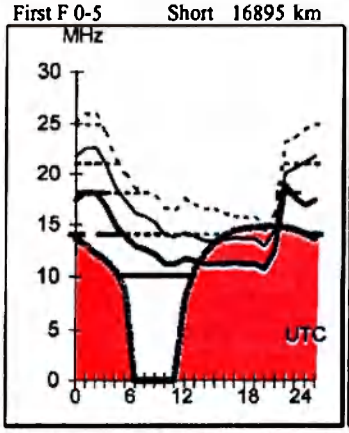
Canberra-Moscow 317
First F 0-5 Short 14481 km



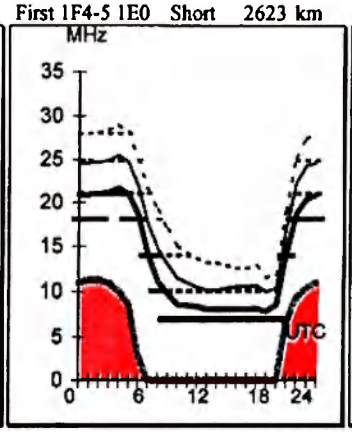
Darwin-Vancouver 42
First F 0-5 Short 12212 km



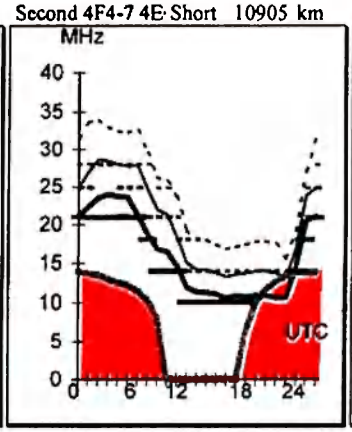
Hobart-Boston 70
First F 0-5 Short 16895 km



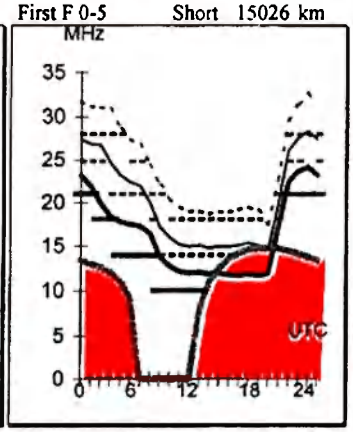
Melbourne-Auckland 97
First 1F4-5 1E0 Short 2623 km



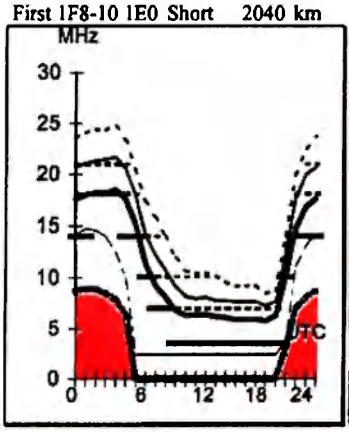
Perth-Honolulu 70
Second 4F4-7 4E Short 10905 km



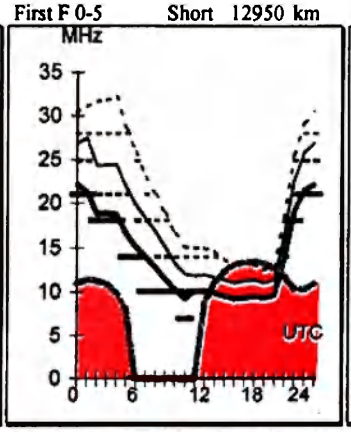
Sydney-Miami 86
First F 0-5 Short 15026 km



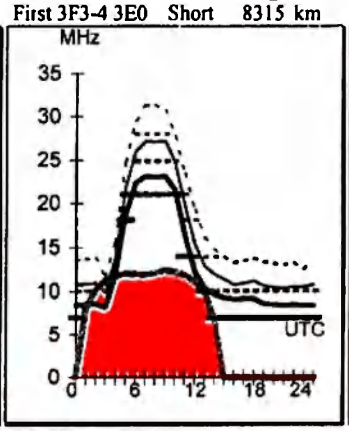
Hobart-Christchurch 101
First 1F8-10 1E0 Short 2040 km



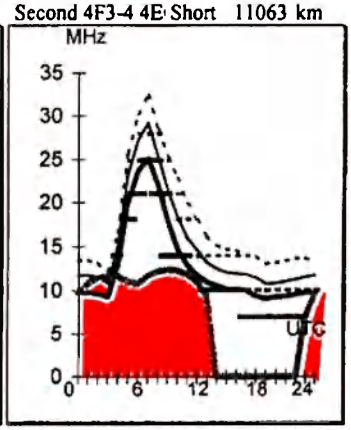
Melbourne-Lima 133
First F 0-5 Short 12950 km



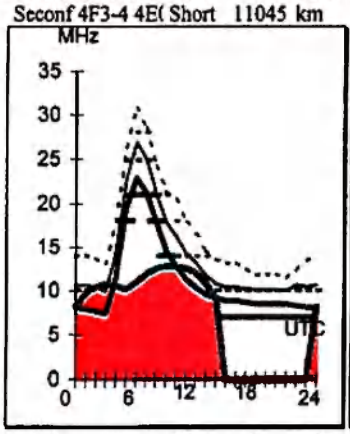
Perth-Johannesburg 248
First 3F3-4 3E0 Short 8315 km



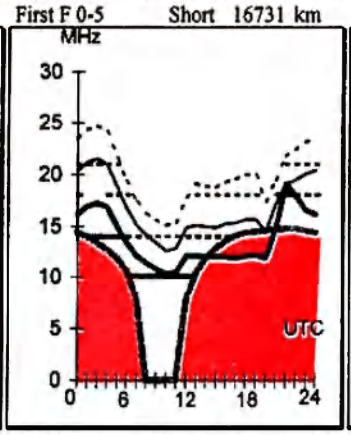
Sydney-Pretoria 230
Second 4F3-4 4E Short 11063 km



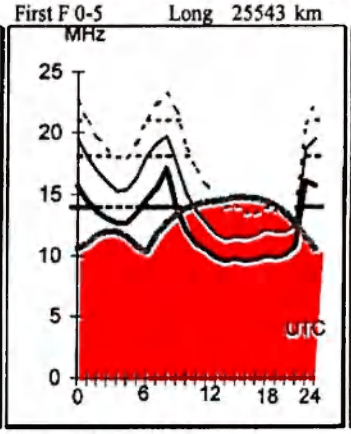
Hobart-Lusaka 239
Seconf 4F3-4 4E(Short 11045 km



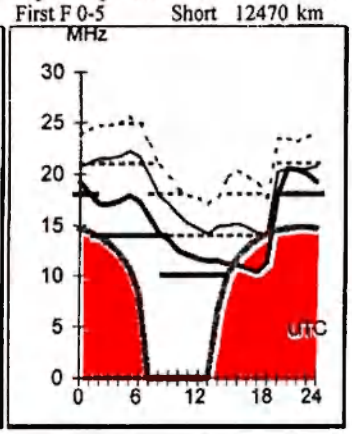
Melbourne-Montreal 62
First F 0-5 Short 16731 km



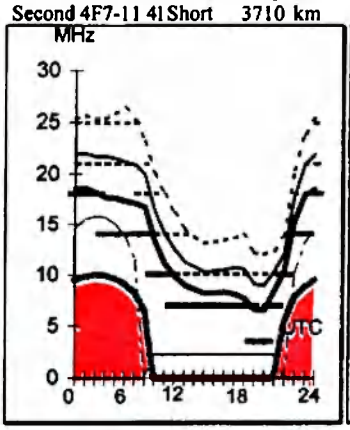
Perth-London 133
First F 0-5 Long 25543 km



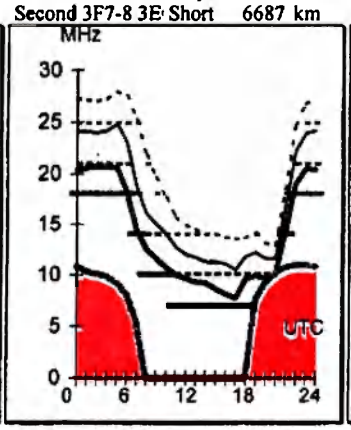
Sydney-Seattle 47
First F 0-5 Short 12470 km



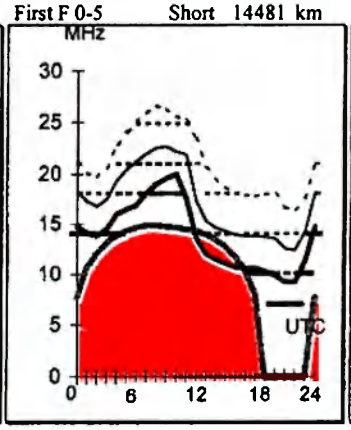
Hobart-Port Moresby 360
Second 4F7-11 4I Short 3710 km



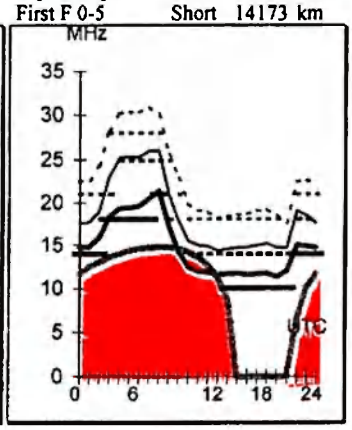
Melbourne-Papeete 90
Second 3F7-8 3E Short 6687 km



Perth-London 313
First F 0-5 Short 14481 km



Sydney-Tel Aviv 287
First F 0-5 Short 14173 km



Spotlight on SWLing

Ron Henderson VK7RH

The Iraq War ends swiftly

The Coalition forces completely overwhelming the Iraqi forces and dismantled the Saddam regime in about a month. Baghdad fell on the 9th of April and the rest of the country quickly followed. There has been much damage to the telecommunications infrastructure from the relentless bombing campaign and what remained disappeared in the looting which followed.. As a result, the telecommunications sector, along with most other infrastructure, is not functioning. It is will be a huge logistical undertaking to repair it.

All broadcast transmitters were destroyed or severely damaged. with the Coalition forces installing portable stations. It will be a while before HF senders are heard again, probably when the interim Iraqi Authority is installed under the Coalition.

Iraq's neighbours are nervous, Iran in particular has launched official and semi-clandestine broadcasting stations broadcasting in Arabic to the Iraqi Shia majority, long repressed by Saddam. They favour a government modeled on Iran and have established a station, on 720kHz, close to the Iran-Iraq border. The official Voice of the Islamic Republic of Iran in Teheran has expanded their Arabic programming on 9935 kHz at 2100z, not only to reach Iraq but to the Arab Diaspora.

Teheran broadcasts to Australia in English at 2130 on 9870 but as the station does not co-ordinate their frequency selections, there are inevitable frequency clashes. Bahrain is another Gulf neighbour of Iraq and has reactivated shortwave senders on 9745 on reduced carrier USB. The Arabic programs are a relay of a domestic FM service.

VLF Station GBR closes.

The giant VLF British Telecom station at Rugby, England, which served The Royal Navy for 77 years, 3 months, made its last transmission on 16 kHz at midnight on 31 March.. The antenna farm on 910 acres will probably end up as real estate development. Additional LF and HF facilities were located there also. These have since ended but Rugby is still the home of the MSF time and frequency signals. BT is contracted to operate those for the National Physics Laboratory until 2007, but it is unknown where those signals will originate from when the Rugby antennas come down. Recent transmissions on 55.5kHz may have been tests by BT of a new transmitter and antenna system for the 60kHz MSF service.

Grundig files for Bankruptcy

The German Electronics manufacturer filed for bankruptcy after several failed rescue bids. Started after WW II by Max Grundig, the family-owned firm became famous in home electronics, selling many Germans their first TV set.. Two rescue bids foundered because of the ever increasing debt burden and lack of profits and the firm finally bowed to pressure from global giants such as the Sony Corporation and Samsung Electronics. Its brand name and sales network still have value, but it appears to be the end of the line for the one-time driving force in innovative technology. Grundig in the USA is a separate company and will continue importing their popular shortwave sets from China and Taiwan.

Another Icon leaves shortwave

My first SWL report as a 10 year old was for a QSL to Radio HCJB in Quito, Ecuador. It took over a year to receive a reply as, in 1937, all mail to South America was by surface mail. I still have the QSL with its Inca motif and it was for 11915. I did not put down the time, as I did not know about GMT. HCJB, far away in the South America jungles was indeed more exotic than the chimes of Big Ben from London or the VOA in Washington.

HCJB was very easily heard by many of us as they targeted the South Pacific and this continued until January of this year. HCJB Australia then became operational from Kununurra WA but they have had difficulties since. In the middle of May, HCJB management stunned the World by announcing that they were to cease broadcasting all programming outside of South America as from the 31st of May. Programming will continue in Spanish, Portuguese, Quechua and German, mainly for the benefit of missionaries in Latin America but they are going to increasingly broadcast via domestic FM or AM stations similar to that of Trans World Radio in Bonaire. Plans also have been scrapped to move the HF senders to Guayagil from Pifo. The latter locality is to become the site of the new Quito International Airport.

This decision means that several popular programs such as "DX Partyline", "Ham Radio Today" and "Saludos Amigos" will also be axed. I believe Bob Padula is hoping to get a DX program over HCJB Australia. I expect that HCJB Australia will quickly develop their own identity. English programs are continuing from Kununurra and they are hoping to expand on to adjacent land to increase their antenna farm.

The present senders are well below their peak capacity and transmissions are believed to have between 11 and 25 kW, particularly to the South Pacific. Transmissions to the Indian sub-continent are higher.

DRM Starts on June 16

The German external broadcaster has now relocated to Bonn and will be the first international broadcaster to have regular programs using the DRM platform. This service is to come online as from the 16th of this month, coinciding with the World Administrative Conference in Geneva. Radio Netherlands in Hilversum is also poised to join them and will broadcast live coverage of the Tour de France daily.

Swiss Radio International are also going to be using DRM from Sottens within Switzerland on the 16th of June and will be a rare opportunity as SRI mainly broadcasts from Julich or French Guiana. The transmission is a one off for the WARC in Geneva.

Well that is all for this month. Don't forget you can email me at vk7rh@wia.org.au.

The Entry Level Licence discussion

Just what is happening?

This is rather late, but I am in full agreement with Neville (VK2YO) and his letter in *Over to You*, Feb 2003.

To say I was dismayed by the tone of various comments regarding the Foundation Licence, which appeared in the May 2003 issue of AR, would be an understatement. My observations of the situation leaves me a little bewildered; in particular, in relation to the following:

1. The WIA is broke - now and predicted for 2004;
2. The Foundation Licence appears to be set in concrete;
3. Just what is happening?

1. WIA is Broke:

According to the information in May's issue, the WIA represents less than 25% of all amateurs in Australia (*ref. page 7 May AR).* Not only does the WIA represent less than 25%, numbers are falling (from 4,071 in 2001 to 3,936 in 2002) and it would appear that this will continue.

If the WIA is broke, what on earth are we doing by introducing a new Foundation Licence with privileges that are akin to a full licence holder now, when we should have an all out effort into attracting and promoting AR as a whole, not simply lowering the standard?

It's obvious, from reading of a recent member's attempts to join our ranks (not to mention my own attempts to arrange for a CW exam around the Port Augusta area - no 'official testing officers'), that we (i.e. WIA) need to get our own house in order before we start changing the face of AR as a whole.

2. Foundation Licence Appears set in Concrete:

I found it quite disturbing to read the President's 'WIA Comment' in May AR Mag. I realise of course that he was writing from a hypothetical and future perspective, but really, this whole issue of the Foundation Licence seems to have grown from a pepper-grain size seed to a full blown and 'accepted' fact in an incredibly short period of time.

What ever happened to the democratic process? I haven't seen any questionnaires, surveys or been asked what I think; the WIA appears to have simply gone out on its own and accepted the whole issue as a foregone conclusion without consultation?

Not all of us 'live' on the internet or 'live' to receive email messages. Many of us work and many of us simply don't have much time to even listen to the Sunday Broadcasts. A great many of us rely on the AR magazine for our news. Has this whole issue been 'slid in sideways' without anyone looking, or has it been going on for some time? Whatever the reason, what about 'due process'? One could be forgiven in thinking personal agendas were at play. Just because it's been good for the UK does not necessarily mean it will be good for us.

Long gone are the days when we were all brought up like good little Britains, albeit second-class colonials. We, like it or not, are part of Oceania (polite for Asia), not part of the EEC. Our politics may be similar, our legal system may be similar, but that's where the similarities end.

3. Just What is Happening?

The current WIA 'Federal and State Divisions' surely must be the only type currently in existence. Professional pilots have their own 'voice', one that is Federally based; even the dear old Private Pilot is represented by a 'so-called' federally based 'voice' (Aircraft Owners and Pilots Assoc - AOPA); there are state representatives, but not separate state divisions as we do in the WIA.

Surely, is not now the time for us (WIA) to get our own house in order before we start messing up the *whole neighbourhood* (i.e. *all AR operators)? And who gave the WIA the right - don't forget that 25%!*

To say I'm disappointed would be an understatement. Quality, any day, is better than quantity. If the membership of WIA is dwindling, then let's do something *positive* about it, not play with the system in the vain hope that something *might* happen and suddenly our numbers swell by 'huge amounts' - who knows, we might even see reasonably affordable WIA fees if we abolished the outdated and unwieldy State Divisions.

My two-bob's worth and my opinions only. I do take my hat off to all volunteers within the WIA; however, if any member does volunteer, it is just that. It is not a mandate to act as a dictator, nor is the WIA a solid voice representing all AR operators - let's do something about that before we mess it all up and we all end up losing.

Peter Whellum VK5ZPG

At risk of getting over-exposed

For years, we've heard from the anti-Morse mob that "Morse is killing the hobby". Before Federal goes off and implements this Foundation/ Communicator licence, could we have a few months at least to witness the postulated explosion in Amateur numbers when the Morse code test requirement is lifted at WRC2003?

If there is a dramatic and sustained increase in our ranks, then surely there is no need to dumb down the technical side as well by introducing this appliance operator licence grade. If, as I suspect, dropping the test has no lasting effect, then perhaps we should question whether the amount of effort required to gain a licence has *ever* been the reason for declining numbers.

In any case, if we hope to increase the Amateur population, after dropping the Morse test and/or lowering the technical bar, we will have to do what we should have been doing for years anyway, i.e. *publicising the hobby* to the non-Amateur public!

73 Richard Murnane VK2SKY

Views expressed in the *Over to You* pages are not necessarily those of the WIA.
Send letters to:
Editor
AR Magazine
34 Hawker Crescent
Elizabeth East SA 5112
or email
edarmag@chariot.net.au

Over to you

The Entry Level Licence discussion

Is the current proposal necessary or even the right way to go?

1. Common requirements for Licencing.

(a) A Licence is proof that a person has reached an acceptable level of competence in a trade or profession.

(b) Monitoring of a licencee's performance is normally built-in to Licence systems with procedures for handling situations where licencees fail to comply with trade standards.

(c) Provision is made for post-licence training.

NONE of these criteria are met in the process under discussion; so, why is a licence necessary at entry level?

2. An alternative.

It makes more sense to do without the complication of paid-for licencing, but make student membership of the WIA the pre-condition.

This would be cost-attractive to newcomers to Amateur Radio and would relieve ACA of an administrative burden.

More importantly, regular receipt of AR Magazines (Upgraded issue by issue with appropriate advice) could provide progressive enhancement of student member's knowledge.

This one vital step could minimise the shambles that will occur if people with only a day or so's "training" are allowed to use relatively complicated 100 watt multi-mode transceivers on amateur bands.

3. Responsibility for overseeing compliance.

Self regulation has been a joke. In recent years supervision and control of Amateur Services has been notable only for it's absence.

Authority for supervision and control lies with ACA, NOT the WIA, or any of its Members.

4. The International organisation for citizen intercommunication.

A sensible internationally agreed framework already exists i.e.

(a) The amateur Service supposedly caters for those interested in radio techniques and technical investigation

(b) A Licence-FREE Citizen Band Service caters for those with social communication requirements. This Service by its nature introduces participants to simple radio operations and procedures.

So why re-invent the wheel at a cost to the newcomer, and un-earned income for the government?

5. The need for supervision by the government's tele-communications authority.

It is matter for regret that many amateurs do not understand the differing roles of the Amateur and CB Services.

The amateur service would benefit tremendously were ACA to use it's undoubted administrative power (as distinct from Criminal proceedings) to suspend licencees who deliberately use amateur service frequencies for protracted discussion on political, religious and social matter, instead of intercommunicating on technical self-training matters.

ACA could well start with two well known VK3 "Amateurs". The shock waves from that would do the amateur service the world of good and set a level of compliance that has not bee seen in recent years.

6. The probable end result.

(a) The FREE UHF & HF CB Service will continue to absorb the talkers and button pushers.

(b) The proposed amateur licence will be unattractive, and unable to complete with a free service.

(c) Active recruitment of CB Service users might produce a few student members, but at the cost of a discounted membership fee.

(d) The status quo in regard to Unrestricted operators will remain static until there is a realisation that technically enthusiastic members of the WIA are more important than the number of amateur licencees.

(e) The adverse public image of AOCP holders as chattering hobbyist "hams" rather than members of a responsible licenced technically based service will remain.

Conclusion

If the Amateur Service in Australia is to survive, obtaining Government moral and financial support needs to be the WIA's primary objective!

The Amateur Service would be better served if the WIA Executive concentrated it's efforts on forcing the Government into a realisation that the Amateur Service is worthy of, and needs, proper Government support, because failure to receive such an undertaking would eventually spell the end of the amateur service in Australia.

Obtaining an understanding of how the ARRL successfully lobbies its government would be a worthwhile starting point in that vital process.

VK1AU.

Entry Level Licence - what should happen now!

A lot has occurred in the past month since the publication of the Linton-Harrison Paper 2003 that highlighted the decline in amateur radio in Australia and proposed solutions to address the situation.

The WIA Federal Council meeting in Adelaide fully discussed the licensing system in Australia, assessed the United Kingdom's "Foundation Licence", and made decisions in the best interest of amateur radio.

The WIA policy is to seek a new Entry Level Licence designed for Australian conditions. The training, syllabus, assessment and mentoring elements of the new licence will take a new approach to qualifying people for an

The Entry Level Licence discussion

amateur licence. The syllabus will be set at about the level originally intended, but not maintained over the years, for the Australian Novice licence.

The WIA decision to seek a two-tier licence system – Unrestricted and Entry Level, is in recognition that the Australian AOCP theory standard is higher than required internationally, and the Novice theory is at the US Technician (Limited) Licence standard.

There is a small difference between the current Novice and where the AOCP standard should really be set. The licence structure will also change with the anticipated removal in 2004 of mandatory Morse code tests for amateur licences.

What are the next steps that need to be taken? The WIA needs the support of all radio amateurs as it embarks on a period of consultation with the amateur radio fraternity about the Entry Level Licence. Have your say by completing its survey!

The smooth introduction and very success of the Entry Level Licence depends on existing radio amateurs and radio clubs. The WIA Divisions need to fully brief their member clubs and muster support for the recruiting of the new breed of radio amateurs.

A few clubs already have virtual waiting lists for the new licence. Through the resources of the clubs, teams of experienced and knowledgeable radio amateurs need to be identified to provide the training required for the Entry Level Licence.

These must be different people from those who will conduct the final assessment of each candidate. The clubs that are well prepared will not only be helping to ensure that amateur radio survives in Australia, but that their club and the WIA have futures too.

The Entry Level Licence on its own is only part of the solution. A full package of activity including promotion of amateur radio is required.

While the WIA and radio clubs will kick-start the new licence, it will also need to be picked up by youth organisations, the scouting and guiding movements, individual schools, and ultimately the education departments in each state and territory.

There is a role in this ongoing project for every existing radio amateur, if they want it, and willing to seize the opportunity to put something back into the hobby. Are you ELR (Entry Licence Ready)?

By Jim Linton VK3PC & Roger Harrison VK2ZRH

WIA membership as a licence condition?

I find it increasingly difficult to understand the real reason behind the push for the proposed new Licence. It does not appear to be coming from the members. As a matter of fact I spoke with at least 50 amateurs at the latest BARCFEST in Brisbane and not one was in favour of it, although a couple expressed a degree of disinterest.

Opinion is that the WIA (desperate for new members) sees it as a chance to capture the much needed numbers to boost its fiscal base and allow it to operate better. Another suggestion is that the push is coming from the manufacturers of radio and electronics equipment- (why wouldn't they).

Our bands are crowded enough now without introducing further operators. The natural increase is there without adding to it. The spectrum won't expand to cater for the new arrivals. Clearly, any thought to add others less qualified and less disciplined will exacerbate even further the problems we now encounter. Yes, the WIA seems powerless to stop the language, stupidity and general disregard for band plan agreements now. How will it go with others who have not had to go through a reasonable "barrier" to obtain access to our privileges?

I and many others believe most emphatically that the answer is simple.

1) No new licence
2) Compulsory membership of the WIA as a licence condition. This would have to be at a nominal cost. (If everyone was a member the cost could be reduced significantly)
3) The entry conditions remain the same.

I am not aware that the WIA has approached the Government on this matter but there are more and more sporting and hobby associations that now have formal membership of an affiliated, professional or semi-professional body or association as a condition of a licence. We should become one of them without delay.

Moreover, the WIA (of which I am a member) should be given both the power and the facilities to properly control its members and the manner in which they adhere to the code of practice. Transgression of our rules should result in suspension and/or expulsion with the subsequent ramifications extending to the recalcitrant's formal licence. I now challenge the WIA to put this matter before the appropriate Government body and to stop listening to empty cans and commercially interested parties in the retail sector.

If the new licensing is introduced I can only say that with regret I will no longer be a WIA member. There are many others who feel likewise.

W P (Bill) McCarthy VK4WMC
Phone /Fax 07 5541 4730

What? No home-brew!

I write with some concern regarding the proposed Foundation Licence and VK2's motion regarding entry level as reported in the May AR and in particular to "no home brew transmitters."

Was this proposed by someone with a vested interest in the sale of communication equipment? Surely the amateur radio hobby requires technical hands-on experience and not become just a talk fest.

I hope that the subsequent amending motion deleted this unrealistic approach to our hobby. It is important that young people should be encouraged to build and experiment with equipment and this could result in more technical articles in AR because of that interest.

W.A.Adams VK3ZW0.

Hamads

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• **Icom IC-Q7A** 2 m/70 cm h/h with soft cover and manual. Excellent condition, s/n 01526, $260. Chris VK2MQX, Phone 0425 301 539.

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• All items are from the estate of the late Rej Allinson, VK2MP. **Kenwood TL-922 Linear Amplifier**, S/N 9010046 $1200. **IC-275A** all mode 2 metre transceiver, S/N 01835 $600. **FT-290H** 2 metre all mode transceiver, S/N 02151 $200. **Yaesu 30A AC P/S FP-107E**, S/N 060372 $150. **HL-60U** 70 cm Linear Amplifier, S/N 530789 $200. **LP Filter FD-30LS** 100 W, $20. **Antenna switch**, 4 pos Daiwa CS.4, $40. Graeme VK2QI QTHR. Phone 02 4456 5226 or email:graemesue@shoal.net.au.

• **Dish, 1 m diam.** on gyro mount and stepper X and Y in fibreglass dome $180. **24 m dismantled tower** $350, **Ribbit1200 SSTV system** with monitor, offers. John VK2ZHM QTHR Phone 02 9417 5338, mitchell@zeta.org.au

FOR SALE VIC

• **Top section Nally Tower** 7 m long, $500 ono. VK3YJ QTHR Phone 03 9315 9387, xdrover@bigpond.com.au. Buyer to remove.

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• **Kenwood TS-530S** HF Transceiver. S/no 2040209, optional filters YK88SN/YK88C installed. **MC-10** hand mic. Op Manual. Spare Valves 4x6146 12BY7. **Kenwood VFO-240** s/ no 100411 with cables and manual. Both VGC $400. VK3MW Phone 03 5978 7177 or jandrg@alphalink.com.au

WANTED VIC

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• **Crystals** 1.5, 9, 12.5 MHz. Trevor Mitchell, VK3PP, QTHR, Phone 03 5441 1197

• **FT102**, not necessarily working. Phone Colin VK3BE Phone 0429 614 368.

• I would like to get a **Commodore Amiga 1200.** My preference is one with the motherboard still in the original Commodore keyboard case, but after market tower could be useful. I will also need manuals. Alan VK3JAJ Phone 03 9817 2057 P.O. Box 442, Deepdene, Vic 3103. email: vk3jaj@bigpond.com

• **AM TX to run on 80/40m,** homebrew great or military considered, but prefer something relatively compact i.e. not as big as a bar fridge due limited space. Let me know what you have to go to a new home, and warm the ether again. Damien VK3RX Phone 03 5427 3121 vk3rx@wia.org.au

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Ernie Hocking, President
Amateur Radio April 2002

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- **Through your local amateur radio club**
- **Through your Division (contact details on inside back cover)**
- **Contact WIA Federal Office (03) 9528 5962**

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The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Alan Hawes	VK1WX
Secretary	Deane Walkington	VK1DW
Treasurer	Linden Orr	VK1LSO

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga. VK1 Home Page *http://www.vk1.wia.ampr.org*
Annual Membership Fees. Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Brian Kelly	VK2WBK
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VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.
Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
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July 2003
Volume 71 No 7

Amateur Radio

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Women in Radio

meet

Dorothy Bishop VK2DB

and **Joy Charles VK5YJ**

2 new articles by

Peter Parker VK3YE:

The 'NoPA' 40 metre DSB transmitter

Novel design uses no RF power amplifier

New life for your old broadcast receiver

Listening pleasure past the top of the a[illegible]

ISSN 0002-6859

- *COCKY-PROOF* those antennae
- Using Crystal Oscillator Modules
- What's all this *Linux* business?
- Another use for ex-computer crystals
- 12 to 28 Volt DC - DC Converter

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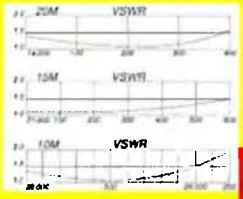

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Reviewed this issue

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Our Cover this month

One of the many women involved in amateur radio, Dorothy Bishop VK2DB. Read her story and that of Joy Charles VK5YJ on pages 24 & 25

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

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Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

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When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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Editorial Comment

Colwyn Low VK5UE

A group of experimenters!

This month sees the debate on the Entry level licence proposal heat up. We do have to get a comment from a large number of Amateurs with different interests and varying time as operators. We also have to try and redefine what Amateur radio is all about. What is amateur radio in 2003? Is the statement at the top of page 56 still true and if so, what does it mean in sentence 1 and is the limitation in sentence 2 to 'radio technique' too restrictive in to-days world? I have said before we really are non-commercial communicators using electromagnetic radiation and other electrical systems to communicate. If we are too restrictive we will wither and die as a hobby but people will still link their computers with radio links and copper wires and optical fibre. We will be the losers if we do not spread our defined areas of interest.

I know new activities with new modes can be a challenge but then we are supposed to be a group of experimenters. I have been thinking I should get a computer linked to one of my transceivers for something more than packet. Should I just run a connection to a bulletin board, which is what my packet system does most of the time. The rest of my packet operation is assisting WICEN with the scoring net for the Cooper's Pale Ale Rally SA and the Classic Adelaide Rally.

I read with interest the summary of the British three-tier licence system in Short Wave magazine at the local newsagent on 17th June. The article covered the whole licence range and how you got the licences and progressed from one to the other. It did seem to require more work, but at least new licencees were in contact with other more experienced amateurs and so were building up a network of Elmers and gaining practical experience on the way. Our greater distances here in Australia would add to the problems of implementation but then are Australians not reputed to be 'fix it' gurus with a "she'll be right mate" attitude to problem solving.

Keep thinking about the above and discussing it with those you meet at the Local Radio Club or on your favourite Net. Strangely it is very true of all volunteer/hobby activities that you only get out what you put in and it does become a "nothing in; nothing out" situation.

So how about the RD Contest and remembering why we hold it? How about working the ALARA Contest? How about just operating?

So keep operating and experimenting because that is what Amateur Radio is all about.

73 Colwyn VK5UE

Ernie Hocking VK1LK
Email: president@wia.org.au

Fielding questions on Foundation Licence

The last month has been occupied with questions about the proposed foundation licence. As I indicated in the June issue of AR, the overall process will take considerable consultation across the whole amateur radio community. A number of amateurs have been very critical that the WIA has not at this early stage of the consultation process provided them with all of the details that they are seeking. Please bear with us – consultation means that we cannot know the end result until after we have sought your views. I would like to thank all of the amateurs across Australia who have contributed to the debate especially those that have run their own independent surveys (including Owen Duffy VK1OD at www.cqvk.net, and Alan Meredith VK2CA at www.vkham.com). All this activity has served to highlight the need for review and I hope that the process that is outlined below will achieve this.

As part of the overall process I met with the ACA in late May to brief it about progressing the new Entry level licence proposal. Although the WIA survey on the foundation licence is still in progress I believe that it is important that we work closely with the ACA throughout the coming months to ensure that both groups maintain a clear understanding of what we are trying to achieve. The aim of the meeting was to brief ACA personnel about the WIA Foundation Licence proposal.

The informal briefing proved to be very productive and the ACA used the opportunity to set out some of its thoughts about the future of amateur radio regulatory arrangements in Australia. The detailed options are still very much under active consideration by the ACA. The ACA is currently developing a comprehensive discussion paper that it will publish for public comment shortly after the end of the 2003 World Radiocommunication Conference. Some of the drivers for change include:

- The likely removal of the ITU requirement for Morse Code testing as a part of amateur radio qualifications.
- The changing role of the ACA. This may involve the devolution of a number of administrative tasks to external organisations.
- Recognition of the need for change to reflect modern operating conditions.
- The recommendations of the Productivity Commission.

The range of topics that will be addressed by the ACA discussion paper will be broad. Examples of some of the topics that are expected to be addressed include:

- The effect of the changes to Article 25 of the ITU's Radio Regulations.
- The form and structure of amateur radio licensing.
- The administration of amateur radio examinations, certificates and callsigns.
- Whether a 'Foundation' licence has any place in the Australian context.
- Reciprocal licensing.

Given the wide ranging nature of the possible changes, the ACA will write to all amateurs seeking their comments about the discussion paper. The discussion paper is expected to be available on the ACA's web site in August 2003 and a suitable period will be allowed for amateurs to consider the proposals and make submissions. Based on the submissions the ACA hopes to be in a position to advise amateurs about its decisions by early 2004. The supporting legislation will then need to be made and policy documentation drafted. At this time it is expected that this activity will take some ten months to complete. The new Australian regulatory arrangements are expected to be introduced in the first quarter of 2005.

Please bear with us – consultation means that we cannot know the end result until after we have sought your views

The WIA, as the representative body for the amateur radio service in Australia, will be using its network of clubs and officers, along with the current foundation licence survey to assemble its formal response to the ACA discussion paper. As always, I would urge any amateur radio operator to make every effort to speak to his or her WIA councillor to make their views known. Alternatively, I would be delighted to hear from any amateur directly about their views on the proposals at president@wia.org.au or via mail to PO Box 691, Dickson, ACT 2602.

For those of you who would like to gain a feel for how the implementation process will unfold I have prepared a "first guess" project Gantt chart, which will be published in next month's AR, to give some idea of the proposed implementation timetable. It goes without saying that this first draft will change once we better understand the scope and interrelationships between the various tasks. I have based the forecast on the assumption that we can complete all of the work by the first quarter of 2005. A more definitive timetable will be issued as soon as is practical. Please though note that as in all such endeavours the plan will need to evolve as more information becomes available to us.

At the moment a number of members of the WIA executive, council and Federal coordinators are working on the implementation process. Tasks include looking at overall process and the documentation issues, reviewing the educational and examination issues, as well as looking at the business issues. Many others are actively promoting the licence at Divisional level. We will be looking for volunteers to assist with a whole range of activities in due course.

In these notes I have not had a chance to comment on the progress of WRC2003 itself. I hope that by the time of the next issue to be able to provide some information on the outcomes of the conference in respect of the changes that will have a specific impact upon the amateur radio service. So 73s for now and I look forward to hearing you comments, either directly or via the divisions. All the best in amateur radio.

ar

The 'NoPA' 40 metre DSB transmitter

Novel design uses no RF power amplifier

Peter Parker VK3YE
12/8 Walnut Street, Carnegie, 3163
Email: parkerp@alphalink.com.au, Web: http://www.qsl.net/vk3ye

Resurrecting an old technique with modern components. That's the main claim of the 'NoPA', an experimental minimum parts double sideband transmitter. This unique design uses no obscure ICs or touchy linear amplifier stages. Instead it uses modern FETS to generate high-level double sideband coupled direct to the antenna. Though no free-running VFOs or complex frequency synthesisers are used, excellent frequency agility is provided.

The NoPA covers a popular segment of 40 metres, but conversion to 80 or 160 metres should be possible. Other applications include use with a direct conversion receiver to provide transceive operation and the application of the audio and balanced modulator stages to provide an outboard DSB adapter for CW transmitters. Further ideas on improvements are given later.

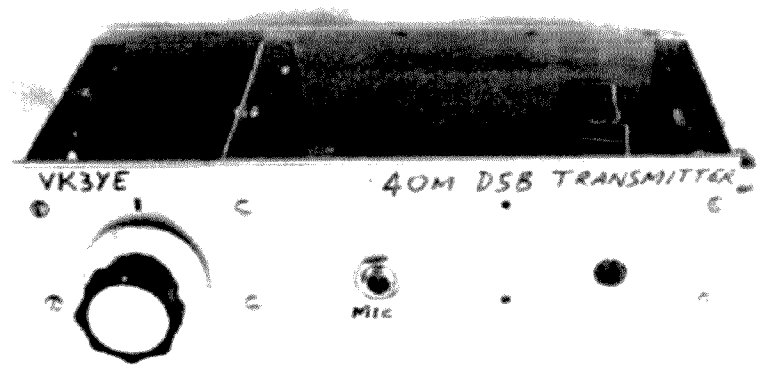

Photo 1: Front view of NoPA

Circuit Description

The NoPA obtains its wide frequency coverage by way of a ceramic resonator VFO/multiplier developed by Leon Williams VK2DOB (Reference One). A 3.58 MHz ceramic resonator is pulled to generate 3.520 to 3.600 MHz in a 74HC04 oscillator circuit. This is doubled by the 74HC86 stage to cover 7.040 to 7.200 MHz, which encompasses the most active portion of the 40 metre phone segment. Finally the 7 MHz signal is amplified by a second 74HC04 with all gates in parallel. Readers wanting a detailed description of how the doubler works are referred to Reference One.

The heart of the transmitter is the power balanced modulator. Rather than generating a low-level signal and amplifying it via several stages, the NoPA generates the DSB at high power, negating the need for subsequent amplifier stages. This method was chosen for several reasons. The first was simplicity. Another was its potential as a 'DSB converter unit' for owners of CW-only transmitters. Also attractive was the opportunity to revive a still-useful technique that had seen little amateur use since the valve days.

Reference Two provided the basis of the power balanced modulator stage in the prototype. This VK3WV design was a crystal-controlled 80 metre DSB transmitter. A pair of pentodes formed the balanced modulator. RF was applied to both control grids (wired in parallel), while audio was fed push-pull to both screen grids via a centre-tapped modulation transformer.

The first problem faced with using a FET was the lack of an equivalent to the screen grid. This meant that both RF and audio had to be applied to the FET gates. Experimentation with several arrangements led to the circuit shown here. Note the application of gate bias through the transformer's centre tap. It was also decided to use a broadband toroid followed by a pi-network to couple the output into the antenna rather than the parallel tuned circuit of the valve design. As with the valve circuit, no balance adjustment has been found necessary. No provision has been made for AM or CW operation.

The modulation transformer is a back-to-front centre-tapped 1k - 8 ohm speaker transformer. This required an audio amplifier capable of driving an 8-ohm load directly. Use was made of a conventional LM386 amplifier and transistor preamp in this application.

Transmit receive switching consists of the PTT switch on the microphone and the transmit-receive relay. This can be any standard 12 volt-operated DPDT relay. One set of relay contacts switches the antenna between the transmitter and the receiver, and another applies power to the transmitter. Note that during received the power is removed from the entire transmitter; keeping the oscillator running may spoil reception of weak signals unless its signal is used to provide a BFO for an AM receiver or external direct conversion receiver. Though oscillator switching could reduce short-term frequency stability, no problems have been noted in practice.

Parts availablility

Surprisingly few components used in the NoPA are in the 'hard to get' category.

The variable capacitor used was a salvaged air-spaced type, though one section of a newer 60/160pF plastic dielectric unit should also work. The 3.58 MHz ceramic resonator came from RS Components. The author still has some spare ceramic resonators available for the cost of a stamped addressed envelope sent to the above address. The IRF510s came from Rockby Electronics in Melbourne. The 1k:8 ohm transformer were purchased from Dick Smith Electronics. Truscott's Electronics World in Croydon South supplied all toroids used. The prototype used salvaged silver mica capacitors in the pi network, though polystyrene capacitors (use two in parallel to obtain the required value if required) also provide low loss and are available from DSE. The microphone used was an ex-telephone earpiece, though almost anything from an old VHF two-way radio will also work.

Construction

As this transmitter is designed for the experimenter who has already built several QRP transmitters, only limited constructional information is provided.

The first step is to assemble the ceramic resonator oscillator, doubler and amplifier stages. Apart from the use of two 74HC04s instead of one (to provide more drive to the balanced modulator), the circuitry is the same as in Reference One. Two pieces of plain matrix board were used to mount the components. To prevent possible feedback and instability problems, a metal partition separates these stages from the rest of the transmitter.

The capacitor values shown provide 7.040 – 7.200 MHz coverage with a 3.58 MHz ceramic resonator from RS Components. However other ceramic resonators have different characteristics and may require experimentation to provide adequate coverage. Aim for 7.050 – 7.150 MHz and accept anything more than this as a bonus. However if the range extends down into the CW portion, a smaller variable capacitor is helpful to cover the phone section only and allow easier netting. Experiment with the value of the 470pF capacitor if coverage is still unsatisfactory.

The audio amplifier can then be constructed next. This is a very conventional circuit about which little need be said. However as audio was insufficient (even with a capacitor across pins 1 and 8) with the LM386 on its own, a simple preamplifier was added. As with the RF oscillator and doubler stages, the parts were mounted on blank matrix board.

The power balanced modulator is constructed on a blank printed circuit board screwed to the inside of the case. Pads made of PC board offcuts are glued to the PC board groundplane to provide anchor points for non-earthed

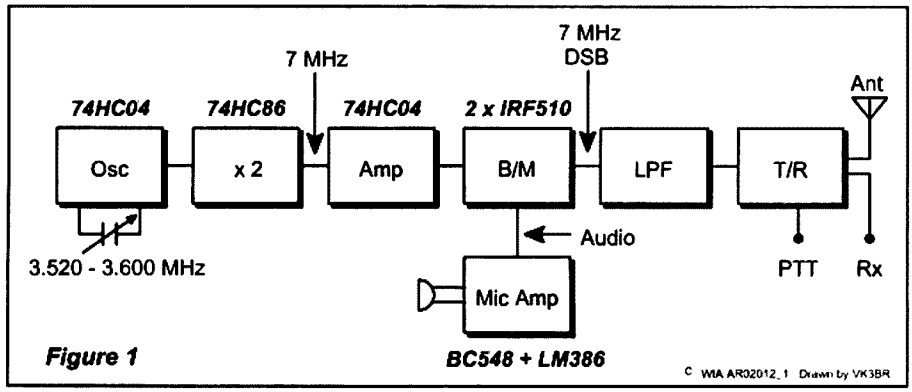

Figure 1: Block diagram NoPA

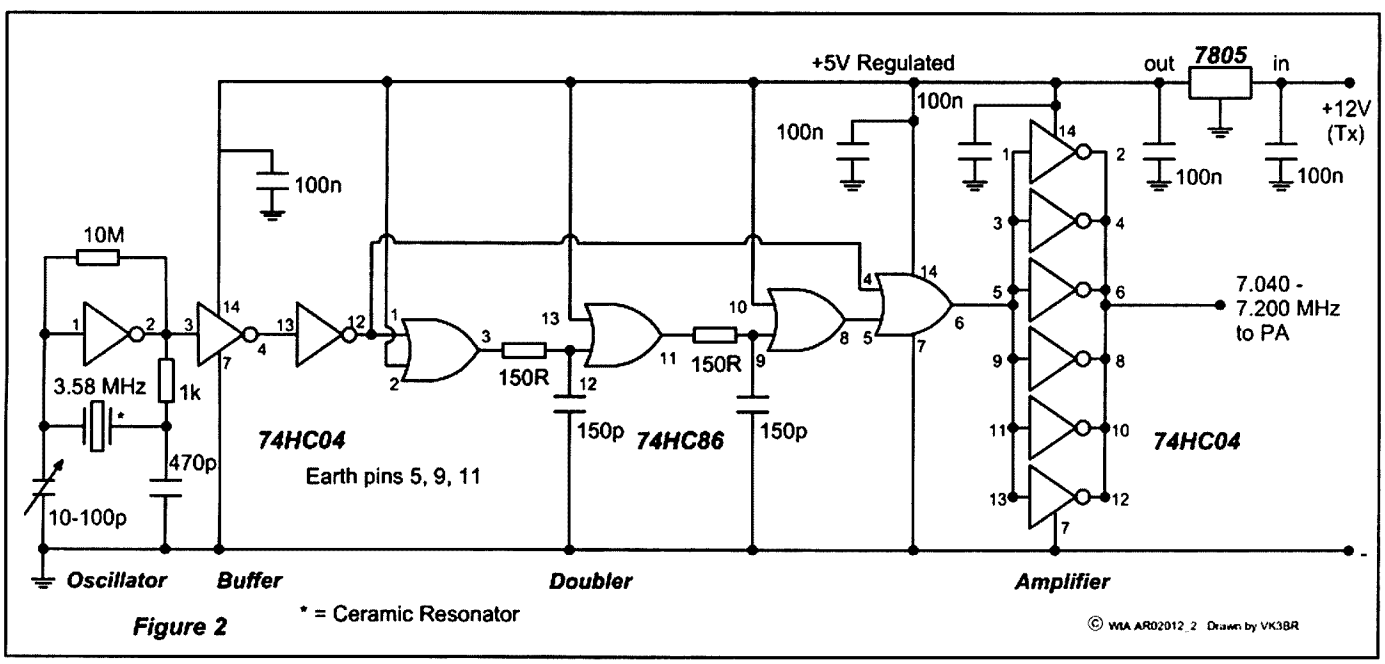

Figure 2: Schematic diagram of oscillator/doubler/amplifier

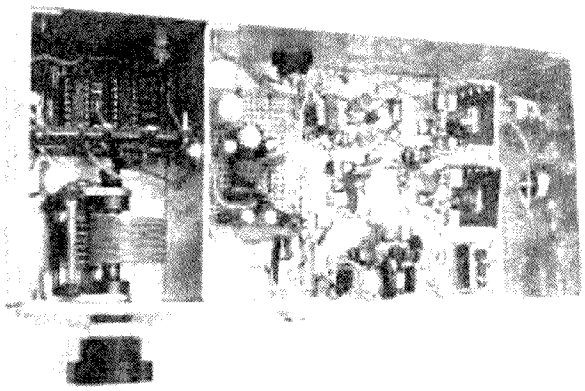

Photo 2: Inside NoPA

components. An effort was made to make construction as symmetrical as possible. U-shaped heatsinks of 2x3 centimetres were screwed to each transistor. However if you like long overs, larger heatsinks would be desirable. Also on this board is the pi-network and transmit/receive relay.

Testing and Adjustment

The main items needed to adjust the NoPA are a 7 MHz SSB communications receiver and RF power meter/dummy load. After verifying the operation of the oscillator/doubler/amplifier stage (use the communications receiver and RF probe), test the microphone amplifier by wiring a speaker in place of the 8 ohm transformer winding.

Once these stages have been verified, start to test the balanced modulator. Set the 10k trimpot near minimum position (wiper near earth end), and find yourself on the receiver. Disable the receiver's noise blanker and back off the RF gain control. Wear headphones to prevent feedback. Your signal should sound clean on both upper and lower sideband. The needle on the RF wattmeter should quiver slightly.

While speaking, gradually adjust the balanced modulator bias control so that the applied voltage increases. The power output on voice peaks should rise. Cease speaking and watch the power indicated drop to a low level. Further advancement of the bias control will result in significant power being indicated even with no speech. The IRF510s will also be getting rather hot at this point. Back off the bias control so that quiescent output is low. Monitor the signal on the receiver again to ensure it sounds clean.

Operation

Operating the station requires that the transmitter and receiver be brought to the same frequency. This can be done by adjusting the VXO until the carrier (which should be considerably weaker than the sidebands) is zero beat on the receiver.

Speaking into the microphone should result in a signal that is on the same frequency to which the receiver is tuned. Operating is otherwise similar to using any other PTT-controlled station. However, as no receiver muting is provided, headphones should be worn during transmit to prevent audio feedback.

On the air

The author has found that the minimum power for clear reliable communications on 40 metres is approximately 5 watts DSB (or 2.5 W SSB). At this power level, readability five reports are the rule rather than the exception for distances up to about 1000 kilometres. The use of ordinary wire antennas is assumed.

The proportion of readability 5 reports received falls steeply once power is reduced. At the one watt level only about a third of stations contacted give a readability 5 report. Many of those that do are using better than average antennas and/or operate from a quiet location. Distance is also important – receiving stations closer than 100 or further than 800 kilometres lose readability quicker than those 400 to 600 kilometres away, which is the optimum distance for 7 MHz during the day.

At the NoPA's one-watt power level, each contact is a thrill and Q5 reports cannot be expected every time. Nevertheless, unassisted contacts to VK1, 2, 3 and 5 have been made with the transmitter described. Stations contacted have reported good quality audio and no discernible carrier.

Ideas for improvement

It is not claimed that this rig is the best that can be constructed using this technique. The following are some suggestions for improvement:

- Increased RF power output. Applying 24 volts to run the balanced modulator boosts output to approximately three watts. If 12 volt operation is desired, other transistors (not necessarily FETs) could be substituted for the IRF510s.
- Addition of a direct conversion receiver. Apart from obviating the need for a separate receiver, this modification assists frequency stability by running the ceramic resonator oscillator continuously. If the aim is to produce the simplest possible design, use could be made of the microphone amplifier stage in the receiver.

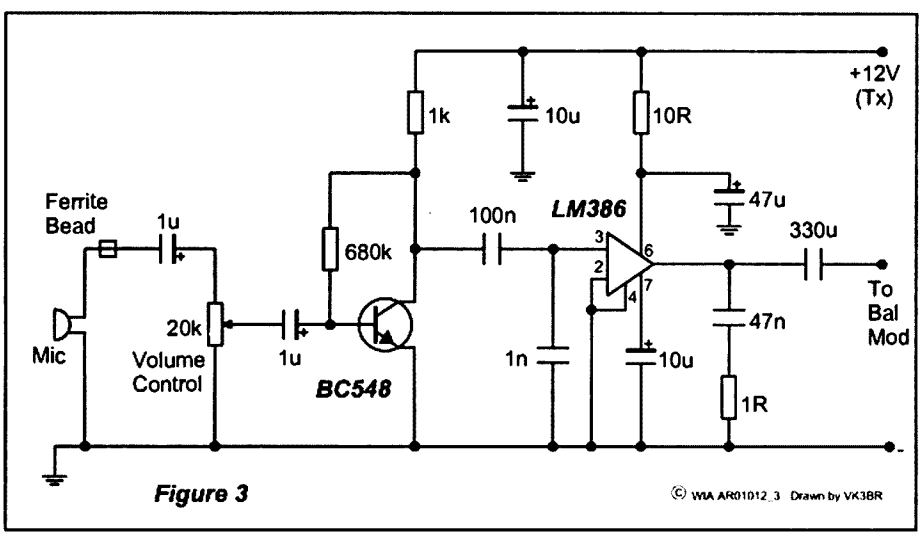

Figure 3: Schematic diagram of microphone amplifier

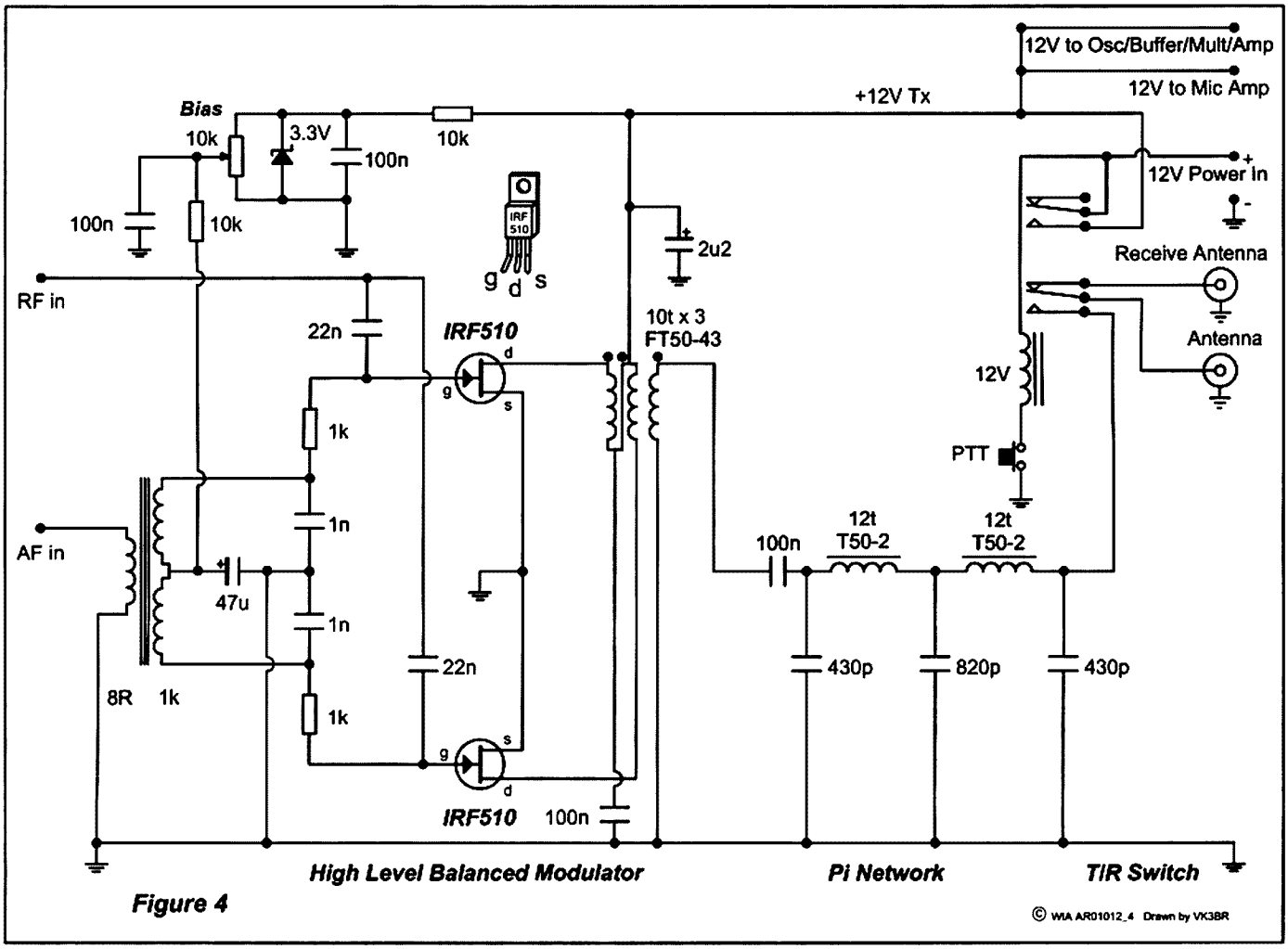

Figure 4: Schematic diagram of balanced modulator/LPF/T-R switch

- Use on other bands. Switching out the doubler could allow operation on a section of eighty metres or, if a 1.843 MHz crystal is substituted, 160 metres. The only other change required would be in the pi-network.

Conclusion

A simple double sideband transmitter of novel design has been presented. As well as being an interesting project in its own right it revives a technique that has much application in other simple transmitter and DSB converter designs.

References

(1) Williams, *Lo-Key* September 1998, p4

(2) Sillet, *Amateur Radio Action* Vol 4 No 11, p29

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Over to you

Circuit Board Manufacture

I have tried a number of methods of home-brew construction including 'dead-bug' and veroboard. Notwithstanding the attributes of these methods, I much prefer using circuit boards printed especially for the task.

But, how to do the artwork? I remember the 'rub-on' circuit board patterns available through the Tandy organisation some years ago, unfortunately impossible to obtain nowadays. They were great for those one-off jobs.

I have tried to use a PC programme of the type that is readily available on the web, but am totally confused by the incredibly involved procedures one has to follow to try and produce a piece of artwork for a simple project. No doubt they are good, but one has to be a constant (probably daily) user to be able to keep-in-touch with the procedures involved.

Does anyone know of a simple system for PCB artwork involving only single-sided work, that is simple to follow. I believe such a programme would be very popular with home-brewers. I envisage a simple system with a 'library' of lines of assorted widths, IC and transistor sockets/pads, that can be dragged wherever needed etc. Perhaps the ability to invert the finished artwork, as required for negative-resist boards, could also be included.

Any ideas anyone?

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Cocky-proof those antennae!

Bernie McIvor VK4EJ

One of Australia's most endearing group of birds whether it be The Sulphur Crested Cockatoo, the Corella or even the humble Galah, can wreak havoc and have the most environmentally conscious amateur reaching for a shotgun when he finds pieces of black plastic lying on the lawn under his precious antennas. In this article I will try to give you a a few tips and maybe save you a few bucks along the way.

In any other country other than Australia the above title appears very peculiar indeed even laughable. But for us Aussies who have had to replace a $50 run of RG-213 cable or tracked down a break in our rotor cable 10 metres in the air, it is far from funny.

Over the past 20 odd years I have tried everything to make my antennas less inviting to the hordes of Cockies that visit. Living in suburbia, firearms are out, and besides it's a $2000 fine for ending the life of one of our feathered friends. Rapping on the tower with a shifting spanner works fine if you can spare the time. But I have come up with a few solutions and would invite readers to come up with a few more.

Firstly, I believe protection is the best method of saving damage to antennas and feed lines and any other plastic material incorporated in antenna design. You are fighting a loosing battle trying to scare them away. By protection I mean an actual physical barrier between the expensive bits and their destructive beaks.

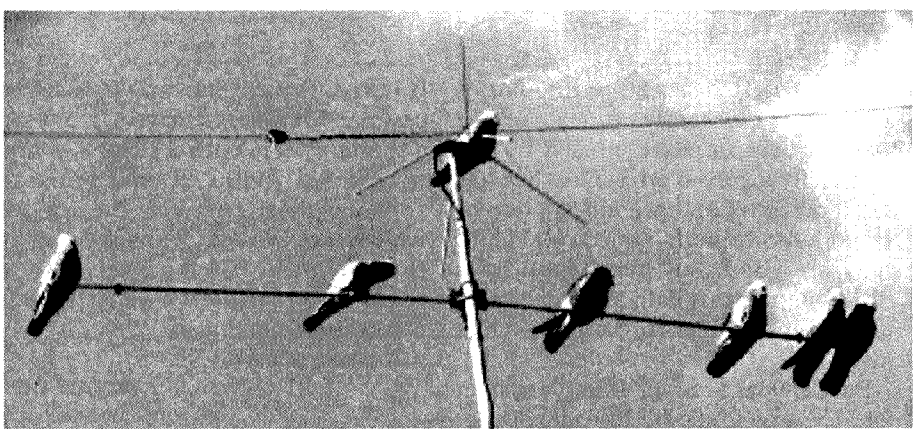
Starting with feed lines. I find the best and most cost effective method is to run the entire length of the exposed cable through Plastic Polytube. This Polytube is inexpensive and can be purchased at any hardware or chain store. I use the irrigation type used for micro irrigation systems. A 30-metre length can be purchased for around $4 and it is lightweight and is thick enough to stop penetration into the outer coating of your coax cable. As well as covering RG-213, I have used it to cover the 300-ohm ladder line in G5RVs. It does however alter the electrical length, but this is a small inconvenience.

Living in suburbia, firearms are out, and besides it's a $2000 fine for ending the life of one of our feathered friends. Rapping on the tower with a shifting spanner works fine if you can spare the time.

It actually has a few benefits. It stops rain and dew altering the tune up qualities and makes a more stable antenna. I also run my rotor cable inside Polytube as it is designed for outside use and incorporates UV protection. It is very flexible, unlike electricians conduit and is easily fixed to the tower or mast with cable ties. Remembering to always use black cable ties for outside use. I have found that the ties the hardware stores sell for use in holding shade cloth are reasonably priced, and very serviceable.

I am compelled to make a note on Safety regarding cable ties. ALWAYS trim them off flush with the head of the ratchet mechanism. If you leave a small tail, in time it hardens in the sun and becomes very sharp. I have cut the webbing between my index finger and thumb a few times so have learnt the hard way.

I have used two methods of incorporating Polytube. The first is to slide the entire length inside before soldering the PL-259 on the ends. This



The culprits

is the ideal method, however if the antenna and cable are already in service, you can split the whole length of polytube and work the coax inside starting at one end. The tubing reforms around the coax and can be taped up every 40 cm or so with black electrical tape or use cable ties. The only problem encountered here is when sharp bends in the routing of the run. Closer taping usually fixes this problem. I have found black tape to be superior, remembering that you don't want to draw attention to it and cockys are attracted to coloured tape. Red and yellow in particular. Blue is second best.

With feed lines covered, the next item on the agenda is the antenna itself. Be it a homemade dipole or an expensive imported array, all are subject to attack. With dipoles, I have found that I have more problems with the support ropes than the wire itself. I use plastic coated household earth wire for dipoles and I know this will make the purists shudder.

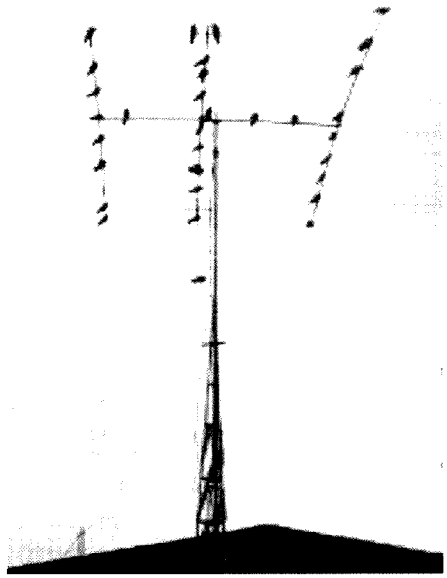
But after a month or so in the air it stops stretching and can be quite a useful antenna for the low bands. I can put up with the chew marks in the plastic coating as it makes little difference to the overall performance. But finding your wire lying on the ground just before a major contest can be disheartening.

I have found that Dacron rope is far superior to anything else. I have tried all thicknesses of nylon and hemp and it just does not go the distance. Dacron , normally being green in colour does not seem to be of interest to cocky's.

Most antennas I have tried here have all been subject to damage by birds. I had a 2 element cubical quad for 10 and 15 metres and the sheer weight of the birds collapsed it. They won that round due to my flimsy design.

I have since stuck with multi band trapped yagi antennas due to space and budget restrictions as they seem to withstand more punishment. This said, they need modification before they can be erected. I have been off air for long periods awaiting new plastic trap ends. I don't believe that manufactures even consider cockatoo attack when designing antennas, even Aussie companies. I guess I am in the minority. It is my opinion that if possible, purchases an antenna without traps and with the least amount of plastic or nylon parts.

The first thing that you find under an unprotected antenna is the plastic end caps, They usually just push on with the intent of keeping out moisture. Cockatoos take delight in removing them. I have replaced them with plastic and rubber chair tips and all end up on the lawn. I now just remove them altogether. Instead , I fill the end of the elements with a good quality silicone. Push the applicator nozzle up the end of the element tubing as far as it will go and withdraw it as you fill to the end. Fill them flush with the end of each element. The cockies pick at it, but never seem to remove the whole plug.



Too many, too often

Trap end damage

The next thing is the plastic trap end caps, I have mulled over a lot of ideas for a solution.

Needing to cover the existing caps I thought of all sorts of ways but settled on PVC electrical conduit. I purchased a length of pipe slightly smaller than the diameter of the trap.

I was careful to buy the grey exterior type as the orange PVC pipe, although slightly thicker is designed to be buried underground and has no UV protection, It discolours quickly and becomes brittle in no time.

I cut the pipe into lengths just slightly longer than the plastic end cap about 30mm long, then made another cut lengthwise on the seam of the PVC. This makes a type of clip to slip over the end of the trap. I then clamped the clip using the above mentioned cable ties onto the end caps. I looks quite neat and tidy and is light and tough. I made sure that the locking mechanism on the ties were facing downwards to make it more difficult to be picked at. It seems to work well and all the bits and pieces are readily available.

Finally, my beam has a balun as a matching system, When it arrives in the box it is covered in a few layers of electrical tape and that is all. One glance will tell you this is inadequate. I purchased a half-metre length of thick compressor hose and cut a series of vees in it to enable it to be bent around the balun. I affixed it solidly with cable ties and covered the connecting wires with thin plastic tubing of the kind used as risers for garden irrigation.

This seems a lot of work I know, but well worth the effort if you have cockatoos in your area. Not only does the above system keep the cockatoos from ruining your investment, but also gives a degree of solar protection. Your coax cable will last a whole lot longer being protected from the Aussie sun. I hope these ideas help.

If anyone else has any other tried and true methods of cockatoo protection, I would love to hear from them, either QTHR or Email me at vk4ej@qldnet.com.au. I am always open for suggestions.

73 Bernie VK4EJ.

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Spotlight on SWLing

Robin Harwood VK7RH

With little respite from continuing strife and wars, Africa is the most dangerous place to be. Ethiopia and Eritrea, near the Horn of Africa, once part of the same colonial nation have fought a long battle to assert territorial sovereignty. The UN brokered a tenuous truce. Several political opposition groups in both nations, operate clandestine broadcasting stations, mainly from European commercial senders, such as Deutsche Telekom, broadcasting back into the region. Low powered portable stations have also been heard.

The Democratic Republic of the Congo, formerly known as Zaire, has been at civil war since its independence from Belgium in 1960, with strife from its neighbours spilling into it.

Messy tribal conflicts in Uganda, Rwanda and Burundi caused ethnic cleansing on a massive scale, making the DRC ungovernable. Clandestine broadcasting especially hate radio flourishes in such an environment. To counter this, the UN, and with private foundations established Okapi Radio, from Kinshasha, the capital. With no suitable HF facilities, I believe that they used Africa No.1 in Gabon as a temporary measure.

Neighbouring Zimbabwe is unstable, verging on civil war. Expatriates have created a clandestine station in London via the Madagascar relay of Radio Netherlands. Recent monitoring suggests that they may now transmitting via an unidentified African nation.

West Africa has civil wars in practically every nation except Ghana. Liberia is a nation in name only and the protagonists have spilled over into supporting violent ethnic warfare in Sierra Leone, Senegal, The Gambia, The Ivory Coast, Burkina Faso Togo and recently Mauritania. *High Adventure Ministries* have operated shortwave stations from many sites and planned to establish a sender in Liberia. With a transmitter purchased from FEBA in Seychelles. H.A.M. abandoned their plans when Liberian warlords attacked Monrovia. This forced the evacuation of all personnel; claimed to be to Uganda.

To follow developments in this murky radio war, I recommend *"Clandestine Radio Watch"* edited by Martin Schoech in Germany. They have a moderated list on Yahoogroups plus a website at www.clandestineradio.com

HCJB in Quito ceased English language broadcasts to Europe and North America on May 31. This is the schedule for their remaining broadcasts on shortwave as from June 1st.

UTC	UTC	Freq	kW	Deg.	Target
English					
1100	1330	15115	100	352/128	N/S America
1100	1330	21455	1	35/225	Eur./S. Pacific
German (High)					
0500	0530	9780	100	42	Europe
0500	0530	21455	1	35/225	Eur./S. Pacific
0930	1000	6010	100	155	S. America
0930	1000	21455	1	35/225	Eur./S. Pacific
2000	2030	15545	100	42	Europe
2000	2030	17795	100	38	Europe
2000	2030	21455	1	35/225	Eur./S. Pacific
2300	2400	11980	100	131	S. America
German (Low)					
0530	0600	9780	100	42	Europe
0530	0600	21455	1	35/225	Eur./S. Pacific
1000	1030	6010	100	155	S. America
1000	1030	21455	1	35/225	Eur./S. Pacific
2230	2300	11980	100	150/330	N/S America
Huaranl					
1030	1100	6050	50	18/172	S. America
Portuguese					
0800	0930	9745	100	100	N. Brazil
0800	0930	21455	1	35/225	Eur./S. Pacific
1530	1800	15295	100	139	Brazil
2300	0230	11920	100	126	Brazil
0000	0230	12020	100	100	Brazil
Quichua					
0830	1000	6125	100	155	S. America
0830	1030	690	50	000/180	Ecuador
0830	1400	3220	8	90 (Vert.)	S. America
0830	1400	6080	8	90 (Vert.)	S. America
2100	0300	3220	8	90 (Vert.)	S. America
2100	0300	6080	8	90 (Vert.)	S. America
2130	0000	9745	100	155	S. America
Russian					
0330	0430	11865	100	34	W. Russia
Spanish					
0100	0500	9525	100	325	Mexico * (or 9745)
0600	0630	9655	100	42	Europe
1030	1100	21455	1	35/225	Eur./S. Pacific
1030	0500	690	50	000/180	Ecuador
1100	0500	6050	50	18/172	S. America
1100	1300	11960	100	355	Cuba
1100	1500	15140	100	150	S. America
1300	1500	11960	100	323	Mexico
1430	1530	21455	1	35/225	Eur./S. Pacific
2030	2130	15545	100	50	Europe
2100	2300	15140	100	150	S. America
2030	2400	21455	1	35/225	Eur./S. Pacific
2300	0100	15140	100	160/330	N/S America

HCJB's SW schedule also includes these programs .

Arabic					
2100	2230	12025	250	150	N. Africa U.K.
English					
0700	1200	11770	50	120	Sth Pac. Aus.
1230	1730	15480	75	307	India Aus.
Russian & Central Asian Languages					
1600	1700	11760	500	62	Cent. Asia U.K

HCJB is continuing English broadcasts at 1100 primarily for the benefit of missionaries within Central and South America, but with regularly scheduled sponsored programs. I believe that the German programs will cease in October.

Transmissions from the HCJB Australia site have been plagued with interference from co-channel stations ever since they commenced in January. Latest is another evangelical broadcaster WYFR in Okeechobee, Florida also on 11770. Although the Kununurra sender has been increased to 50 kW on its South Pacific release, severe interference has been noted in NZ from WYFR.

It was announced that the popular program,"DX Partyline" shall be continuing on Saturdays from their Australian site at 0930 and perhaps from Pifo on 15115 at 1230. There also has been a report that this program may be relayed from an American station.

Well that is all for this month. Don't forget you can email your comments to me at VK7RH@wia.org.au

73 Robin ar

Using Crystal Oscillator Modules

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A recent article in AR (reference 1) described various uses for junked computer crystals. As well as discrete crystals, old computers are a wonderful source of crystal oscillator modules.
One of the significant advances in radio was the development of the quartz crystal for frequency stabilization. For many decades oscillators were built using discrete quartz crystals. In the 1980s a complete crystal oscillator, built into a single DIL (Dual In-Line) package, was developed for use in personal computers.

Many uses can be found in amateur radio and electronics for these crystal oscillator modules which only need to be connected to a 5 volt power supply to make them oscillate! They are available in a wide range of frequencies from 1 MHz to 125 MHz. Generally their accuracy is +/-100 parts per million; thus a 10 MHz module has an accuracy of +/ - 1 kHz.

These modules have two disadvantages. One is that they are available only at those frequencies as used in computers. Various integer frequencies, such as 8 MHz, 10 MHz and 12 MHz, are obtainable; there are also some modules with apparently strange frequencies such as 1.8432 MHz (which is. 1024 x 1800 Hz). The other disadvantage with the modules is that it is not possible to fine tune their frequency. When using a discrete crystal in an oscillator fine tuning can be achieved by adding a trim capacitor or trim inductor in series (or parallel) with the crystal. To counteract the disadvantages, oscillator modules have the advantage of being stable crystal RF source that is easy to implement.

The most common modules are in a DIL 14 metal can; some are also available in DIL 8 packages. Unlike the normal DIL 14 package, the module cans have only four pins (1, 7, 8 and 14). As with the DIL 14 packages, used for 74xx TTL, or 40xx CMOS, digital ICs, the ground and voltage connections are pins 7 and 14 respectively. The output is at pin 8. On most crystal oscillator modules pin 1 is not connected but some use pin 1 as enable/disable. If a module does not oscillate then try connecting pin 1 to ground or to 5 volts.

Uses for Crystal Oscillator Modules.

Many uses have been found for these modules. Drew Diamond VK3XU has used these modules in a number of his projects (references 2, 3 & 4). A module of 1.8432 MHz frequency could be used as a signal source for receiver testing on 160 metres, whilst a module of 28.322 MHz frequency could be used for a similar purpose on 10 metres. Binary division of the frequency of a 28.322 MHz module gives frequencies of 14.161 MHz, 7.0805 MHz and 3.54025 MHz that can be used to test a receiver on 20, 40 and 80 metres. Modules are also available at 14.31818 MHz and 3.6864 MHz. The modules can also be used as the basis of a simple CW, AM or DSB receiver.

In older editions of the ARRL Handbook discrete crystal oscillators with a frequency of 3.5 MHz were featured and this frequency was then multiplied to frequencies of 7, 14, 21or 28 MHz for a multi-band transmitter. To obtain these higher frequencies it is necessary to use frequency multipliers and appropriate tuned circuits. Frequency division is much easier simply by using a single low cost integrated circuit.

There are several types of divider ICs that can be used with crystal oscillator modules. The standard 4xxx CMOS chips will work up to several MHz, but higher frequencies generally require higher voltages. The 74HCxx ICs are much faster than standard CMOS ICs. The standard 4040 chip is rated at 10 MHz (at 5 volts) and the 74HC4040 is rated at 90 MHz typical. The 4040 and 74HC4040 ICs are 12 stage binary dividers; by using either of these it is possible to produce frequencies of 16 MHz, 8 MHz, 4 MHz, 2 MHz, 1 MHz etc., (all the way down to 7.8125 kHz), using a 32 MHz module.

If it is necessary to divide a frequency by 10 this can be achieved by using the 74HC390 (rated to about 30 MHz), or the 4017 (rated to 5.8 MHz at 5 volts). The CMOS 4017 is a Johnson counter and can be configured to divide by any number from 2 to 10. Using a 32 MHz module with a 74HC4040 and a number of 4017s, frequencies of 1 MHz, 100 kHz, 10 kHz, 1 kHz, 100 Hz, 10 Hz and 1 Hz can easily be obtained. 74HC4040 divider chips are not readily available at the main street electronics shops (Dick Smith Electronics or Jaycar), but are available from specialist suppliers such as Farnell & RS Components. To divide by 2 (or 4) a 74HC74 available from Dick Smith Electronics or Jaycar can be used. If you are prepared to use three easy to get 74HC74 instead of one hard to get 74HC4040, then a 32 MHz module can be divided down to 1 MHz.

A current project I am building requires a 1 Hz clock pulse. With a number of options, I settled on a 24.576 MHz module. The oscillator was divided by 4096 using a 74HC4040 to give 6000Hz. This was then divided by a series of 4017 to give 1Hz.

A crystal oscillator module can also be used to provide a square wave of known frequency to use with a CRO for comparison with a waveform of unknown frequency. These modules can also be useful in testing a digital frequency counter. One more thing to remember when using crystal oscillator modules is that they do not have a symmetrical square wave form output. Depending on the device, they may be around 40:60 or 45:55.

continued next page

Another use for ex-computer crystals

Steve Mahoney VK5AIM

Just recently I believe I had a faulty 80/40 m dipole antenna. The dipole is fed with 400 ohm open wire line, That "Dog Bone" style of feeder, now as extinct as the dinosaurs! The conductor in this feeder is solid copper wire, about 16 swg. Checks revealed no broken conductors, I even reterminated the junction of the inner dipole ends of the 400 ohm feeder, it was a bit corroded, but to no avail.

The fault showed itself up as an intermittent drop in received signal and noise. If it was a real "Kellogg" night, i.e. Snap, Crackle and Pop, like 80 m can be, it was difficult to notice. If you go to transmit and then come back to receive, it's gone! The VSWR on transmit was OK. It was as if the RF current was enough to clean/burnout the bad connection.

I needed a constant signal, arriving through the antenna system to enable me to, move, shake etc the antenna system to try and establish were the fault might be. Where do you get a constant signal of reasonable strength on 80 m during the day? When you can see what is going on.

Ha, I thought, use the Crystal Checker unit I made to check those ex-computer crystals. With a 3.575 MHz crystal plugged in, 1/2 a metre of hookup wire as an antenna and a rubber band, to hold the push button on switch ON, the signal was 7-8 on the transceiver in the shack. I hung it up in a fruit tree in the back yard. Inside it was still a good 7-8 on the receiver. With the speaker lead extended and sitting in the open shack window, I proceeded to shake and wobble all the antenna connections.

I undid the shack ends of the 400 ohm line and cleaned the bare ends, they were tarnished, cleaned them with one of those Green Kitchen Scouring pads, till bright and shiny. NO it was still there some times, you could hear the signal jump, with added crackle. I suspected an expensive co-axial switch used to select antennas. Cleaned the contacts in the time honored relay contact cleaning method with strips of paper. No, that was not it. I even bypassed the co-axial switch and the ATU. It's still there. I still haven't found the fault. With 80 m as noisy as it is during summer, I decided to wait until winter and a shower of water washes it away!

However some time later I decided to check the conductors of the dipole for breaks. The dipole conductors were 7 strands of hard drawn bare copper, with a black plastic insulation. I believe it was intended for antennas. On disconnecting the 400 ohm feeder at the dipole center I saw that the strands of copper conductor were all oxidized, that dark chocolate colour. I cut it back in small increments until I had gone back about 6 inches and it was still oxidized. Both sides of the dipole were the same. On checking the outer ends of the dipole, they were the same. Was the whole length of the conductor oxidized? The electrical theory says that copper oxide is a semiconductor!

Did I have a "Long Diode" as an Antenna? The only way to prove it was to replace the dipole with new wire. I raided the wire stocks and found a reel of 18 swg enameled copper wire I had obtained from an old transformer. Stretching it out to remove the kinks and measuring off the length for an 80 m dipole I used the old wire to draw the new wire in place over trees and buildings. Reconnecting the feeder to the new dipole I could hear the signal from the little crystal oscillator, loud and clear. Back down in the shack the antenna tuned up with the ATU, a little different in settings, but with a VSWR reading of almost zero. Later that evening on an 80 m net all signals were OK, no snap, crackle and pop. All the net contacts gave good signal reports.

The Crystal Oscillator was a great help as a signal to monitor. I can recommend it.

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Using Crystal Oscillator Modules

continued from previous page

Sources of Crystal Oscillator Modules

There are two methods of obtaining crystal oscillator modules. The first is to pay good money to a supplier. Farnell and RS Components list them at a cost of about $12 each (+ GST) and some other suppliers also carry a limited range. The other is to salvage them from old computer boards as I have done.

Recently I purchased a '386' motherboard from David Reid Electronics (York Street, Sydney) for $5 which yielded four modules with frequencies of 1.8432 MHz, 16 MHz, 30 MHz and 40 MHz. Over the last couple of years, I have salvaged modules of many different frequencies from old computer boards.

These boards are often available at ham-fests or as complete computers dumped on the side of the road on cleanup campaigns. Over the last couple of years, I have salvaged oscillator modules of many different frequencies, including 37.732 MHz, 44.5 MHz and 32 MHz.

In conclusion if you have not played with these interesting little devices, then it is high time that you did so!

References

1. *Junked crystals make a tree-top tester.* Steve Mahoney VK5AIM AR April 2002.
2. *Receiving Converter for 2 metres.* Drew Diamond VK3XU AR September 1995.
3. *Receiving Converter for 6 metres.* Drew Diamond VK3XU AR October 1996 & "Radio Projects for the Amateur" Vol.2.
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What's all this Linux business?

By Peter Barrett VK6PEC

If you are a regular computer user, you have no doubt by now heard of Linux. Perhaps you have noticed that many amateur operating modes such as packet, irlp and aprs are now using Linux in a big way.
Perhaps you have seen books, magazine articles and websites extolling it's virtues and thought about having a go. Perhaps like me you have "taken the plunge" and put a distribution or two on one of your hard drive partitions with varying success.
This article aims to give you a better perspective of exactly what the Linux phenomenon is, and hopefully dispel some of the myths surrounding it.

Exactly what is Linux?

Linux itself is a single computer program. It is a special type of program called an Operating System, usually abbreviated to OS. This is a special type of computer program that takes control of all your hardware, usually when you start your machine, and makes it all available for you to use as you like. OSs are of course exactly as old as computers themselves and are usually precisely as big and as complicated as the hardware they need to control. Microsoft is the biggest producer of operating systems and its MSDOS and Windows OSs have made it one of the most successful companies in the world. But remember that although the Windows system you install seems to be huge and takes a long time to load, the operating system itself is a single small program that easily fits on a floppy disk. This is also called the Kernel, or core of the system. Linux works the same. A whole subculture has been built around this single program.

The story of Bill Gates and how he bought and cobbled his original QDOS system into a commercial bonanza is now computer folklore, as is the story of Linus Torvalds, a Finnish student who took another existing operating system and adapted it for his own needs, published it on the web and captured the imagination of a whole band of up-and coming programmers dreaming of a public-access development system.

Is it true that...?

Like anything new and different, many myths and misconceptions enter the discussion whenever the subject of Linux comes up. Lets have a look at some:

1. Linux is fiddly

True. You should expect to spend a LOT more time fiddling about with a Linux system to get it to run exactly how you want it. I consider this to be a plus. I became a Radio Amateur because I like fiddling about with stuff.

2. Linux can do anything Windows can

False. Every hardware manufacturer supplies Microsoft drivers, and most of the big software companies know that just about everyone has Windows at home. Linus announced his new operating system to the world with this quote: "Remember the days... when men were men, and wrote their own device drivers?"

Having said that, Linux supports every type of application and hardware a radio amateur would ever need, including rig control, sound card decoders, antenna steering and design, logs and astronomy.

3. Linux is very stable

True. Providing you stick to thoroughly tested releases rather than the very latest "bleeding edge" experimental stuff, then Linux is an industrial strength brick dunny. Viruses are virtually unknown. Bugs and security problems are fixed within hours of being reported. This is why Linux is so heavily favoured for single-use machines like servers and BBSs. Its already been tested to destruction by expert hackers and professional vandals. It is particularly useful for recycling old machines into packet terminals, gateways, controllers and all those jobs where you leave a machine running unattended for months at a time.

4. Linux is only for programmers and boffins

False. Most of the big Linux builders like Red Hat, Debian and Mandrake supply a complete desktop system out of the box with very slick and easy to follow installers, and most good applications are now available as pre-compiled binaries where all the hard work has already been done. That said, the very nature of this system, which has basically been home-brewed by a world-wide network of enthusiastic volunteers, encourages you to learn more about your machine and how to take complete control of it so that you too can get involved.

5. Linux is hard to learn

False. while it is true that Linux works very differently to Windows, it comes with more documentation than you could ever read in a lifetime. The hardest thing to learn is where it all is. Once you've found it you will revel in it There are also numerous mailing lists like "linux-newbie" and "linux-hams" where there are always patient people ready to help with any question no matter how trivial.

Why bother?

So, having established that Linux is fiddly, is not as functional as Windows, needs to be relearned and is really better suited to single use industrial type things, you are entitled to ask: Why would I bother when I'm already on to a good thing? Well the answer is, what do you like to get out of the hobby of amateur radio?

Amateur radio is a very diverse hobby. At one extreme are the operating addicts, those who enjoy the thrill of the chase and simply buy their gear so that it can

continued next page

ARDF

5th Region 3 ARDF Championships Ballarat

VK3WWW Jack Bramham

Some of you will be aware that the 5th Region 3 ARDF Championships will take place in Ballarat Victoria between November 28th - December 5th 2003, this is the second time that the WIA has been able to host these Regional Championships. Our last chance was in 1996, this event was held in Townsville and was attended by 58 competitors from about 8 international radio societies.

For the 5th Region 3 Championships we are expecting a similar numbers to attend. Each society can send up to 2 teams for each age category, our aim is to have as many VK competitors as possible so if you are a WIA member with time to attend the championships you then qualify for selection.

Competition is broken up into age categories, this event will follow International ARDF rules, under those rules the categories are: Junior: Under 19, Open: all ages, Old Timer: Women over 35 Men Over 40, Veteran: Men and Women Over 50, Seniors: Men and Women over 60.

There are 5 transmitters located on the course and competitors try to locate as many as possible in the shortest possible time. Junior competitors, Old Timers and Veteran competitors are only required to locate a maximum of 4 transmitters where the Seniors have a maximum of 3. Society teams are made up from 3 competitors in each age category, after competition the two best scores from each team are averaged. The winning team is determined by the shortest average time and the most transmitters located.

Bruce VK3TJN en route to his first ARDF transmitter, Ballarat 2002.
Photo by Jack VK3WWW

With assistance from WIA Victoria, the Ballarat Amateur Radio Group and members of the Victorian ARDF Group we plan to make this a premier WIA event, if you are interested in either becoming a competitor or assisting as a volunteer please contact myself VK3WWW Jack Bramham either by email: vk3www@alphalink.com.au or I am QTHR in the callbook.

If you would like more information regarding ARDF and the Championships probably the best place to start would be www.ardf.org.au here you will find plenty of ARDF information and details for the 5th Region 3 ARDF Championships.

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What's all this Linux business? continued

be 100% available. They never homebrew or repair their own gear as this deprives them of valuable time spent contesting, rag-chewing chasing that rare island etc etc.

At the other extreme are the tinkering addicts. You hardly ever hear them on the bands because their gear is constantly under construction or repair. If you hear them come up it will be because they are finally testing that epic project but they will soon be dissatisfied with it and have it on the bench again.

Most of us are more balanced than this and fall somewhere in between these two extremes. We can probably recognise though whether we lean more one way or the other.

You can probably see where I'm going here. Linux will not appeal to those who just want to get on with operating their equipment without looking much "under the hood" They will buy proprietry software and be impressed by all the pretty "eye candy" bells and whistles that make their operating experience so much more convenient. Nothing wrong with that.

Or maybe you like to know exactly how everything works. Perhaps you get your thrills from that moment when you throw the juice into that pile of wire and pickings from the bottom of the junk-box and it doesn't go phut. For you Linux will be computer heaven. You will be awestruck by the dedication and true amateur spirit of the "Linux Community" where you can watch software being built and perfected before your very eyes. You will instantly feel at home with this international and widely scattered but closely knit co-operative of programmers who are also hams. And they don't bat an eyelid if you want to fool around with their handiwork! You will feel encouraged to get involved even though you still don't know an int from a bool. Linux is a state of mind that starts from that one program. I say give it a try but then you can guess which end of the ham scale I lean to.

Like we say - "Use The Source, Luke!"

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12 to 28 Volt DC - DC Converter

Keith Gooley VK5OQ

Let's say you are considering building an HF amplifier using mosfets such as the one described by Drew Diamond (ref 1.) But it needs a 28 or 24 volt supply. You want to take the amplifier portable and run it from a 12 volt battery along with the other gear in your portable station. Alternatively you want to run your packet station with it's laptop computer from the portable 12 volt supply. Most of these devices need about 18 volts on the external DC input. This DC - DC converter will do the job of providing 50 watt or so of DC power for your amplifier or computer. The output voltage can be adjusted to provide the 18 volt required by many laptop and notebook computers. In addition, the output voltage can be reduced to generate a regulated supply for charging gel lead-acid batteries from an unregulated 12 volt vehicle supply.

It is not uncommon for power mosfets to operate at 24 volt or more in RF power amplifiers as they are readily made to handle the higher voltages and are more efficient than those operated at lower voltages. So to operate such an amplifier portable we need a source of 28 volt. This requires a boost converter and as the negative side of the input and output can be common, no transformer isolation is required. A mosfet switch is turned on and current is allowed to build up in a choke and when the mosfet is switched off, the energy stored in the choke is dumped into storage capacitors where the voltage builds up to the required level. The switched on period of the mosfet is adjusted to keep the output voltage constant independent of the load current.

Circuit description

Having briefly outlined the why and how, we turn to how the circuit actually works. Most of the work is done by the controller IC, U1 a UC3843. This chip was originally designed by Unitrode Corporation but is now made by a number of manufacturers and is quite cheap as a result (about $1.50). It contains a fixed frequency oscillator, the frequency of which is controlled by R1 and C11. The values shown in the circuit result in a frequency of 45 kHz. The internal 5 volt reference is brought out on pin 8. Pins 1 and 2 are the output and input of the error amplifier. Pin 2 is the negative input of the amplifier. The positive input is taken internally to a 2.5 volt reference. The "totem pole" output stage of this chip (pin 6) has quite a high peak current capability of 1 amp which is required to drive the relatively high input capacitance of the mosfet.

The chip also contains a current sense comparator, input on pin 3. If the voltage on this input exceeds the error amplifier output, the on period of the circuit is

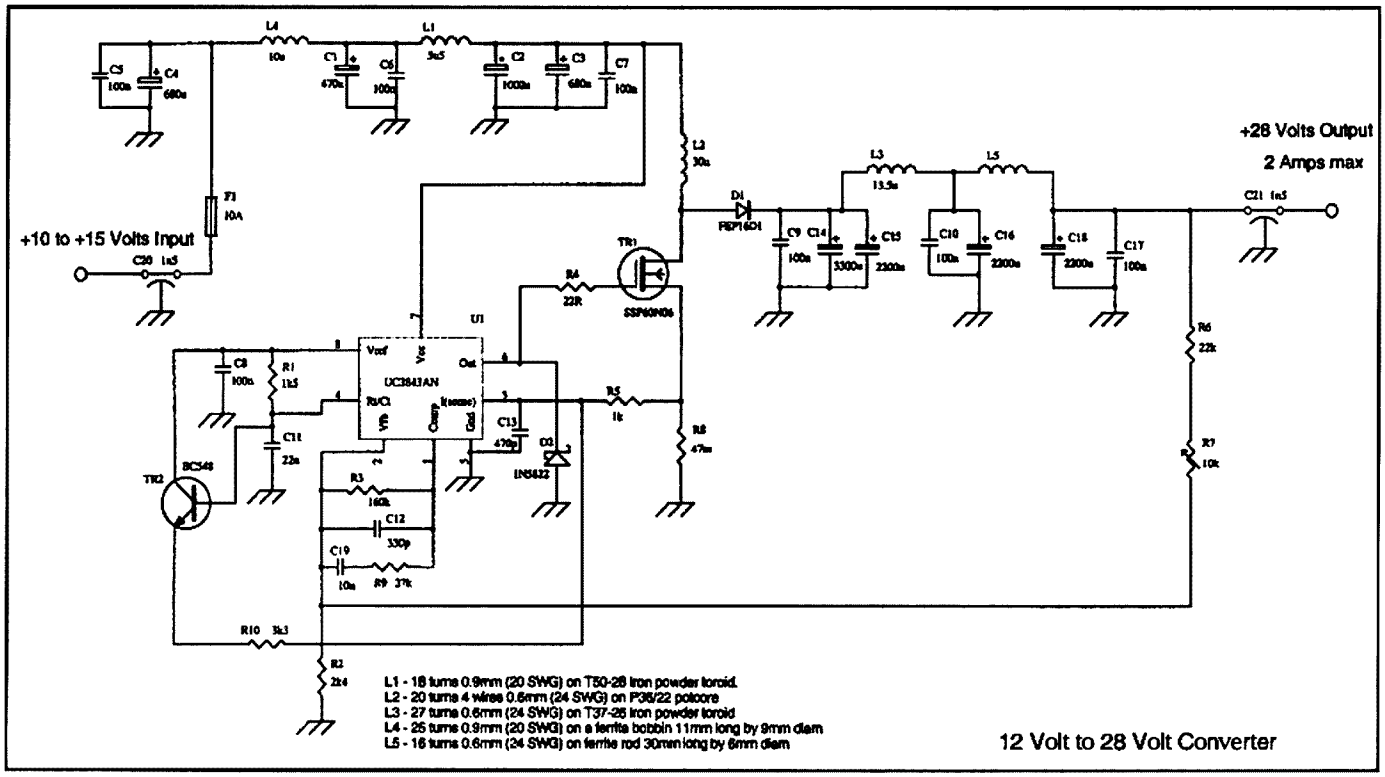

Figure 1. Circuit Diagram

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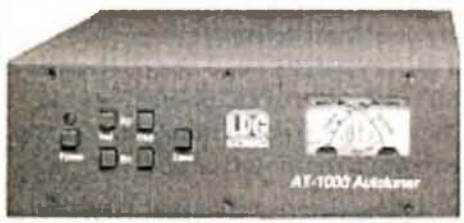

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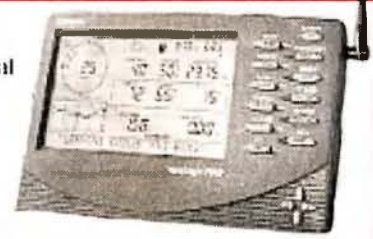

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terminated. This can be used as a cycle-by-cycle current limit. An under-voltage lockout circuit is included in the IC so that if the supply voltage is not sufficient to turn the mosfet hard on the output stage remains off. The threshold for this circuit is 8.4 volt for this particular member of the UC384X family.

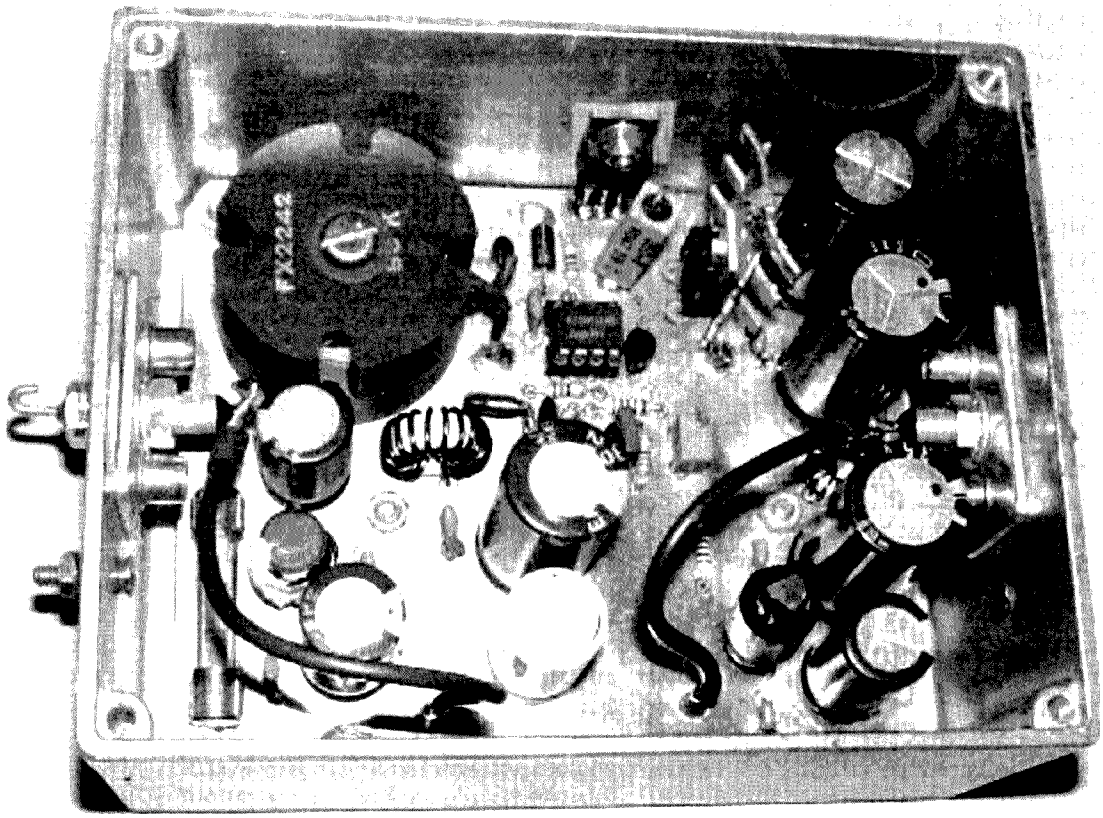

Photo 1. Inside view

The input voltage to the converter is applied to the main energy storage choke, L2 as well as U1. At the beginning of each cycle, the MOSFET TR1 is switched on by U1 output going high. The drain current in TR1 rises in a linear ramp building up energy in the choke. The drain to source current in the MOSFET flows through the current sense resistor, R8 so that the source voltage is directly proportional to choke current. When the source voltage which is applied to the current sense input equals the error amplifier output, the controller output goes low, turning off the MOSFET.

Current flow in the choke L2 can't stop instantaneously, so the voltage on the MOSFET drain end of the choke rises until diode D1 conducts and the energy stored in the choke is passed to the filter capacitors and to the load. After an appropriate off period during which current in the choke ramps down again, the MOSFET is turned on and the cycle repeats. At high load currents, the current in the choke may ramp up and down never reaching zero. At light loads however, the choke current reaches zero some part of the way through the off period.

Resistors R6 and R7 feed the output voltage back to the error amplifier and the ratio of feedback resistor R3 and the sum of R6 and R7 determines the gain of the error amplifier. This has been set to a quite modest value of 7 in the interests of loop stability. C12, C19 and R9 tailor the frequency response of the error amplifier to maintain stability consistent with good transient response.

There are several other components around the controller chip which deserve explanation. D2 is a schottky diode chosen for its low forward voltage drop. The voltage on the controller output pin can go negative due to switching transients being coupled to the MOSFET gate by internal capacitors in the MOSFET. If D2 were omitted, these negative transients could cause instability in the IC. R5 and C13 form a low pass filter to attenuate the spike of drain current in the MOSFET which occurs at the start of the on period caused by the choke winding capacitance. The time constant of the RC combination is about 0.5 msec. Transistor TR2 and R10 take a sample of the oscillator ramp voltage and feed it into the current sense input of the controller IC. This is referred to as "slope compensation" and it prevents the controller oscillating at sub-harmonics of the main oscillator frequency (ref 2).

The remaining components in the converter are included for interference removal or Electromagnetic Compatibility (EMC). When designing this converter I was very conscious of the fact that it would be used in conjunction with sensitive amateur receivers and without good EMC protection, interference is highly likely. 5 pole filters are used on the input and output of the converter. L4, L1 and the associated capacitors reduce to a low level switching transients conducted back along the battery lead and L3, L5 and the associated capacitors do likewise on the output lead. Most computer power supplies only have a 3 pole filter for EMC protection. The high value electrolytic capacitors have low effective series resistance (ESR) at low to medium frequencies, especially if switch mode power supply types are used. The 100 nF ceramic capacitors bypass the higher frequencies.

Implementation

The converter is constructed on a home made double-sided PCB with a ground plane covering the component side of the board. It is housed in a diecast box giving good EMC shielding and robust protection desirable in a portable environment. If desired, though a non-shielded plastic case could be used. Likewise, a single sided board could be used in place of the double sided PCB.

It should have a ground plane on top and the connections made underneath with component leads and hookup wire. Use a copy of the PCB overlay as a drilling template (ref. 3). "Paddyboard" construction could also be used. It is important that short leads and good RF grounding practice be used particularly around the controller IC.

A double sided PCB without plated through holes or a silk screen overlay is available from the writer for $25 including postage.

Component Selection

Discarded computer power supplies provide a rich source of components for a project like this. Look for 16 or 25 volt working electrolytic capacitors on the +12 volt output part of the board. The capacitance isn't critical, 470 to 1000m is typical. Electros on the output side of the converter need to be 35 volts of course and these aren't common on computer power supply boards but if you can scrounge electros from some other type of switchmode PS, they will most likely be low ESR types (Effective Series Resistance). These are desirable to keep the noise and ripple on the output as low as possible. It isn't essential that low ESR types be used but there will be a rise in output ripple and noise if standard types are substituted. If the voltage is reduced, clearly the voltage rating of the output capacitors can be reduced accordingly.

The chokes, L1, L3, L4 and L5 can be removed from the computer PS boards. The actual value of inductance is not important. They are often wound on a ferrite bobbin or a length of ferrite rod and covered with insulation of some sort. Use the ones from the +5 and +12 volt outputs rather than from the negative outputs which are much lower current rated.

The potcore specified for L2 is available from RJ and US Imports who advertise in AR. A smaller potcore could be used. I tried a P26/16 (Altronics L5300 and L5305 bobbin) with a 2 X 2.75 mm air-gap and a winding of 43 turns of 0.8 mm (21 SWG). The efficiency dropped from 87% to 81% and the potcore got warm to touch. However if this can be tolerated or a lower output power is desired then the smaller much cheaper core is a good option.

The MOSFET, TR1 came from DSE (# Z1853). The peak current in this device is about 20 amp at full load, so be aware of the voltage drop across the drain - source resistance when the MOSFET is on. RDS(on) is a more important spec for a power MOSFET than current rating because usually RDS(on) determines the maximum current that can be passed by the device in practice. This is because voltage drop is more often the determining factor rather than maximum current. The SSP60N06 is a 60 amp device with an RDS(on) of 18 milliohm. I tried an IRF150 which is a 40 amp, 55 milliohm device in a TO3 package and the drop in efficiency was measurable though not significant (about 1%).

Resistor R8 is 47 milliohm. It needs to be about 2 watt. I used a ceramic case resistor. Alternatively, Farnell Cat # 327-4779 is a loop of wire of the correct resistance which can be soldered into the PCB. You could also put two 0.1 ohm resistors in parallel (DSE R1600). Diodes. D1 came from Farnell (298-825) and is a dual diode with the cathodes common. I connected the anodes together as well. I also tried a pair of diodes from a computer PS and the efficiency was only

slightly less. The diodes from the +12 volt section (yellow output wires) are the ones to look for. There are usually two wire-leaded diodes with the cathodes soldered to a small heatsink. Use them with heatsink in place and the two diodes in parallel. D2 is a schottky chosen for its low forward voltage drop. Test the forward drop of diodes from a computer PS with the diode test range of a DMM. Look for one with a forward drop of less than 200 mV. Alternatively the specified 1N5822 is available from DSE (Z3252) and the much cheaper 1N5819 (Z3250) could possibly be used, but I haven't tried it.

The capacitors C11 and C19 should be plastic film types not ceramic. This is because C11 determines the oscillation frequency of the converter and C19 is a feedback compensation component. Both these applications require a low loss capacitor with good stability. Ceramic capacitors of the 10 or 22 nF value possess neither of these qualities. I used screw in feed-through capacitors for input and output DC. The value is not important. The ones I used were reclaimed from a junked RF amplifier.

Construction

Start by winding the coil on the potcore. You need 4 lengths of 0.6 mm (24 SWG) enamelled copper wire about 1.8 m long. Twist one end of the 4 wires together and hold it in a vice. Then holding the other end in a drill chuck twist the 4 wires together. Slip some sleeving over one end, about 25 mm will do, leaving enough wire protruding to make the connection on the board. Wind 20 turns of the 4 twisted wires finishing up opposite the start so that the start and end wires come out of the same aperture in the potcore. Put a couple of layers of tape over the winding to hold the end in place. Trim the wires to length and tin them ready for soldering into the circuit.

A total airgap of 2.5 mm is required in the magnetic circuit of the potcore, which means that the core halves must be separated by 1.25 mm. This is achieved by cutting out some discs of thin card sufficient to make a spacer of the required thickness. Use the potcore bobbin as a guide to draw discs of the correct diameter before cutting out the circles. Place the bobbin in position in one half of the core and put the discs on the core centre inside the bobbin. Place the other core half over the bobbin and use the assembly as a drill guide to drill a hole in the discs for the mounting screw to pass through. Use a brass or nylon screw and do up the nut to the final tightness in order to check that the airgap is correct by measurement on the outside edge. If you have the means to measure the inductance, by all means do so. The exact value isn't critical, though.

Start the assembly by mounting the minor components on the board, resistors and small capacitors. The IC can be fitted into a socket if desired. Small heatsinks are required for D1 and TR1. I fixed TR1 to the side of the case with a "greaseless" insulator but if a plastic case is used a small TO-220 heatsink is necessary. It is advisable to delay the fitting of TR1 until it has been confirmed that U1 is working correctly. This is described in the section on testing.

Earth connections under the filter electrolytic capacitors are made using small tin plated eyelets soldered to the ground plane. In the absence of these eyelets the capacitors can be stood off the board and the lead soldered direct to the ground plane.

Testing

Before applying power to the converter, do the usual checks of component polarities. It is easy for the experienced constructor to become blase about these checks but they are still worthwhile and save a lot of angst if an electro has been put in back to front. As indicated in the construction section, leave out TR1 while doing the initial powered tests or alternatively lift one end of the MOSFET gate resistor, R4. Apply 12 to 14 volts from a preferably current limited supply. If all is well, the output voltage will be about 0.5 volt below the input and the current drawn will settle down to about 15 mA. If an oscilloscope is available, look at the waveform on pin 6 of U1. It should be rectangular with a frequency of about 45 kHz, an amplitude a little less than the supply voltage and a mark to space ratio of about 60 %. That is, the positive section should be about 14 microsecond and the negative about 8 msec. If desired, you can test that the controller is working by applying a separate supply voltage, variable from 25 to 30 volt to the output. Depending on the setting of the trimpot R7, as you increase the voltage on the output the waveform on U1 pin 6 will collapse from

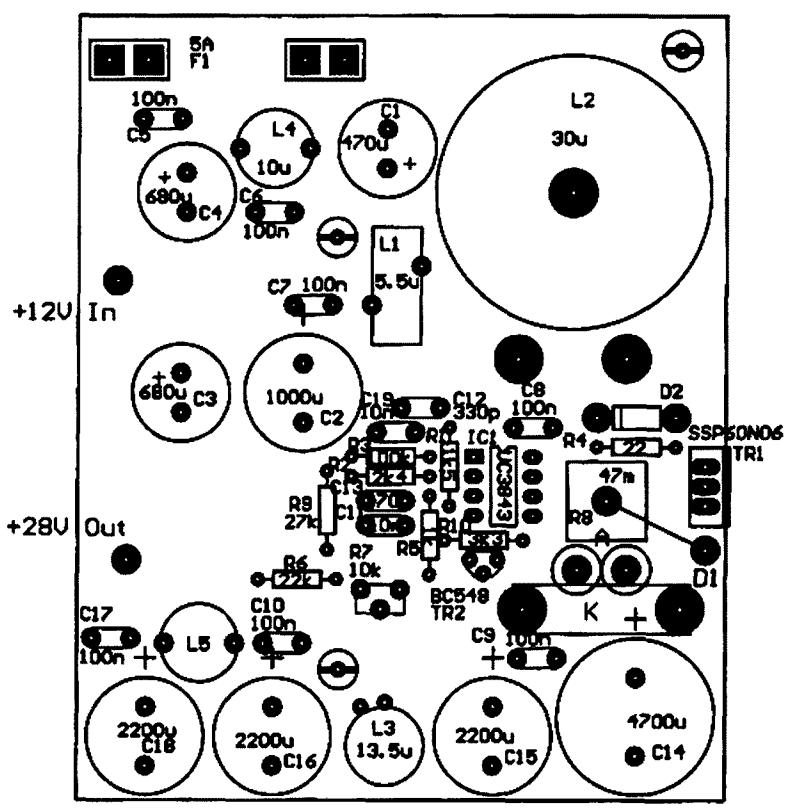

Fig 2 Component Layout on the Printed Circuit Board

60% M/S (mark/space) to a very short spike when the voltage passes through that set by R7. The frequency should remain at 45 kHz. You can then set R7 to give the required output voltage.

In the absence of an oscilloscope, the test can be done with a multimeter. The voltage on pin 6 should be about 7 volt average with 12 volt input and should drop to close to zero when the test with the variable power supply on the output is performed. The voltage on pin 8 should be 5.0 no matter what the chip is doing.

If all is well so far, TR1 can be powered up by connecting it into the circuit or re-connecting R4 as the case may be. Powering up the converter should result in a temporary audible buzz from the potcore as the output voltage quickly settles at the chosen value. Once this has occurred there should be no noise from the potcore. The converter can then be loaded down to its full rated output of 2 amp at 28 volt. The waveform on U1 pin 6 should be a nice steady 45 kHz with a M/S ratio, which increases with load current. Shorting the output should not result in anything more dramatic than the fuse blowing. This cannot be avoided in this architecture converter due to the direct DC connection from the converter input to output. The current in TR1 is limited by the current sense input of the controller, pin 3.

If an output voltage of between 12.5 and 22 is required, change R6 to 10k. The desired output voltage can then be selected by adjusting R7 as before.

Conclusion

If you want a source of 15 to 30 volt from a nominal 12 volt supply to operate 28 volt amplifiers, laptop computers or charge gel batteries, this will do the job with an output power of 50 watt or more. The output voltage can be easily adjusted by changing one resistor. The efficiency is high, more than 85% has been measured so the unit gets barely warm to the touch.

References

1. Diamond, D. VK3XU "25W MOSFET Linear Amp" Amateur Radio January 1991
2. Unitrode Corporation. "UC3842/3/4/5 Provides Low-cost Current-mode Control" Application Note U-100A
3. Gooley, K. VK5OQ "A 10 MHz Crystal Reference Oscillator" Amateur Radio August 2001

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Parts List

(See text for discussion on parts substitution)

Capacitors	*Qty*	*Designators*
470µF electro	1	C1
1000µF electro	1	C2
680µF electro	2	C3, C4
100nF ceramic	7	C5, C6, C7, C8, C9, C10, C17
22nF plastic film	1	C11
330pF ceramic	1	C12
470pF ceramic	1	C13
4700µF electro	1	C14
2200µF electro	3	C15, C16, C18
10nF plastic film	2	C19
Feedthrough caps	2	C20, C21
Chokes		
5.5mH choke	1	L1
P36/22 potcore	1	L2
13.5mH choke	1	L3
10mH choke	1	L4
Choke (See text)	1	L5
Resistors		
1k5	1	R1
2k4	1	R2
100k	1	R3
22	1	R4
1k	1	R5
22k	1	R6
10k trimpot	1	R7
47mW (0.047 ohm)	1	R8
27k	1	R9
3k3	1	R10
Semiconductors		
SSP60N06	1	TR1
BC548	1	TR2
FEP16D1 diode	1	D1
Schottky diode	1	D2
UC3843	1	IC1
Miscellaneous		
10A fuse & clips	1	F1
Circuit board	1	
Box	1	
Nuts and screws, wire etc		

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Most people have one or more AM broadcast receivers not in use. These sets may be pocket radios, radio-cassette players or clock radios. Some cover AM only, while others offer shortwave and FM coverage. This article describes how to convert almost any AM receiver to cover frequencies up to about 1.9 MHz. This allows reception of amateurs on 1.8 MHz and the growing number of narrowcast stations in the 1.6-1.7 MHz region.

Choosing a receiver

The first step is to find a suitable receiver. This should be an older-style transistor set made between the 1960s and the 1990s. It must have analogue rather than digital tuning. If you don't already own one, these are readily available from weekend garage sales and swapmeets for a few dollars. In many cases the sets contain batteries, so they can be tested before purchase. Alternatively a relative or friend may have an old receiver for the asking.

The most suitable receivers have a long dial for easier tuning. Older sets often have a circular 'handspan' dial. In rare cases they also have vernier reduction drives, which make station selection easier. This is particularly important at the top of the dial as stations tend to be closely spaced. A three gang variable capacitor indicates that the receiver has a tuned RF stage, which should aid sensitivity and image rejection.

If a choice of receivers is available, it is wise to compare sensitivity and selectivity. On a good receiver interstate stations will be heard between the locals at night. The 1.6 MHz narrowcast stations are a particularly good test as their power levels are quite low and are spaced every 9 kilohertz. Generally the older receivers provide better performance as AM is not the afterthought it is with the more modern AM/FM sets. Medium-sized and larger radios tend to provide greater sensitivity, tone and clarity than pocket sets.

It is possible that some receivers will not reach 1.8 MHz. However the author has yet to encounter one and reports a 100 per cent success rate with the receivers pictured.

How superhets work and what the conversion does

AM broadcast receivers are usually single-conversion superheterodynes. The desired signal is converted to a 455 kHz intermediate frequency. The 455 kHz signal is converted to audio and fed to the speaker.

The frequency of the local oscillator and the resonant frequency of the front end both determine the received frequency. The use of a dual gang tuning

capacitor ensures that both these frequencies are separated by 455 kHz (the IF) at all points on the dial.

Standard AM receivers tune between 530 and 1600 kHz. To obtain this range, the local oscillator tunes 455 kHz above these frequencies, or 985 to 2055 kHz. To cover the popular part of 160 metres, the local oscillator needs to be extended to reach 2305 kHz. As will be explained later this is done by adjusting a trimmer capacitor or slug-tuned coil. The only other part of the conversion is to peak the front-end to ensure optimum sensitivity on 160 metres.

Doing the conversion

Your aim is to extend your set's coverage to cover frequencies up to at least 1850 kHz. As with most modifications, there are trade-offs and in this case you will sacrifice sensitivity and coverage at the bottom end (starting at 600 kHz rather than 530 kHz). Dial calibration will also suffer. However even after the modification the set will still hear local broadcast stations.

Adjustments will need to be made with the case open and the receiver operating. For this reason, it is desirable to use batteries, even if it can also be mains powered. Where the set is mains powered only (such as with most clock radios) first check that there are no exposed contacts between the AC power lead and internal power transformer. If there are any exposed mains connections you have to insulate them out of harm's way while the set is open and being converted. Those with any doubt about what this entails should heed the advice on the set's back cover, 'No user-serviceable parts inside', and choose a safer battery-powered set to modify.

A 1.8 MHz signal source will be necessary to extract best performance from the modified receiver. This will either be an off-air signal (see next section for details of activity in your area) or something locally generated. Options include an HF transceiver transmitting 1.8 MHz into a dummy load, an RF signal generator, a crystal oscillator using a cheap 1.843 MHz crystal or the local oscillator from an unmodified AM broadcast receiver set to approximately 1.4 MHz.

The first step is to locate the receiver's tuning capacitor. If the set is less than about thirty years old, this will normally be a white or clear plastic block about 3 centimetres square mounted on the main printed circuit board. Earlier receivers used a larger metal air-spaced capacitor with two or three sections of vanes that move when the station is changed.

On the back or side of the variable capacitor will be two or more 'trimmer capacitors' with screwdriver slots approximately 3 mm long. The function of these is normally to align the receiver. However for this project we will adjust them to provide the extra coverage needed.

Tune the receiver to a weakish signal

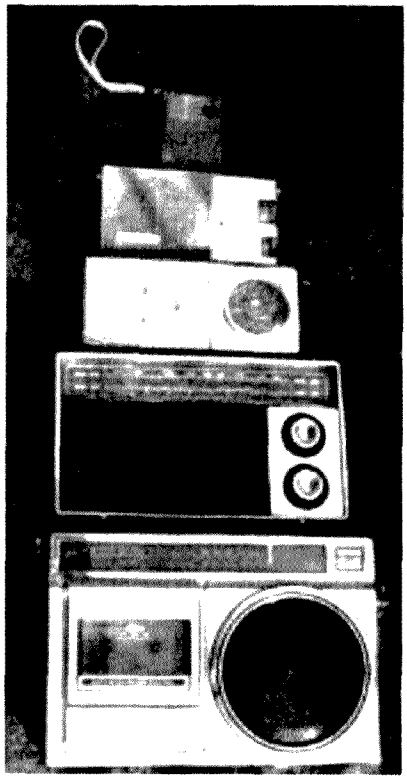

Photo 1. A selection of receivers, of varying size, converted to 160 metres.

near the top end of the broadcast band. With a flat-blade screwdriver or alignment tool screw one of the trimmers capacitors and listen to what happens to the signal.

If it gets slightly weaker, but remains properly tuned in, you have located the front-end trimmer capacitor. This will be needed later in the conversion; make a mental note of its location or mark it with a blue felt-tipped pen.

If adjusting the trimmer makes the signal disappear or changes the station, you have found the local oscillator trimmer. Mark this with a red spot.

If the trimmer does nothing, reset this trimmer to its original position and leave it alone. If the set covers FM and/or shortwave, this trimmer will almost certainly be associated with these bands and is not relevant to the 160 metre conversion.

Repeat the process for all trimmers on the variable capacitor. When you've finished you will have identified the local oscillator trimmer (red) and the front-end trimmer (blue). Note that receivers with tuned RF stages may have two front-end trimmers instead of the normal one.

Expanding the receiver's coverage means adjusting the local oscillator trimmer capacitor to near its minimum capacitance position. This is where the plates do not overlap at all. Seeing a semicircle when looking at the trimmer indicates that it is set to full capacitance (i.e. plates fully overlap). If a three-quarter circle, the trimmer is set to half capacitance. A full circle means that it is set to minimum capacitance.

Because it is sometimes difficult to observe where the trimmer is set, the best plan is to again find a station near the top end of the broadcast band (the narrowcasters just above 1.6 MHz are ideal) and then tune the receiver slightly lower in frequency until the station almost disappears. Adjust the local oscillator trimmer until the station is again tuned in properly. Also listen for a peak in signal strength while adjusting the front-end trimmer.

Repeat these adjustments until coverage is obtained up to at least 1850 kHz. This is best checked with an RF signal generator, but the other methods described above to generate a 1.8 MHz signal can also be used.

If adjusting the local oscillator trimmer fails to sufficiently extend coverage, the set's local oscillator coil needs to be identified and adjusted. This is normally in a 10 mm metal can with a screwdriver slot about 4 mm wide. It is often coloured red. At other times the coil may be a different shape, include a hexagonal hole or small slot for alignment and be covered in wax.

If in doubt, tune to a weak station and adjust the coil. If the station stays on frequency, but the volume drops, you have found an IF transformer. Adjust it back and repeat for the other coils. Once the local oscillator coil has been identified, turn it anti-clockwise and observe the stations move down the dial.

Adjust this until the receiver tunes 1850 kHz near the top of the dial.

When the correct coverage is achieved (the 1.6 MHz narrowcasters should come in at about 1450 kHz on the dial) set the signal generator to 1825 kHz. Reduce its output so its signal is weak and peak the front end trimmer for maximum signal.

The conversion is now complete. To confirm your success, ask a nearby amateur to transmit a 160 metre AM test signal or wait for one of the sessions mentioned below. As a final touch, re-calibrate the dial (by printing frequencies onto label paper) and add a 'converted to 160 metres' label.

160 metre activity around Australia

Some states relay their divisional or club broadcasts on 160 metres. These are usually followed by callback sessions. Some regular nets are also held on 160 metres. Those that are known are listed below. All activity is AM unless otherwise noted and times given are local. Frequencies used are between 1825 and 1850 kHz.

- **Adelaide**: Sunday 9am VK5WI News.
- **Brisbane**: Sunday 9am QNEWS (SSB)
- **Melbourne**: Sunday 9am Morning AM net. Monday-Friday 11am Coffee Break Net. Wednesday 8pm APC News. Saturday 10:30pm Crossband 'Missions' (live contacts and recordings from the last thirty years).
- **Sydney**: Sunday 10am & 7:30pm VK2WI News.

During most evenings one or two CW and SSB signals can be heard on the band. Reception of these is possible on converted sets equipped with a BFO. Details on how to do this are provided elsewhere.

Results and use

Results will vary depending on the sensitivity of the converted receiver and how well its front end has been peaked. If there is no 160 metre amateur activity, the low powered narrowcast stations above 1600 kHz are a good test of the receiver's performance.

160 metre AM transmissions up to approximately 30 kilometres distant are plainly audible on a typical converted AM set used indoors with its internal ferrite rod antenna. If the receiver is particularly sensitive and/or the transmitting station is using an efficient antenna, this distance can be extended up to a few hundred kilometres. Turning off electrically noisy appliances, such as so-called 'high efficiency' compact fluorescent lights, switch-mode power supplies and computers will often reduce unwanted noise.

A directional tuned loop antenna dramatically improves reception, even on the deafest of receivers. This consists of a cardboard box, wire and tuning capacitor and was described in the reference. Alternatively a wire antenna can be used. If the receiver has no antenna connection, one can be added by making a two-turn winding on the receiver's ferrite rod. One end is connected to the receiver's earth (normally the negative (-) battery connection) and the other goes to the antenna.

SSB and CW signals can be resolved by using a beat frequency oscillator. This can be arranged by placing another (unmodified) AM broadcast receiver alongside the receiver being used. Tuning just below 1400 kHz will cause the local oscillator signal to be around 1800 kHz, which will be usable as a BFO. Note though that unlike BFOs operating at the IF, the BFO receiver will need to be retuned every time the received frequency is changed.

Coverage can be extended to other HF and VHF bands by building a two or three transistor crystal-controlled converter ahead of the receiver. Such a converter has already been constructed for ten metres FM and will be the subject of a future article.

Conclusion

A comprehensive description of how to convert AM broadcast receivers to cover 160 metres has been provided. In areas where the band is popular it should make a fun project for beginners and experienced amateurs alike.

Reference

Novice Notes, *Amateur Radio*, May 2001

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Measuring Aerial Field Strength

This note was supposed to be placed at the end of the article on page 21 on the June AR. My apologies to the author.

VK5UE

Notes

The energy content in a radio wave (i.e. its ability to do work) is evidenced by the acceleration of electric charges present in a metallic conductor or a plasma in the path of the radiation. The rate of flow of energy through an area in the path of the radiation is the intensity of the radiation, measured in Joule per second per unit area. The standard unit of intensity is watt per square metre.

The energy has two in phase components, an oscillating electric field E and an oscillating magnetic field M. E and M are the RMS magnitudes and the product is the field intensity I watt per square metre. The units for E are volt per metre and for M, amp per metre.

$I = E M$; $E/377 = M$;

$E^2/377 = I$; $377 \times M^2 = I$ (1)

377 is the intrinsic impedance of space. Actually $120^* \pi$.

The magnitude of E or M is the radiation field strength and from a measurement of either one, the others can be determined using the statement at (1). The open circuit volts (Vo) at the centre of a dipole divided by its effective length or height (h) in metre is the electric field strength of the radiation intercepted by the dipole in volt per metre.

That is the basic principle of the field strength meter.

Lindsay Lawless VK3ANJ

Women in Radio

Christine Taylor VK5CTY

Dorothy Bishop VK2DB

Dorothy (Dot) VK2DB is well known to many YLs around the world, not so much from being an avid DXer but rather from the ongoing contact she maintains with YLs and YL organisations because she is Editor of the ALARA Newsletter.

Dot developed an interest in amateur radio in the 60s but it wasn't until 1978 that she took that positive step and gained her Novice call. Licensed as VK2NVQ, she held regular daytime skeds with her YL friends including Joy VK2EBX (now SK), Daphne VK2KDX (also now SK) and Betty (then VK2NYL, VK2KYL and finally VK2AMU). Around 1983, Dot and Betty decided to put some intensive effort into upgrading their Morse speed and held twice daily Morse practice sessions with each other.

Dot couldn't understand why she was inserting occasional "M"s into the text as she received Betty's transmissions. This went on for some weeks and Betty was adamant that she wasn't sending the "M"s. Then Dot suddenly realised what was causing the problem. She had only recently had her fourth son, Roger, who she would nurse on her lap while she operated and it was Roger's stage in infant life where his favourite (and only) word was "Da Da". This he would liberally and loudly proclaim whilst the practice sessions were in progress but, inadvertently, Dot would copy the "Da Da"s into the received text. Dot may have sent out a few extra "Da Da"s but Betty didn't seem to complain at the time.

Maybe it was because of the difficulties of learning how to balance Roger, the key and the pen that enabled her to quickly master the higher speed and in 1985, she upgraded to VK2DDB. Very active on the 222 YL net on Mondays during the late eighties and the nineties, The net controller started to lightheartedly refer to her as VK2 Dot's Doing Baking because every Monday night was roast night. A roast was especially chosen because of the simplicity of putting everything into the oven and not having to worry. Unfortunately the phonetics were occasionally changed to VK2 Dot's Dinner's Burnt reflecting the unfolding conditions in the kitchen. Several years ago she also obtained the VK2DB call when it became vacant which she now uses as her principal callsign (whilst still retaining VK2DDB).

It was in 1991 that she took on the role of VK1/VK2 ALARA Representative and a year later became Editor of the ALARA Newsletter, both positions she holds today. She was also responsible for launching the ALARA website in 1998 which she hosted on her own webpage

continued next page

Joy Charles VK5YJ

Joy first encountered the world of amateur radio during WW2. She was working as a receptionist for a timber merchant when a young man came in wanting some long lengths of oregon. She asked what he wanted them for, as one would with an unusual inquiry.

"I am going to build an aerial," he replied.

"What sort of aerial?"

"An amateur radio aerial. I am a radio ham. I want to build an aerial and put it on a tower so I can hear more hams around the world. The aerial will allow people further away to hear me."

"It sounds interesting and different. I will find out if we have any oregon in the lengths you want," said Joy, somewhat mystified still.

The timber company did have the oregon required and so Joy met her future husband, Ted VK5YQ, and heard about amateur radio for the first time.

The next step occurred some years later by which time they had married and made a home – with amateur shack and had six children.

Joy suffered from laryngitis almost every winter so it had become customary for Ted to call Joy each day, from work, to check up on her and the children. Mostly the conversation was one sided, but it did keep them in touch.

However, one day there was some information about a family member which simply had to be passed on before Ted came home. Joy was not allowed to even try to talk so she decided she would have to "tell" Ted using Morse Code.

She found a copy of the code, and laboriously wrote out the dit and dahs to make up the message. Then she practised whistling the message.

Joy wasn't a very good whistler, but when the expected call came from Ted, instead of just listening as usual, Joy whistled. After some minutes of this, with Ted woke up to the idea. He got the message and was able to attend to it on the way home.

That night he made up an audio oscillator with which Joy was able to 'talk' to him when she had laryngitis. A vast improvement!

Some years later, in 1978 when the Novice licence was introduced Ted suggested that their son Kim go along to classes. Kim suggested that Joy should go instead. After all she was already proficient in CW. So Joy joined a class of 79, run by the WIA(SANT) Division.

By the end of the course all but 17 students had dropped out. Eventually only 10 of them sat for their exams and passed. One of them was Joy. A year or so later she upgraded to VK5YJ. Her son Kim and one of her daughters, Joylene also have licences. Kim took over Ted's call after he became a SK.

For some years Joy ran WICEN in VK5, organising exercises and running a regular net each week but lately has moved on to other interests though she still offers her services for the Classic Adelaide Rally when she can.

Joy is much too busy in another field of radio these days, for much amateur activity. Joy runs a regular Wednesday afternoon session on commercial radio, on 5UV, one of those important services run by volunteers.

5UV started life as the 'voice' of what we now call Open Learning, from the University of Adelaide campus. Now it is housed in a building on North Terrace opposite the University but a separate entity. The Open Learning lessons continue but only during the night. Daytime is devoted to programs of general interest. When they moved into the new premises a few years ago a 'window on the world' was included in the design. One of the studios can be viewed from the footpath alongside.

Joy's session of conversations, interviews and music has earned her a place in the hearts and homes of many during the 15 or more years she has been involved. She spends hours each week planning and choosing the music and she enjoys the friendships she has made through this other radio mode. They add to the friends Joy has made through amateur radio and ALARA. Communication has many faces.

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Dorothy Bishop VK2DB continued

coopting one of her sons, Peter VK2ZCU, to be the webmaster. Recently, she has arranged for alara.org.au to be a domain name in its own right.

Dot puts out the WIA NSW Divisional Broadcast onto the packet radio system (under the callsign VK2DDB) and is also Secretary of the Hornsby and Districts Amateur Radio Club. On top of all this, if she still wasn't busy enough with family (still 3 'boys' and one OM, VK2ZOI, at home), she takes an active interest in the local community by being very involved with her local Neighbourhood Watch, editor of the monthly local NHW Newsheet and also a member of the Hornsby Community Safety Committee.

One amateur radio event that she regularly ensures ALARA is represented is the Central Coast Field Day. She actually has more OM visitors, some with XYL in tow, calling in and signing the visitor's book and assumes this is because most OMs would like their XYL more involved in the hobby. Dot tries to promote the hobby to non-YLs, not because it is something that they can share with their OM but rather because of the unique bond that is developed between YLs worldwide. She would like to see more YLs take up the hobby and sees the possible introduction of the Foundation style of licence into Australia as a golden opportunity to help achieve this.

Item provided by John VK2ZOI.

Club News

North East Radio Club, South Australia

The NERC was formed in 1991 by a group of interested Amateurs from the Modbury/Tea Tree Gully area in Adelaide. We currently support a 2 metre and 70 cm repeater, Morse beacon and packet repeater.

Club web site : http// nerc.vk5bbs.ampr.org.

The club meets on the second Friday of every month. Visitors and new members welcome

April 12th saw the club host a successful buy and sell day, at the May meeting Brian VK5VI gave a talk on the history of FM and repeaters in the Adelaide area. This also included some slides of the recent removal of VK5RHO to another site. This change has saved quite a lot of money in site rent.

June meeting is a talk by Andrew VK5ZUC on MRI and Ultrasound techniques. Both these devices use lots of high power RF. Could we connect an antenna to the local MRI? More on this next month.

July 12th will be our AGM, starting of with a meal at the clubrooms followed by the business meeting. Advance notice for the August meeting, it will be a talk on Fox Hunting by Keith VK5OQ.

Club members will be involved in August with the Rally of SA, the 4th round of the Australian Rally championships. This is an annual event for which the local Adelaide clubs and WICEN provide scoring and safety communications.

73, David Clegg VK5AMK
Hon Secretary
vk5amk@chariot.net.au

Southern Group Luncheon

A luncheon was held on 25th May for the Southern Group. There were about 20 at the table this time, one of the larger gatherings. All these people either have come to live in the Victor Harbour district or have lived there at some time. They are old friends, making the most of an opportunity to spend a pleasant few hours together.

After the luncheon, this time, most of the diners moved to the home of one of the locals, which has a fantastic view of the bridge that joins the town of Goolwa and Hindmarsh Island. This bridge was much in the newspapers several years ago. The wide sweeping design makes the bridge worth a visit if you are ever in the vicinity. Quite beautiful.

The next lunch will be in August. If you have any connection in the area and would like to join the group, just get in touch with Christine VK5CTY for details.

Garry Herden VK5ZK and Hank Brokken VK5BHH, both regulars at Southern Group meetings

Adelaide Hills Amateur Radio Society

In May the club had a visit to the Railway Signal, Communication and Aviation Museum. Approximately 50 members and visitors attended. The fact that it was difficult to get members to vacate the premises at 1030 is a good indication that the museum was of great interest to everyone.

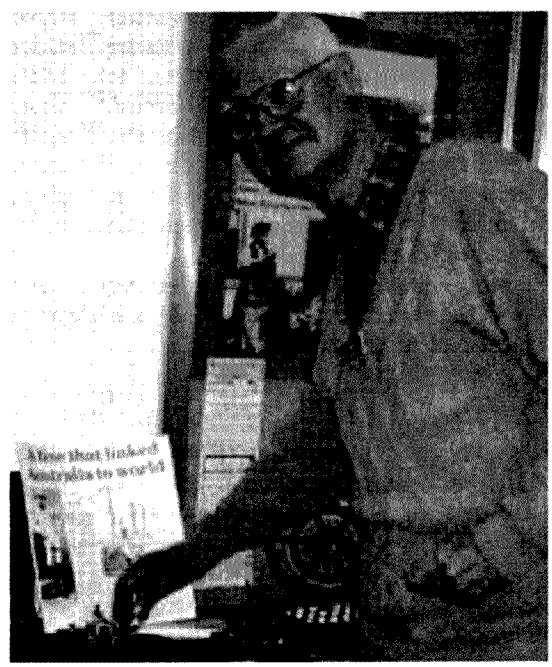
The film which started the evening, of the historic flight from England to Australia by Sir Keith and Ross Smith a Vickers Vimy (the actual plane is housed in a special building on Adelaide Airport) in 1919, included some genuine film segments in it. The typical, laconic, Australian comments were enjoyed by all. Those early took the dangers for granted. One room of the museum has a large model of the Vickers and much more aircraft memorabilia.

Another room houses communication equipment used in the railways and on the Overland Telegraph. This brought back memories to some members with experience in the old Post Office as well as in the railways.

In several rooms massive railway signaling equipment was set up so it actually operated light signals of several sorts. Many people 'had a go' at these machines, but all were amazed at the massive size required in railway operations.

It is great to have a place where vintage machines are still preserved for us to marvel at. It is so easy to forget.

Any amateurs in Adelaide could spend a very enjoyable couple of hours in this museum. It is open every Sunday and at other times by arrangement.



Rob Gurr VK5RD using a morse key at the Railway Signals and Communication Museum during the May visit

Christine Taylor VK5CTY
vk5cty@vk5cty or geencee@picknowl.com.au

Silent Key – Doug VK4BP

It is with great regret we must report that Doug VK4BP, the OM of June VK4SJ, became a silent key while they were on a DXpedition on the island of Raratonga. As reported in the May AR, June and Doug had been running a series of radio stations on some of the Cook Islands. I'm sure many amateurs around the world made contact with their stations during that time. Sadly, on May 9th, while Doug was taking a break and enjoying touring the island on a motorbike he was involved in a traffic accident and died a few hours later in the hospital.

This particular DXpedition was one of a number June and Doug have participated in during the last few years. Frequently the main intention of the expedition was to a have a YL station in one of the more unusual call areas, but Doug also operated the station and was an important part of the team, erecting aerials and assisting wherever there were technical problems.

Doug will be sadly missed. He and June have been very active DX operators for many years and have made many friends through amateur radio.

Although transport to Raratonga is not the easiest to access, June's two sons were able to get there. Doug's body was brought back to Australia where a funeral was held in their home town of Caloundra in the last week of May.

ALARA and the amateur community send their best wishes to June and family. See you on the air again when you are ready.

222 Net

As reported before, during June's absence in the Cook Islands Dave ZL1AMN has been running the 222 net on a Monday afternoon. The difference in propagation was noticeable as soon as daylight saving ended across the world. The slightly more reasonable hour of the morning for the UK and Canadian stations means that there are now often DX stations to be heard.

Please do join in on a Monday afternoon (for us in Australia). The 222 net starts at 0530 Zulu and continues as long as there are any stations who wish to talk to each other. The topics of discussion are many and varied but usually include a weather report. It is interesting to note how different the weather is a different part of Australia and in different parts of the world.

continued next page

ALARA Events.....

ALARA NETS MONDAYS Afternoons at 05.30Z on 14.222 MHz. The 222 net. Evenings at 10.30Z Daylight saving, 10.00Z rest of year. 3.58 MHz

Birthday Net

July 26th
at 10.30Z on 3.580+/-

Contest

August 30th -31st
Rules as for 2002 and printed in June 2002 AR.

International YL Meet

Seoul 2004

ALARA Nets.....

MONDAYS

AFTERNOONS

05.30Z ON 14.222MHZ
'THE 222 NET'

EVENINGS

10.00Z (daylight saving 10.30)
3.58MHZ+/-

EVENINGS

12.00Z 3.58MHZ+/_ VK6NET

THURSDAYS

EUROPEAN YL NET
14.243 MHZ AT 17.00Z

FRIDAYS

VE, VK, ZK NET
14.148MHZ AT 05.00Z

Grow WIA...

Recruit a new member!

The International YL Meet in Seoul in October 2004

A comprehensive itinerary has now been arranged for the next meeting of YLs in Seoul in Korea next year. The web address is rather long and complicated but information can be obtained from Chae, Do Sook at her e-mail address hl2kdw@hotmail.com The weather in Seoul in October is expected to be between 15 and 20 degrees Celsius. Registration will be on the 8th October and there are two tours offered as options to follow the MEET

The activities during the MEET itself include a visit to a Korean folk village, a city tour of Seoul, and a visit to the Samsung Electronics company in Suwon. If the experience of the International MEET in Hamilton in New Zealand is anything to go by, everyone will have a marvelous time, meeting old friends, and making new ones.

If you have any plans to tour the Far East in the year 2004, try to include the meeting in Seoul on the list of important places to be.

We are assured that South Korea is in very safe and friendly place to visit and even walking in the city streets is perfectly safe. Do contact Chae, Do Sook for more information.

Don't forget ALARA's birthday is in July

On Monday 21st July 1975 the first ALARA Net was held on air. We commemorate this date each year by holding a special Birthday Net on the last Saturday night of July each year. This year the date will be 26th. Please put it in your diary. Unfortunately the only band we can use to talk to the whole of Australia at night is 80 metres so we will use the 3.580+/- MHz we use on Monday nights, starting at 1030 Zulu and running for as long as we wish.

VK5 will also have a Birthday Luncheon, probably on the following day. All VK5 members will be informed of the details. If any YLs are visiting Adelaide at around that time, please contact Jean VK5TSX, our State Rep, or Christine VK5CTY. Both are QTHR the callbook.

Luncheons in Melbourne and Adelaide

In May, extra faces were noticeable both in Melbourne and in Adelaide. In Adelaide, Tina VK5TMC, Jeanne VK5JQ and Leslie XLY of Hans VK5YX were welcome additions.

However, on that same day, in Melbourne there was a real crowd. Judy VK3AGC arranged a visit to the doctor for that day. She brought her house guest, Bev VK4NBC with her. Meg VK5YJ and OM David VK5OV made a point of fitting a VK3 luncheon into their family visit, and with all the usual attendees, Mavis, VK3KS, Bron VK3DYF, Gwen VK3DLY, Jessie VK3VAN, Robyn VK3WX and Jean Shaw, present, it was an exciting and interesting gathering.

On May 9 I was in Melbourne and able to joint the ALARA girls for their monthly luncheon.

The photo was taken by a fascinated bystander who was lunching nearby, and thought she could capture us all around our table enjoying one another's company! By moving furniture and standing on a chair she certainly succeeded.

We thought we did well to have members from New Zealand, Queensland and South Australia present at the VK3 lunch, not forgetting the lone OM!

From the front L, clockwise, Judy VK3AGC, Immediate past president Bev VK4NBC, Maureen Shaw ZL4AN, Gwen VK3DYL, Bron VK3DYF,Jessie VK3VAN, Mavis VK3KS, Meg VK5YG, David VK5OV, President Robyn VK3WX and Jean Shaw.

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Silent Keys

Lew Jarvis, VK7LJ

It is with regret that we have to announce the passing of Lew Jarvis, VK7LJ. Lew was born in October 1927. He became a silent key on Tuesday 13th May. Lew will be well remembered by many amateurs. He was a long time active member of the "Sewing Circle". Our condolences to his family and close friends from the Tasmanian Division. Rest in Peace Lew.

Kenneth J Ledsam VK2ST

2 Ivor St Lidcombe NSW
Passed away 10/11/02

J.G. (Greg) Wilson, VK2IGW, (41)

Late of Pottsville and Casino areas.

Regretfully Greg passed away in Sydney on about 5 May last. He was in hospital for treatment and developed Golden Staph in his liver. He suffered diabetes and liver trouble for many years. We express our condolences and best wishes to his family and friends.

Extracted from Summerland ARC News

Terry Wilson, VK7HTW

It is with regret that we have to announce the passing of Terry Wilson VK7HTW. Terry's contribution to his radio hobby was outstanding and brought together a bond and friendship from all over the world. His promotion of IRLP and the Tasmanian Devil Award was one of the successes that Terry achieved even though he was quite unwell. We will miss his comments and joy from the airwaves. Our condolences to his family and close friends from the Southern Tasmanian ATV and Digital Group. Rest in Peace Terry.

Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

The Flying Horse is back!

Some of you may remember the famous double telephone directory sized callbooks that were produced by the "Radio Amateur Company" in the USA. The front cover was a picture of a 'Flying Horse'. They ceased production in 1997 when the world call book became available on CD's. It has raised its wings again! A German firm, ItfM (Informations-Technologie fur Menschen) in conjunction with the UK RSGB and the German DARC, have purchased the rights to the Radio Amateur Callbook. Hopefully by the time you read this, the RSGB will have a new World Call Book available for purchase.

(RSGB May RadCom)

ARRL'S "Logbook Of The World" enters open beta-testing phase

The long-anticipated "Logbook of the World" (LoTW)—the ARRL's secure electronic contact-confirmation system—has been opened for beta testing. While a formal unveiling was set for the Hamvention DX Forum May 17, LoTW now is available to all who wish to participate in the beta testing program.

At the heart of the Logbook of the World concept is a huge repository of log data provided by operators—from individual DXers and contesters to major DXpeditions—and maintained by ARRL. Logbook of the World Project Leader Wayne Mills, N7NG, says the system will benefit big and little guns alike by providing quick QSO credit for awards offered by ARRL—and, it's hoped, those offered by other organisations as well—without having to first collect and submit hard-copy QSL cards.

Visit the ARRL Logbook of the World Web site http://www.arrl.org/lotw to learn more, download the necessary software and take part in the beta testing effort. For the purposes of the beta test, validated users are asked to submit log data for contacts made on or after January 1, 1998. Once a certificate is issued, beta testers may e-mail their log data to the LoTW database lotw-test@arrl.org.

(ARRL N/L 17/4)

Amateurs in other fields

When promoting Amateur Radio we often talk of our development and research projects, our exploitation's in space, WICEN and our contribution to the community. A smile came on my face when I read a column in the ARRL News Letter asking for Radio Amateurs to track wildlife. Three new tracking projects were studies of the Florida burrowing Owls, Green horned Owls and Mexican long nose Bats. It appears some of these have been radio tagged, so be cautious of the strange noises you here on VHF, it could be a bird that has strayed off course.

Only in America

In the State of New Jersey the gloves are off! Some Law maker is endeavouring to amend the State law so that a "distracted driver may be charged with reckless, careless or unsafe driving" for engaging in what motorists would consider routine activities such as listening to the radio, a CD or cassette player. You can imagine arriving from another State and having to turn everything electronic off. It surely makes you wonder!

New 60-metres requires prudence, caution

When the five channels of the new 60-metre amateur allocation become available later this year, Amateur Radio operators will have to learn some new operating habits and adopt some new on-the-air attitudes. The limited spectrum and stringent bandwidth requirements will mean amateurs will have to demonstrate their best behaviour and operating skills if the Amateur Service ever hopes to get an actual band segment at 60 metres.

"In terms of Amateur Radio spectrum, we usually say, 'Use it or lose it,'" said ARRL CEO David Sumner, K1ZZ. "The watchword for 60-metre operators should be, 'Misuse it and lose it.'"

The NTIA says that hams planning to operate on 60 metres "must assure that their signal is transmitted on the channel centre frequency." In general, the NTIA has advised, users should set their carrier frequency 1.5 kHz lower than the channel centre frequency. According to the NTIA:

Channel Centre Frequency	Amateur Tuning
5332 kHz	5330.5 kHz
5348 kHz	5346.5 kHz
5368 kHz	5366.5 kHz
5373 kHz	5371.5 kHz
5405 kHz	5403.5 kHz

(common US/UK)

Additionally, the FCC has restricted operation to USB only, with a maximum effective radiated power (ERP) of 50 W. A dipole is assumed to have a gain of 0dBd.

ARRL Technical Relations Manager Paul Rinaldo, W4RI, says the assignment of these channels implies that amateurs now must adhere to certain frequency tolerances for their use. While the international Radio Regulations don't list these for the Amateur Service, he notes, they do stipulate tolerances on the order of 20 to 50 Hz for other services.

"We haven't been told anything specific about frequency tolerances for these channels but would probably annoy federal regulators if we strayed any more than 50 Hz from the assigned carrier frequencies," Rinaldo cautioned.

Keeping one's audio within the 2.8-kHz wide channel to comply with the 2K8J3E emission specification is another important issue. ARRL Laboratory Manager Ed Hare, W1RFI, believes prudence calls for not having baseband audio below 200 Hz nor greater than 2800 Hz—for a total bandwidth of 2.6 kHz. "That will probably keep us out of trouble," he said. Noting that the high-frequency response "can vary a lot from radio to radio," however, Hare recommended that amateurs play it conservatively.

It is a pity the ACA has not offered us a similar opportunity to investigate propagation in the 60 metre band, if only for a limited time. It would surely make worldwide studies more realistic with Australia being so far from the USA and the UK.

(ARRL N/L 23 May)

Entry Level licence:

WIA Consultation Survey findings

By Jim Linton VK3PC

The survey on the proposed new Entry Level licence conducted throughout Australia has had a very positive result of promoting greater awareness of possible changes to amateur licensing in Australia.

A joint survey was conducted in VK2, VK3 and VK7, while other states and the ACT held surveys of their members, based on a standard set of questions. This report is on the results of the joint survey only.

It got people talking, thinking, and also informed a few who had missed or dismissed earlier reports that the WIA was considering how best to re-shape licensing for the future.

With the amateur radio fraternity now facing a rapid decline in the numbers of radio amateurs the WIA Federal Council, at the WIA's 2003 Federal Convention, voted unanimously to give "in principle" support for a new Entry Level licence. The WIA is looking for sustainable growth for amateur radio in Australia.

A key part of its policy is that the new licence would be on the majority of bands "to be determined", and that consultation with the amateur radio fraternity would seek to measure the feelings of today's radio amateurs. The result is an endorsement of the WIA's policy direction.

The joint VK2, VK3 and VK7 survey which resulted in a total of 542 surveys responses fairly evenly across all existing licence grades, plus another nine responses which totally disagreed with the introduction of an Entry Level licence.

I think it is important to make entry easier but retain the "carrot" incentive to attain the ultimate goal a full licence

- Ernie VK3DET.

The support for 10 W (PEP) on all bands – which is what Britain has given its Foundation Licence with the current exception of 10 m – only had support of 7.4% of survey respondents.

In relation to power levels, this was fairly evenly divided with 10 W (33.39%), 50 W (25%), 100 W (37.8%), with 4.79% supporting 200 W.

Some 36% wanted to give the new licence all (entire) bands, while the majority (64%) said no to that option, although they mostly supported the new licence having parts of some bands rather than the entire band.

The survey's question No. 8 sought multiple answers. Interestingly, 19% or about one in every five respondents, did not want the new licence to have access to weak signal segments that are part of band planning on the higher bands.

This is particularly significant if one considers that weak signal working is a speciality area of operation that would not necessarily be widely known or appreciated by all respondents.

On the question of whether Entry Level licensees should be given access to repeaters only 3.32% were opposed.

Questions about the bands that should be included in the licence revealed a strong preference for the existing Novice band HF allocations, but also healthy support of mid to high 50s for all other bands including 59.22% for 20 m.

The 75 m DX window, another speciality area of amateur operation, saw 60.7% of respondents not wanting it included in the privileges of the new licence.

On the VHF/UHF and microwave bands, 2 m and 70 cm gained almost 100% support, with 6 m at 75.46%, 1.2 GHz 62.36%, 2.4 GHz 57.56% and 5.6 GHz 50.92%.

Conclusion

Those who responded to the tri-state survey do not support the British model of 10 W on all bands, although they recognise the need for a new entry point into amateur radio and the survey respondents gave their support for such a move in Australia.

In relation to bands, the respondents have naturally considered the new licence in terms of their knowledge of the current Novice licence. This is clearly evident in Table 1. While some see it as a replacement for the Novice, others have a wider view of the Entry

Level licence needing to be sufficiently attractive to hold the interest of the next generation of radio amateurs. There was a sentiment that the new entrants should be restricted as an incentive to upgrade to the Unrestricted licence.

In Table 2, support for power levels is evenly spread, and again those who chose the 100 W limit probably did so to match it with the current Novice power level. A number of respondents referred to the 10 W limit not as being easily enforceable, or that up to 100 W was the normal power level from readily available commercial ham transceivers.

Among the clear messages from the survey results are that weak signal segments must be quarantined from the new licence, likewise the 75 m DX window, and 97% supported Entry Level licensee having access to repeater operation.

The survey results are now being used to help the WIA write its submission to the Australian Communications Authority seeking the introduction of an Entry Level licence.

The results will also further stimulate debate on the issues, and further consultation with the amateur radio fraternity on the proposal can be expected.

Table 1

Band	Preference by those who did not vote for all bands (actual numbers)	Preference of those who did not vote for all bands (percentage)	Percentage of all respondents including those who voted for all bands.
160 m	115	33.4%	57.19%
80 m	354	99.0%	99.6%
40 m	196	56.4%	72.14%
30 m	115	33.14%	57.19%
20 m	126	33.31%	59.22%
18 m	112	33.27%	56.6%
15 m	300	86.45%	91.32%
12 m	124	35.73%	58.85%
10 m	242	69.7%	80.62%
6 m	214	61.67%	75.46%
2 m	367	99.0%	99.0%
70 cm	333	95.96%	97.41%
1.2 GHz	143	41.21%	62.36%
2.4 GHz	117	33.71%	57.56%
5.6 GHz	81	23.34%	50.92%

Table 2

Power Limit	Total number of respondents choosing these power limits	Percentage of respondents choosing these power limits	Respondents who support all bands with this power limit	Percentage of respondents wanting all bands with this power limit
10 W	181	33.3%	51	7.4%
50 W	136	29%	47	8.6%
100 W	205	37.8%	76	14%
200 W	26	4.79%	21	3.8%

Comments made by survey respondents:

A number of those responding to the survey took the opportunity to express some personal opinions. A selection of them appears below. Not all are included to avoid repetition and inaccurate references to Australia's current regulations.

The more the better or we die – ***Roy Yeats VK2BRY.***

It seems necessary to restrict some of the bands to create an incentive for further education requirements – ***O.A. Roberts VK7JR.***

It will offer great opportunities for involvement for not only young people but catch the interest and imagination of retired people interested in electronics – ***John Collins VK3TKH.***

I agree we need more "active" ham operators, however, I don't agree that we should "give away" our privileges like tokens out of a Cornflakes packet. We need to maintain our high standards and our integrity. I am not opposed to a restricted entry level – ***O. Roberts VK2DCJ.***

Concern over 160 m access due to BCI problems for Entry Level technical capability – ***Allan Mason VK2GR.***

I think it is important to make entry easier but retain the "carrot" incentive to attain the ultimate goal a full licence – ***Ernie VK3DET.***

Most transmitters are 100 W – so why add a hurdle of having to reduce power output – ***Bruce VK3BPT.***

It is no use proposing a lower power limit as it did not work with the original Novice Licence – ***Ron VK7RM.***

I would not like to see the "floodgates opened", however we must allow new hams greater access to our bands and foster their promotion to higher levels of access – ***Phil Maskrey VK3HBR.***

I fully agree with the new Entry Level licence. I feel it will help maintain the interest in amateur radio – ***Doug VK3VBA.***

I'm a dedicated CW enthusiast but fully support the removal of the Morse test as a requirement for an Unrestricted licence. I would encourage new licensees to "have a go" though, so would include Morse code as an optional part of the Entry Level training course – ***Bernard Kates VK2IB.***

There is bound to be a bit of backlash against this proposal, though I think it is an excellent idea – ***Graham Smith VK3ZGS.***

The new licence class should be given access to all repeater sub-bands. With the advent of Internet linking, the re-transmission restrictions in VK are rapidly becoming unworkable. Giving all amateurs access to all repeaters, eliminates this problem – ***Tony VK3JED***

I would support full access (to VHF/UHF and microwave bands) providing compliance with WIA band plans could be enforced and guaranteed so as to avoid interference on weak-signal segments – ***Chas VK3BRZ.***

Given the proposed minimal technical knowledge requirements for Entry Level, this licence should permit the use of commercially available equipment only – ***Ted VK2ARA.***

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VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

Have you ever heard the sounds from PSK-31, MFSK-16, or FSK-441? Our guest speaker at the general meeting on May 25, 2003 was Waldis Jirgins (VK1WJ). Waldis has spent much of his time during the last two years experimenting with the new narrow-band Digital Modes (DMs) and has had tremendous success with it.

With the use of a personal computer (PC), he showed the different displays that some of these DM programs generate, and which show all the information that the operator needs to conduct a QSO using this new form of modulation. But it is not only what you see on the screen, it is also what you hear during a QSO. Much to our surprise, Waldis let us listen to the various sounds that are so peculiar to each mode. We heard warbles and tweet-tweets from PSK-31, squeaks, chirps, and hiss from MFSK-16, and chirks, whirrs and whistles from FSK-441. Closing your eyes, it sounded much like your neighbour's aviary.

Waldis said that the SSB transceiver's RF output power should be set at between 30 and 70 watts, because the new DMs need much less signal power to be resolved than SSB. Any old transceiver can be used, but preferably one with a narrow-band CW filter of 250 Hz. He added that the normally fitted SSB filter of 300-3100 Hz in a transceiver can practically pass several DM signals all at once. Kerry Richens (VK1KRF) assisted Waldis by showing how a four-wire cable is used to connect the transceiver to the PC i.e. Earth, Audio in, Audio out, and Press-to-talk (PTT). These are usually available at the microphone socket, or at the rear of the transceiver. Those of us with a Packet set-up, have such connections installed already. The station's antenna can be a simple type such as a dipole or a quarter-wave vertical. The entry level PC is a 486DX33, with which you can run PSK31SBW and not much else.

Waldis said that your PC should be equipped with a 16-bit sound card, or an integrated system. The monitor should be 'RF interference quiet' because a transceiver set up for DM is extremely sensitive to noise. If it is not, you will hear lots of hash on the HF bands. Waldis discovered that this hash is a function of screen resolution and colour-depth, and can be reduced by selecting a lower resolution, and screen size. He advises to place ferrite chokes on the keyboard and mouse cables when operating on the VHF/UHF bands, as they have a length equal to a quarter wave antenna. Waldis noticed that suitable PCs can be bought for less than $100 via the Tuesday issue of the Canberra Times.

Waldis spoke to the subject of DMs for more than an hour, and handed out a nine-page pamphlet with details and background of DMs. You can obtain a copy of this via his Website on: http://members.optusnet.com.au/~waldis/digiar.htm

The speaker following Waldis, was Gilbert Hughes (VK1GH), the division's federal councillor. Gilbert gave an update of the discussions going on within the WIA hierarchy about the new entry level licence, aka, the 'Foundation Licence' (FL). He said that one suggestion had been that, a once only, short sharp break should occur at its introduction, when all existing licence holders, from Limited Novices to AOCP, would become "Full call Amateurs". Another suggestion had been that FL holders will only be able to progress to 'Full call Amateur' status by adding value to the FL. For example, an operator who can demonstrate having made a very high number of QSOs on CW would add value to his FL. Similarly, an FL operator who excels in home-brewing transceivers or other electronic apparatus would add value to the FL. Again, an FL operator who has attained certificates for WAVKCA, WAS, DXCC, WAC, and other operating achievements would also add value to his FL. These values would be assessed by a committee or a board before an individual's FL was upgraded. A lively discussion erupted during the break, with many of those present asking Gilbert questions about the FL, and when it is going to be introduced. Gilbert emphasised that discussions are still going on in amateur circles all over Australia, and that the final outcome will be influenced not only by the opinion of amateurs, but also by that of the ACA.

Two announcements were made that evening. The first by Peter Kloppenburg (VK1CPK), who showed three, band-pass filters that he build for use during contest operations in the divisional hamshack in Farrer. Peter distributed a three-page handout with information about why these filters are useful, how to build them, using parts from the junk box. A copy of the handout can be obtained from Peter at pkloppen@austarmetro.com.au .The second announcement was from Peter Ellis (VK1KEP) about an open day at HMAS Harman on Sunday, July 6, 2003. Amateur Radio would be represented with a station operated by amateurs. However, the announcement here is unlikely to be effective as AR for July will drop in your letterbox after the event. The next general meeting will be held on Monday, July 28, 2003 at Scout Hall at 8:00 pm. Cheers.

PLAN AHEAD

JOTA

18 - 19 October

VK2 Notes

Tim Mills VK2ZTM.

Hello there

The 2003/2004 Divisional year is now well underway. Following the AGM Brian Kelly VK2WBK was elected President and Owen Holmwood VK2AEJ remained in the position of Secretary. The position of Treasurer is being filled by Noel May VK2YXM, in at the deep end, in his first year on Council. Retiring from Council after several years were Chris Minahan VK2EJ and Geoff McGrorey Clark VK2EO.

The first Conference of Clubs for the year was held in May. The next Conference will be held on the last Saturday of November. Clubs have been requested to update details of their membership, incorporation details and supply a current copy of their constitution. In the past, club postings have been made by photocopying material and mailing it to them from the Parramatta office. Where practical, Clubs are now being asked to accept this material by email.

The schedule for exams conducted at the Parramatta office for the rest of the year are as follows. July 20th with applications closing on July 8th. August 31st with close on August 19th . October 12th with close on September 30th. November 23rd with close on November 11th. The Co-ordinator for these exams is Pat VK2JPA. Would other VK2 clubs and groups conducting exams please keep the Parramatta office informed of the dates so that we may refer inquiries to them.

The Oxley Region ARC conducted their annual field day over the June long weekend. As usual they turned on very good weather. 93 registrations were taken. Many were fox hunters who took part in the various field events. The VK2 Division attended with a selection of the VK2 Bookshop. The next major field day in VK2 will be conducted by the Wagga ARC, this year in October. They have decided to move from the previous date in August and have nominated the October long weekend, the 5th.

The next Trash and Treasure at Parramatta will be on the last Sunday of this month, the 28th, followed, as usual, by the Home Brew Group meeting upstairs in the library. This gathering is well attended where many now bring their show and tell projects, after which there is a lecture or a series of short talks on an increasing range of topics. To compliment the Home Brew gathering a project evening is starting up at Parramatta.

Aub VK2AXT, the Divisional Librarian, has had the assistance of work experience personnel in the sorting and cataloging of the back log of material.

This month the VK2WI team of Announcers and Engineers start the third quarter roster. We welcome John VK2JJV, who joined in the last quarter. We are always on the lookout for more personnel, either as Announcer or Engineer, or both – please apply. The larger the team, the more the load is spread.

The Hunter Radio Group 6 metre beacon is undergoing a site and frequency change. It will join the VK2RNC repeaters on the local elevated ground and will move to 50.287 in the CW mode. The St. George ARS UHF repeater on 8425 has moved from Hurstville to join VK2RLE 6800 at Heathcote. A new repeater has been established in the Snowy Mountains. The Dural VK2RWI 7000 is to get new equipment. The existing unit has seen over 25 years service.

Last May it was twenty years since the official opening of the VK2 headquarters building at Parramatta. The Division had sold its Atchison Street property at St. Leonards in 1982 when it became crowded out by development. The present Wigram Street property was purchased in 1982 and opened on 28th May 1983 by Federal Member, Mr. Gary Punch MHR. VK2 Division had purchased Atchison Street in 1959 when it was a small cottage. A hall was added to the rear and the basement served as the disposal store, the bulletin printing room and VK2AWI WICEN station. The extensions were opened by the WIA's first Secretary Wal Hannam VK2AXH on the 17th March 1962.

Earlier in the 1950s a Co-op had been formed and there had been moves to acquire a city property. Round the same time (1955) the present Dural property was established as a Home for VK2WI, opening on 15th May1957 by The Hon

Allan Fairhall MHR VK2KB, Federal Minister for Interior. The Co-op did not proceed and they put their efforts behind the Dural project.

Members and visitors are welcome to visit VK2WI on a Sunday between 9.30am and 11.30am. The site is 2.5 km along Quarry Road from the junction with Old Northern Road. The five acre property has been getting a spruce up in recent times. In early March the local Rural Fire Brigade carried out hazard reduction on the sloping part of the block. This was the first fire through the undergrowth for at least half a century. It made a real difference, even if the 160 metre inverted dipole got a bit singed in the process. Some of the lower parts of the site have required some restoration work to counter possible erosion.

Since the beginning of the year another round of equipment maintenance has been undertaken, much of it for the first time since Jeff VK2BYY constructed and installed it during the 1970s. It is a tribute to Jeff for the length of service it still provides. A separate transceiver has been installed for the 40 metre callbacks, overcoming the need for antenna and frequency changes on the previous shared systems. This has allowed the previous unit to be dedicated to the 80 metre callbacks.

In January a new SSB transmitter was commissioned for the evening 80 metre service, and the operators have become familiar with its existence. In March we added a reflector under the 80 metre dipole. It seems to have made some impression on the coverage. The move last year to use the 40 metre AM transmitter in the evening has provided good and alternative coverage. As winter has approached however it has appeared that the local coverage has dropped off although interstate coverage appears good. We also have to thank Aub VK2AXT who has spent considerable time and effort restoring some valve transmitter and receiver units as a back up system on a couple of the higher HF frequencies.

Last March, the Division had the pleasure of a talk on the United Kingdom Foundation Licence by RSGB President Bob Whelan G3PJT, which was video recorded by the television unit of the Gladesville ARC. The 58 minute presentation is now available in the VHS format from the VK2 Bookshop, priced at $10 post-paid Australia wide. It is ideal for clubs to inform their members and to provide a lecture at a meeting. It can also be shown on ATV. Contact details for the VK2 Bookshop are to be found via the links to the Internet or for the directory page on page 56.

We welcome news for these notes as well as the VK2WI news sessions. Please put fingers to the keyboard and let all know about your club, group or individual activity. It is also a means of recording information for later history. 73 until next month.

VK3 Notes

By Jim Linton VK3PC

WIA Victoria web site: www.wiavic.org.au, email: wiavic@wiavic.org.au

WIA Victoria AGM

The Annual General Meeting held on 22 May, saw 45 members attending. After a moments silence for those radio amateurs who had passed away in the past year, discussion opened on the reports of the President, Secretary and Treasurer - all had been distributed to members as part of the Annual Report.

The Secretary mentioned that current new memberships and renewals were at the same level as this time last year and it was hoped that the gain in membership evidenced last year could be repeated in the year to 31 December 2003.

The Treasurer commented that the projected surplus for the year to 31 December 2003, had been adversely affected by a continuing downturn in the value of the Westpac managed fund investment and the over budget cost of the Council election. Best estimates were that WIA Victoria would break even for the year, but further movements in the managed fund would be a factor in the end result.

The Chairman and members congratulated Drew Diamond VK3XU, who was in attendance, for once again receiving the Higginbotham Award for his contribution to Amateur Radio magazine.

Election of the 2003-2006 Council - the Chairman advised the meeting that more than 500 ballot envelopes had been received for the election of the new Council. Simulated trials had shown that the processing of ballots and result reporting could not be completed in the time that the meeting facilities were available.

It was suggested, and accepted by the meeting that scrutineers would count the number of ballot envelopes received and report this figure to the meeting. There were 517 envelopes. The Electoral Officer was then assigned to deliver the ballot box and envelopes to the Accountants Barnard Baudinette & Co for vote counting and a report on the results.

The elections results posted on the WIA Victoria website were:

The 2003-2006 Council is Jim Baxter VK3DBQ, John Brown VK3JJB, Bruce Bathols VK3UV, Keith Proctor VK3FT, Barry Robinson VK3JBR, Jim Linton VK3PC, Peter Elton VK3KG, and Peter Mill VK3APO.

All five sitting councillors who sought re-election were successful and are joined by Bruce VK3UV and Peter VK3KG.

The election was for eight positions, and the two unsuccessful candidates were Robert Broomhead VK3KRB and Mark Beacham VK3XXX.

After the AGM the traditional discussion session took place. Keith Proctor gave a presentation on the WIA Victoria Business Plan for the next three years, and invited input from members.

It was announced that the latest inductee to the WIA Victoria Elmer Hall of Fame was Mark Weaver VK3KZZ. The WIA Victoria policy on IRLP was explained. The long-awaited privacy policy for WIA Victoria will be released in July after the Council considers a report from its legal advisors.

The distribution of AR magazine via newsagents had been a financial success so far. WIA Victoria is now running a trial of an electronic version of the magazine on its website as a PDF download.

Entry Level licence survey

Thank you to those who responded to the WIA Consultation Survey on the proposed new Entry Level licence.

Some 40% of VK3 respondents wanted the new licence to have a power output of 100 W PEP, with 30% preferring 10 W PEP, 50 W PEP 26%., and 3.8% in favour of 200 W.

The full survey results will be published (see page 30), but basically the combined view of the VK2, VK3 and VK7 respondents was that 64% did not want the new licence to have all bands, and 19% did not want it to include the VHF/UHF weak signal segments.

The British model of 10 W and all bands gained only 7.4% support, while 3.3% thought it was not appropriate for the Entry Level licence to have access to repeaters.

VK7 News

IRLP + APRS = AVRS/ IPRS....Confused?

Tony Bedelph, VK7AX who owns and runs the Internet Repeater Linking Project (IRLP) node (6700) in the North of the Tasmania has been bringing together IRLP and Amateur Voice Reporting System (AVRS) in a new system called Internet Phone Radio System (IPRS). This system was pioneered by Dave Cameron, VE7LTD and Bob Bruninga, WB4APR and is now operating on IRLP or should I say IPRS Node 6700 in the North of Tasmania.

How does it work? IRLP Node 6700 simultaneously beacons its information and status to the Internet IGate Network and to the packet APRS network on 145.175 MHz. Users can now use the information in real time, with both the STN6700 and VK7AX IRLP information now shown on the Tasmania map for the Mt Barrow 2 metre repeater (147 MHz) and site which Node 6700 is permanently linked to at this time.

Another first and plus for amateur radio in VK7.

VK7 Divisional Broadcast Replay

The weekly VK7 Divisional Broadcast can now be heard repeated on Monday nights along with a QNews rebroadcast on most of the Northern Tasmanian 2 metre repeaters at 1930 (local Tasmanian time). This rebroadcast is courtesy of Tony Bedelph, VK7AX.

Targa Tasmania

The WICEN South team has done it again with the provision of high quality radio communications for this year's event. The weather was less than favourable and the command net satellite phones didn't work and WICEN members ended up using their own mobile phones as well as providing stage net radio links. Apart from some minor problems like repeater sites which looked more like rivers than solid land, it all went smoothly and the WICEN team was highly commended for their work.

Branch Meetings/News

The Northern Branch's June meeting was treated to a talk by the former Director of the Antarctic Division, Rex Moncur, VK7MO who discussed the new EMR rules and the VK9LS DXpedition to Lord Howe Island. As always Rex presented an informative and entertaining talk.

The North West Branch's meeting was something really different. The Branch's own world traveller, Warren Wright, VK7BN has been working in South America, then in Venezuela and now in Ecuador, mainly on oilrigs. His talk was very entertaining, especially about the conditions on the rigs.

The Southern Branch was treated to a talk by Peter Yates, VK7PY, who is the Communications Manager for the Antarctic Division that is based in Kingston, 10 km from Hobart. Peter talked about the whole gamut of Divisional Communications which started back in 1912 of which the Domain OTC site (featured in last month's AR inside front cover) was part of the old network. He outlined the HF and digital link developments, VHF, Wireless LAN systems, repeater networks and paging systems. There are special requirements for sub-zero temperature operation like LEDS instead of LCD and most gear needs to be operated with gloved hands. Peter brought along some examples of the equipment used and the members were most impressed with a 50 watt HF rig manufactured in WA that was the size of a paperback novel. An entertaining and informative talk.

The Hobart digipeater located on the Queen's Domain has been resurrected and is up and going again. VK7RAD, can be found on 147.575 MHz and supports many packet protocols including FlexNet. It has been nearly two years since this digipeater has been heard in the Hobart area so dig out those dusty packet TNCs and try to remember those packet commands again.

Tasmanian Nets

Just a reminder about the Tasmanian Nets:

Tassie Devil

On Tuesday nights at 1930 (local Tasmanian time) on 3.59 MHz LSB there is a friendly gathering of amateurs including some Tasmanians who are available to make contact with to gain points toward the Tassie Devil award.

Sewing Circle

At 1700 (local Tasmanian time) each day on 3.59 MHz LSB there is a friendly gathering of amateurs from a number of States that have a general rag-chew session about anything and everything. The Sewing Circle also get together each year near Christmas for a social gathering.

CHARCT Quiz Net

The Central Highlands Amateur Radio Club of Tasmania run a quiz net on Thursday night on 3.595 MHz LSB at 2000 (local Tasmanian time). This quiz net involves a quizmaster asking a range of questions with each person contributing an answer. A tally of correct answers determines the winner, who then runs the quiz for the next week.

So here's your invitation from Tassie to join in our nets and earn yourself some valuable points toward that Tassie Devil award! All suitably licenced amateurs are welcome.

73, Justin Giles-Clark, VK7TW

Errata

In June 2003 AR in VK7 News - the name of VK7DM is incorrect. The correct name is Dave Marsland not Dave Marsden.

How's DX?

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Amateur access to 60 metres?

The ARRL has announced that US amateurs will have access to five channels on the new 'experimental' 60 metre band from 3rd July. They are 2.8 kHz wide, with centre frequencies of 5332, 5348, 5368, 5373 and 5405 kHz. The RSGB in the UK is also running a similar experiment on 60 metre and there are rumours that German amateurs are lobbying for similar access. Many countries have allocated band space at LF (136 kHz and 73 kHz). Perhaps we Australian amateurs should be lobbying the ACA for similar access to both the 60 metre band and perhaps 136kHz in VK. The only other services (that I am aware of) that operate at these low frequencies are the regional airport LF beacons, but surely we can find a 'spare' channel between these stations for use by amateurs?

The DX

3D, SWAZILAND. Dave, K4SV is heading to Swaziland and will operate as 3DA0SV beginning on the 29th of July until the 3rd of August. He will be taking along an Acom amplifier, just to make sure that he gets out! QSL via K4SV. (TNX K4SV and The Daily DX)

3V, TUNISIA. Francois, F8DVD will be visiting Djerba Island (AF-083) and will be active using the Djerba Scouts Radio Club callsign 3V8SM. He will be on HF using SSB only from the 23rd of June until the 4th of July. QSL via the bureau to F8DVD, or direct to Francois Bergez, 6 rue Liberte, 71000 Macon, France. (TNX VA3RJ and 425 DX News)

4W, TIMOR LESTE. Peter, G3WQU, is currently working in Dili, Timor-Leste (East Timor) and will be there at least until October 2004. He has been issued the callsign 4W3CW and runs 100 watt to multiband dipole covering 80 – 10 metre. QSL via his 4W3CW call book address to Peter McKay, UNMISET, PO Box 2436, Darwin, NT 0801, AUSTRALIA. (TNX G3WQU and The Daily DX)

5W, SAMOA and KH8, AMERICAN SAMOA. Ulli, DL2AH is heading to the Pacific Ocean for a holiday and is planning some HF activity while travelling. He hopes to operate as 5W0AH, Samoa, from the 3rd until the 15th of July and then from American Samoa (no callsign details) from the 27th until the 23rd of July. He will be using a FT897 and a GAP Titan vertical antenna. QSL via DL2AH. (TNX DL2AH and 425 DX News)

7P, LESOTHO. A group of North American amateurs, K5LBU (7P8CF), WW5L (7P8TA), W5MJ (7P8MJ) and VA7DX (7P8NK), will be operating from Lesotho over the period of 18th until 25th July. The team will operate on the HF bands only using SSB, CW, PSK31, and RTTY. If all goes to plan they will have at least one station operating 24 hours a day. QSL the 7P8 calls via the respective home call. (TNX NG3K)

9A, CROATIA. Feco, HA8KW will be operating as 9A/HA8KW/P from Prvic Island (EU-170) over 24th until 31st July. He will mainly use CW but will try SSB if he gets the chance. Feco will also enter the IOTA contest. QSL to HA8KW either direct (CBA) or via the bureau. (TNX HA8KW and 425 DX News)

CY9, SAINT PAUL ISLAND. A group of American hams (K5AAH, K5AB, KO4RR, N0RN, N5VL) and a Canadian (VE7SV) will be signing as CY9A from St Paul Island (NA-094) over the period of the 24th of July until the 2nd of August. They plan to be active on all bands 160 – 6 metre using CW, SSB and digital modes. The group will be taking amplifiers, yagis and a few multiband verticals along. The seawater ground plane for the verticals should help give them a low angle of radiation. QSL via N5VL (TNX N5VL and 425 DX News)

GM, SCOTLAND. A group of GM operators will be on the island of Benbecula (EU-010) in the Outer Hebrides on the North East coast of Scotland on the 26th and 27th of July. The team will comprise John, MM0CCC; Robert, MM0ANT; Colin, GM0CLN; Ian, GM4ZRR and Keith, M0FZM. QSL via MM0ANT. (TNX MM0CCC and The Daily DX)

IS0, MADDALENA and CAPRERA ISLANDS. Luigi, IZ5FKK will be active as IM0/IZ5FKK from the islands of Maddalena (EU-041) and Caprera (EU-041) over the period of the 10th until the 18th of July. Luigi says he will try to operate on as many HF bands as he can plus 6 m and 2 m. QSL via IZ5FKK. (TNX IZ5FKK and 425 DX News)

J3, GRENADA. W4/G4BKI, has moved home to Grenada. He says he will operate for a 12 month period as J3/G4BKI before he obtains a full J38 callsign. He is mainly active on 20 and 15 metre CW. (TNX G4BKI and 425 DX News)

JW, SVALBARD. Terje, LA3OHA is organizing a second expedition to Prins Karls Forland (EU-063) and is on the look out for operators. The Dxpedition is scheduled to take place between 11th and the 25th of July. If you are interested have a look at http://www.dxpedition.org/dxjwpk for further information. (TNX LA3OHA and 425 DX News)

KL, ALASKA. Lanny, W5BOS and Don, N5XG will be signing as W5BOS/AL5 and N5XG/KL6 from Walrus Island (NA-121), Alaska. The pair will be running stations on most HF bands using SSB and CW beginning at approximately 0200z on the 15th of July until 1500z on the 17th. QSL via the respective home calls. (TNX W5BOS and 425 DX News)

SV, GREECE. Petros, SV3FUO is visiting the Skopelos Islands (EU-072), Greece and plans to be active on 80 – 10 metre, plus 6 m, as SY8FUO. He will be on the Islands from the 1st until the 10th of July. QSL via SV3FUO. (TNX SV3FUO and 425 DX News)

VQ9, CHAGOS ISLAND. Larry, VQ9LA, has been very active recently on 20 metre RTTY. Have a listen around 14083-14090 kHz at 2200Z. Larry says that he will be there for about year. (TNX VQ9LA and OPDX)

5H, TANZANIA. Ramesh, VU2RKS is a YL operator who is currently active on 20 and 15 metre as 5H9KR from Mwanza in Tanzania. She prefers QSL cards to be sent direct to her via her call book address, which is Ramesh Krishnan, 4/1 'Madans' 3Rd Seaward Road, Valmiki Nagar, Chennai 600041, India. (TNX VU2RKS and The Daily DX)

Special Events

VI8, AUSTRALIA. The Darwin Amateur Radio Club will be operating a special event station with the callsign VI8NT to celebrate the Territory's 25 years of self government. VI8NT will be officially opened on 1st July and will run until 31st Dec 2003. The callsign will be aired by a number of VK8 amateurs, but only one may put it to air at any one time. Many amateurs lined up to operate the station on all bands and modes, and VI8NT will be entered in all major contests until the end of the year. Special QSL cards are being printed by Neil Penfold (who is also the QSL manager) and all QSLs will be welcome either direct or via the bureau.

SP, POLAND. The Polish special event station HF25KVW will be on air until the 25th of July to celebrate the 25th anniversary of the Polish club station SP5KVW situated in the city of Ostroleka. QSL to SP5KVW via the bureau. (TNX ARRL)

UA, RUSSIA. Vlad, UA1RG and a group of operators from Radio Club Vologda are planning to be active as R1PQ from Novaya Zemlya (EU-035). The team will have two separate stations operating for approximately ten days sometime between the 15th of July and the 15th of August. No QSL route was mentioned but perhaps details will emerge later. Novaya Zemlya is located in the Arctic Sea north of Siberia and was one of the old Soviet Unions nuclear weapons testing ground. I hope the equipment (and the operators) will be well screened from the harsh weather and environment, hi! (TNX UA1RJ and 425 DX News)

EN, UKRAINE. The special event callsign EN720K will be on air until the 15th of July to celebrate the 720th Anniversary of the city of Rivne. The station operators will be Paul, UT1KY; Igor, UR5KCE and Taras, UR5KDX. QSL direct via Massimo Balsamo (IK1GPG), Strada Statale 28 Nord No. 7, I-12084 Mondov (Cuneo), ITALY. All QSL's will be automatically returned via the Bureau. (TNX IK1GPG and The Daily DX)

W, USA. A special event station, WIT, will be on air from 5th until 27th July. The operators will be WA2VUY and K2MVW. The station is to commemorate the 100th anniversary of the bicycle marathon the 'Tour de France'. Special QSL cards are being printed that bear a photograph of 21 of the 22 surviving Tour de France champions (taken on the 24th of Oct 2002). QSL via WA2VUY. (TNX WA2VUY and OPDX)

YB, INDONESIA. The Indonesian special event station YB35AR will be on air to celebrate the 35th Anniversary of ORARI (Organisasi Amatir Radio Indonesia, 1968 - 2003). The station will be on air from Jakarta from 6th until 13th July. A group of Indonesian amateurs will be operating the station on all HF bands, including WARC, and 6 metre plus AO40. Modes will include CW, SSB, RTTY, SSTV and PSK31. QSL via the YB QSL bureau or direct to P.O. Box 8000, Jakarta 11000, Indonesia. Also, the ORARI headquarters station YE0HQ will take part in the IARU World Radio Championship over 12th and 13th July. (TNX The Daily DX)

A series of special memorial operation will be taking place in the coming months to commemorate Ignacy Lukasiewicz who was a Polish petroleum pioneer. Ignacy first distilled crude oil and designed kerosene lamps to light up the operating theatre in the Lvov hospital on 31st July 1853. He is the founder of the Polish petroleum industry and in 1854 is quoted as saying that "this lotion is the future wealth of this country, it's the welfare and prosperity for its inhabitants, it's a new source of income for the poor people and a new branch of industry, which shall bear plentiful fruits." Look for the following special event stations:

HF150IL July 1st-August 15th, QSL via SP8PJG.
3Z0IL July 25th-August 4th, QSL via SP8ZBX
SN0IL July 25th-August 4th, QSL via SP9PEE
EN3WLL July 25th-August 4th, QSL via UR4WXQ
HF8IL Aug 20th- Sept 10th QSL via SP8PJG

Dxpeditions

VK9XYL. A short note from Gwen, VK3DYL, to let us know of a change in their plans fro their VK9XYL Dxpedition later this year. Due to unavoidable airline schedule changes the operation from Christmas Island as VK9XYL will now take place from 13th until 27th Oct. The VK9CYL operation will now take place from 27th Oct until the 10th of Nov. This effectively shortens their overall time on air from Christmas Island but Gwen says the changes were unavoidable and totally beyond their control. The QSL route for both calls is still via VK3DYL.

A25, BOTSWANA and 7P8, LESOTHO. "The African Double Jump" is the name being given to the Dxpedition being organised by Joe, AA4NN; Mauro, IN3QBR and Fabrizio, IN3ZNR. The team are planning to operate from Botswana and Lesotho in early July. Their first stop will be South Africa where they will join up with Andre, ZS6WPX and if the opportunity arises they might put in some time on air from ZS. The guys will then head to Botswana for the first part of their "double jump" and plan to be on air from 2nd until 6th July using the calls A25NN and A25ZNR. There next stop will be Lesotho where they will be on air with the calls 7P8JB and 7P8NR from 7th until 12th July. Joe, AA4NN may travel to Mozambique afterwards, no mention whether he plans to operate from here though. No details of a QSL route as yet, but work them if you get the chance as a route will no doubt appear. (TNX AA4NN and The Daily DX)

FP, MIQUELON. Paul, FP/K9OT and Peg, FP/KB9LIE are planning another (their third) annual low-power DX vacation to Miquelon (NA-032). The pair will be their from 27th July until 5th August. They will operate CW and SSB and concentrate on the 160, 80, 40, 30, 17, 12 and 10 metre bands. As this is a low power 'DX vacation' special preference will be given to stations signing /QRP, mobileor portable, and Asian and Oceanian stations. QSL via home calls either direct or through the bureau. (TNX K9OT and 425 DX News)

VP2, MONTSERRAT. Three members of the Florida DXpedition Group, Bill W4WX (VP2MHX), William, N2WB and Bob, K9MDO (who are both waiting on their individual VP2M callsigns) will be there from 22nd until 29th July. Their equipment will comprise three Kenwood TS-570D's and will be active on most bands and modes. Bill says that this is a "little warm up for an upcoming San Andres trip in October". QSL via their home callsigns via the bureau or direct to their CBA address's. (QSL N2WB via his QSL Manager N2OO). (TNX W4WX and OPDX)

7P, LESOTHO. The planned Dxpedition to Lesotho from the 18th until the 25th of July will comprise Charles, K5LBU (7P8CF), Madison, W5MJ (7P8MJ), Neil, VA7DX (7P8NK), Tom, WW5L (7P8TA), Dave, K4SV (7P8DA) and Igor, W0IR (7P8IZ). This will be comprehensive all mode, all band

operation , 160 – 10 metre, with a good selection of equipment, including beams, dipoles and a couple of amplifiers. They also plan on keeping at least one station on air 24 hours a day. Charles, 7P8CF and Tom, 7P8TA will be the teams main SSB operators while Madison, 7P8MJ; Neil, 7P8NK; Dave, 7P8DA and Igor, 7P8IZ will be concentrate on the CW and digital modes. The DXpedition is operating under the banner of the Texas DX Society (http://www.tdxs.net/) and the Lone Star DX Association (http://www.dxer.org/lsdxa). QSL via each operator's home call, 7P8CF via K5LBU, 7P8TA via WW5L, 7P8MJ via W5MJ, 7P8NK via VA7DX, 7P8DA via K4SV and 7P8IZ via W0IZ. (TNX WW5L)

Round up

VI5WCP. Peter, VK3QI reports that the recent VI5WCP operation from from Waldegrave Island (OC-261) was on the air for 110 hours and logged 6698 QSOs (4326 SSB and 2372 CW). Most of the contacts were made on 20 m SSB (2709) and 30 m CW (1165). The continent breakdowns are Europe/2727, Asia/2086, North America/1431, Oceania/411, Africa/23 and South America/20. (TNX VK3QI and 425 DX News)

Stule, VK8NSB, has been busy on the air and as you can see below he has been burning the 'midnight oil' to good effect.

Station	Date	Freq. kHz	UTC
M3XWZ (IOTA EU-005)	26 Apr 03	21265	1433
KB5GL / 5 (IOTA NA-089)	26 Apr 03	21260	14.50utc
IB0DX - (IOTA EU-045)	26 Apr 03	21262	15.02utc
ID9RGE (IOTA EU-017)	26 Apr 03	21260	16.28utc

Bill Moore, NC1L, of the ARRL's DXCC office has confirmed that the following YI (Iraq) stations are acceptable for DXCC credits. YI/ON6TT, YI/SM7PKK, YI/S53R, YI/S57CQ, YI/F5ORF, YI/ON4WW, YI/VK4KMT, YI/EK6KB, YI/EK6DO and YI/ON5NT. Remember, work them first and worry later!

East Timor could be off the air for a short while. Thor Stefansson, 4W6MM, says that amateur operations is well and truly QRT, at least for him. After a staff change at the U.N. headquarters in New York an official has dispatched a message saying that "since the 'UNTAET' organisation's charter in East Timor expired on 20th May 2002, all ham radio operating authority also expired on that date". The successor organisation, 'UNMISET' does not have the same telecommunications authority to grant permission for amateur radio operations. The emerging East Timor government will eventually assume administrative responsibility for licencing (including amateur radio licencing).

Another short note from Thor that appeared in The Daily DX reads "Previous operations from East Timor with the 4W callsign prefix were under a United Nations provision allowing authorization and administration of ham radio operations by the United Nations 'during clearly defined transitional periods in the absence of a national government'. That period officially ended, according to UN officials, on May 20th, 2002. Consequently, all valid operations from East Timor now appear to have been limited to between March 1, 2000 and May 20, 2002. Since that date, licences apparently have to be issued by the newly created Ministry of Transports and Communications in East Timor, led by that bureau's minister, Dr. Joao Carrascalao. Apparently no licences have yet been issued by Dr. Carrascalao. Thor says East Timor now has its own telephone country code which leads him to speculate that it now has ITU status and "a callsign allocation is only a formality away."

There is a new **Antarctica Net running on 14300 kHz on Saturdays at 1900Z.** The net controller is LU4DXU who has been busy policing the stations queuing up for an Antarctican QSO. Recently, LU1Z (Esperanza Base) and DP1POL have put in appearances. (TNX LU4DXU and 425 DX News).

Roger, VK3FRS, has passed on a short note saying that the electronic 'log of the world' (LOTW) project has just released the software for beta testing. This electronic form of QSLing looks like it may well become the defacto QSL method for Dxpeditioners and DX stations, and probably many others too. For more details, and a free download of the required software, visit their website at http://www.arrl.org/lotw/

The cost of maintenance, and falling passenger numbers, has made this history-making Concorde supersonic airlinersuneconomical to run. The British Airways Concorde is scheduled for its last flight sometime in September, but by the time these notes are published the Air France Concorde will have flown for the last time across the Atlantic from New York to Paris. The special event station TM5SC, operated by Jerome F5ASD, was on the air from 25th May until 8th June to commemorate this last flight. If you were lucky enough to have worked TM5SC then the QSL route is via F5ASD either via the bureau or direct. (TNX F5ASD and 425 DX News)

I should not have to remind many that 6th June was the anniversary of D-Day. A number of special event stations were on air to mark the 59th Anniversary of the allied forces invasion of Europe.

TM6JUN, was on air using SSB and CW from 1st until 9th June. QSL via F5RJM either via the bureau or direct if you managed a QSO. (TNX F5NQL and 425 DX News)

TM6SME was also on the air, again using SSB and CW, from Sainte Mere Eglise from 6th until 20th June. QSL via F6IPS either via the bureau or direct for this one. (TNX F5NQL and 425 DX News)

F/ON6JUN/P was operating on all HF bands and 6 metre from Ranville, France over the period of 5th until 7th June. If you managed to work this station then QSL via ON6BV either via the bureau or direct. (TNX ON5SD and 425 DX News)

A recent example of using the newest mobile phone technology for amateur radio is a new internet site set-up for those of us who own a 'camphone' (yes a mobile phone with a built in digital camera). If you have one you might be interested in a new experimental website organised by the 425 DX News team. Take a picture of your shack, DXpedition, hamfest, contest stations etc (and adding your name and callsign) simply email your image (in JPG format) to 425.dxn@tamw.com. Your picture, and many others, can be viewed at the following website, http://425.textamerica.com

Quite a large bag of interesting stations on air this month, and our thanks go to the following individuals and organisations for the information. ON5SD, F5NQL, F5ASD, VK3FRS, LU4DXU, 4W6MM, NC1L, VK8NSB, VK3QI, WW5L, W4WX, K9OT, AA4NN, VK3DYL, WA2VUY, IK1GPG, UA1RJ, VU2RKS, VQ9LA, SV3FUO, W5BOS, LA3OHA, G4BKI, IZ5FKK, MM0CCC, N5VL, HA8KW, NG3K, DL2AH, G3WQU, VA3RJ, K4SV, ARRL, The RSGB, The Daily DX, OPDX (BARF 80) and 425 DX News.

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Part 27 – *Home Brew Computers*

Not so long ago, if Radio Amateurs wanted to go on air, the only solution was to modify surplus equipment or start from scratch and build a rig. Today, few RAs would even consider home brew because the majority of essential radio components are no longer stocked in popular 'enthusiast stores'. There's plenty of commercial RA equipment, both new and secondhand at agreeable prices for shallow pockets. However, building a new computer today is but a small fraction of the cost for a new HF/VHF transceiver – with no need of soldering iron or to shop around for components. It takes just one hour to assemble a new computer ready for your Ham Shack. All the new digital modes will be at your fingertips.

Start a Wish List

Write a wish list of what you'd like the new computer to actually do in the shack - like packet radio, PSK31 and other fuzzy modes, logging, databases, word processing and station control tasks etc. Some readers might already have digital cameras, modems, colour printers, and need to upgrade. Others might want to start from scratch. The list will point to the criteria for the computer specification. Tease out essential information that lists the requirements. One example being those modern transceivers has serial ports ready for computer control. Sound cards and CD-ROM drives are essential for fuzzy modes, and loading software.

The Motherboard

Use popular magazine adverts (2) as a guide to prices and to check the current motherboard offerings for the number of PCI slots, serial ports, printer port, USB sockets, ethernet access, internal audio and graphics capabilities etc. Two types will emerge, those intended for Intel processors like the Celeron and Pentium 4 devices. Others are designed for Duron and Athlon processors developed by AMD.

There are dozens of motherboards on the market from much less than $200 through to $1,000 or more. A typical 'budget' computer might end up with an Intel Celeron 1.7-GB processor and motherboard with integrated sound, graphics display, two serial ports for the rig and TNC etc, and one parallel

port for the printer and automatic CW keying. Look for ATX or mini ATX style boards with PS2 mouse and keyboard connections – and USB-2 sockets. If you intend running two or more computers on a home network – an ethernet port as well. In addition, look for motherboards with at least three PCI (white) slots for easy expansion like polling serial port cards. Once this research has been completed, the hard part has been done.

A Parts List

Start with a good ATX case. A midi-tower is preferred for placement under the shack bench out of the way. Avoid desktop cases with the monitor perched on top. The operating ergonomics are obvious because your eyeline will do gymnastics trying to see the screen, operate the rig and entering data on the keyboard! So, the case disappears under the bench for convenience. Look for cases with a 300-Watt internal power supply, three 5-inch, and one 3 _-inch floppy drive slot. Avoid cases where the top and side cover has to be removed in one piece. Tight fitting separate sides with interlocking slots are preferred, especially when good RF grounding is needed in a Ham Shack. All the interconnecting colour-coded leads come with modern cases at less than $100 for a decent case.

Top end processors are always expensive, so look for AMD or Pentium 4's with a speed of around 1.7-2.5-GB. Hard drives start at 40-GB these days, and are fairly cheap to buy. Less than $150 will buy a nice Seagate or Maxtor running at 7,200-RPM with the grunt in a busy AR environment.

DDR Memory comes in single plug-in strips with 256-MB or 512-MB if you can afford the extra for around the $100 mark for keen shoppers. AOpen sell first class 52X-CD-ROM drives for about $50, or upgrade to a CD-R/W (read/write) drive below $100 is worth considering. This makes backups and CD-ROM copies a breeze. Avoid "el-cheapo's" from emporiums that cost less, with unknown brand names otherwise it will cost big money in the long term. A good Panasonic floppy drive, generic Windows keyboard and a wheel mouse together with a nice flat-screen 17" digital monitor – all up will cost less than $1,000 for the lot. Use this as your target price, then make the Parts List from several columns of options like:

1. Intel Pentium 4 1.8-GB or better.
2. The AMD equivalent
3. Lower priced Celeron, or a ...
4. Duron from AMD

Once the shopping list has been finalised, check the list with an experienced friend and seek their advice. Be prepared to make small changes here and there, and add those changes to the options. Don't forget why you have to do this – it's all got to work well in your Ham Shack the first time. Failure to plan means planning to fail. Never walk into a computer store and seek their advice, they'll try to sell you what they want to get rid of!

The Pitfalls

1. Motherboards come in dozens of flavours. Some modern boards lack serial ports, printer ports, have just one PCI slot, use obsolete RAM, don't have USB-2 sockets etc. Others include firewire sockets, multi-channel surround sound, and other non-essential AR features. Many AR related devices wouldn't connect to these boards, so take care with your selection. A fully integrated system might need six serial ports for the AR equipment, USB for printer and digital camera, and an 10/100 ethernet connection for your network – it all depends upon your requirements. It's nice to have all the port options just in case you need to upgrade/change peripherals. It can cost you more to add PCI-serial adaptor cards only to find you've not enough slots for the additions!
2. Include a mobile rack allowing speedy hard drive(s) removal.
3. Choose a hard drive that runs at 7,200-RPM for extra speed.
4. To allow easy experimentation, opt for a front case access panel for audio, serial and USB ports. If you are developing digital devices etc, this is a nice feature to have.
5. A rear two-serial motherboard with PS2 keyboard and mouse access gives you three serial ports!
6. Include an extra EIDE cable ready to add a secondary hard drive later.
7. Always include a mains power surge protection board with extra sockets for modems, scanners, printers, and the like.
8. If your chosen case lacks side panel, front, and rear ventilation holes – choose another case! Make sure your new computer runs cool!

Tools, Odds and Ends

1. Screwdrivers with crosshead and flats in various sizes.
2. Anti-static wrist strap earthed via the computer case. The power cord should be connected to an earthed power outlet – with the power SWITCHED OFF! Alternatively, firmly ground the case to the station earth terminal.
3. Small selection of black plastic cable zip up straps to tidy up the computer innards when finished. Ensure internal cables don't inhibit airflow and ventilation.
4. Off-cut of carpet (a $1 carpet shop sample) to protect the shack workbench and the new computer while assembly is proceeding.

Assembly Time

Start by fitting the processor and RAM to the motherboard, then the motherboard into the case. Connect the power supply, front LED's reset and power switch leads to the motherboard. The colour coded leads should be easy to follow from the motherboard layout documentation.

Add the mobile rack and hard drive assembly into the lowest of the 5-1/4" drive bays. Next, the CD-ROM drive which goes into the upper bay, and then the floppy drive to the 3-1/2" bay. Make sure that the hard drive has the link in the 'master' position, then connect the primary EIDE socket to the hard drive with the supplied ribbon cable. Use the secondary EIDE slot for the CD-ROM (that's the extra cable mentioned before), and add the audio cable between the CD drive and the motherboard. If you run both drives from a single primary EIDE socket, the new computer will be sluggish.

Assembly should be straightforward. Double-check everything, don't over tighten screws, turn the case around to make sure nothing drops out like rogue screws etc! Connect the monitor, keyboard and mouse and you're ready to power-up and test your creation.

Software

A boot-up floppy disk is essential. It should preferably have DOS command.com, format.exe, and other disk tools to startup your computer.

Switch on and watch the screen for the BIOS setup by selecting the Delete key when prompted. Set the BIOS recommended by the motherboard manufacturer. Choose the boot-up sequence as A-CD-C. Save the settings and reboot again with the boot floppy in drive A: The A:\ prompt should be seen ready to format C:\ and to prepare the hard drive.

Your new computer is ready to load your software starting with the operating system (OS) such as Windows 98SE/ME/XP or Linux as your preferred system. Once the OS has been checked, applications software can be added one by one.

Completion

Assembling the new computer from scratch should take less than one hour, and adding the OS might take another 45 minutes. However, the applications, Internet, printer and modem drivers, rig control etc might take several days of spare time – depending upon desired options. It all depends upon your own expertise and experience. For readers trying this for the first time, **don't panic!** Follow the instructions in the motherboard handbook, don't rush things, never force plugs into sockets, and slowly follow the colour-coded connections. These days, motherboards are "jumper-less", and devices are all Plug-and-Play.

Summary

This article briefly describes how to build a computer in less than one evening in the shack. For experienced readers – it's easy and fun to do. However, for assertive newcomers to computing, some light bedtime reading about *Ham Shack Computers* (1) from this series will give you all the information needed to do the job. Much had to be abbreviated due to lack of space in this publication – and the writer makes no apology except to offer motivation to readers who are prepared to take-up the challenge and save money by doing so.

Don't you think it's tempting to end up with a fully computerised Amateur Radio Station that will be the envy of any visitor? Just watching things happen is exciting, but making things happen should be your quest as it puts the fun back into Amateur Radio.

Ham Tip No. 27. Always keep a boot-up floppy disk handy with ScanDisk, Defragmenter, and format.com files ready to diagnose hard drive problems.

Ham Shack Computers, Part 28 – next month highlights common FAQ's from this series sent in by readers.

1. Ham Shack Computers Web: www2.tpg.com.au/users/vk6pg
2. "*Putting it all together*" in APC Magazine April 2003. pp.124-129. ISSN-0725-4415

73's de Alan, VK6PG

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Contests

Ian Godsil VK3VP, Contest Manager

Calendar July - September, 2003

Jul 5	Jack Files Contest	(CW/SSB/PSK31)	(May 03)
Jul 5	NZART Memorial Contest	(CW/SSB)	
Jul 5/6	Original QRP Contest	(CW)	
Jul 12/13	IARU World Championship	(CW/SSB)	
Jul 19	Pacific 160 Metres Contest	(CW/SSB)	(Jun 03)
Jul 19	Colombian Independence Day Contest	(CW/SSB/RTTY)	
Jul 26/27	Russian RTTY Contest		
Jul 26/27	Venezuelan Independence Day Contest	(CW)	
Jul 26	Waitakere Sprint	(SSB)	
Aug 2	Waitakere Sprint	(CW)	
Aug 9/10	Worked All Europe DX Contest	(CW)	
Aug 16/17	RD Contest	(CW/SSB/FM)	(Jul 03)
Aug 16/17	Keymen's Club of Japan Contest	(CW)	
Aug 23/24	TOEC WW Grid Contest	(CW)	
Aug 30/31	SCC RTTY Championship		
Aug 30/31	YO DX HF Contest	(CW/SSB)	
Aug 30/31	ALARA Contest		(Jun 03)
Sep 6/7	All Asian DX Contest	(SSB)	
Sep 13/14	Worked All Europe DX Contest	(SSB)	
Sep 27/28	CQ/RJ WW RTTY Contest		

Results Harry Angel Sprint 2003

CW Section

1. VK5NJ	John	72 points
2. VK5XE	Ian	30
3. VK2MQX	Chris	22
4. VK2QF	Neville	20
5. VK2ANZ	Neville	18

SSB Section

1. VK5SR	S.E.R.G.	62 points
2. VK3IO	Ron.	54
3. VK4YZ	Charlie	41
4. VK2LCD	Chris.	34
5. VK2AKB	Karen	33
6. VK7JGD	Garry	32
7. VK2JAH	Laurie	30
8. VK5AIM	Steve	25
9. VK2JHN	Walter	13

MIXED MODES Section

1. VK3JS	Ian	74 points
2. VK4SN	Alan	54
3. VK8AV	Alan	44
4. VK1AI	Greg.	32
5. VK5UE	Col.	16

Comments

A total of 19 logs received this year. Participation was good and band conditions quite favourable. Sincere thanks to you all for your efforts.

Several people commented about this event coming at the end of a very long day for those of us who have been involved in Dawn Services and other ANZAC Day activities.

Suggestions have been made that the event needs to be either earlier in the night, on the Saturday nearest ANZAC Day, or at a different time of the year. Any comments on these ideas will be much appreciated.

73, Ian Godsil VK3VP, Contest Manager

Waitakere Sprints 2003

The Western Suburbs Radio Club is pleased to announce that the Waitakere Phone Sprint will be held on Saturday July 26th 2003 and the CW Sprint will be on Saturday August 2nd 2003

The contests are of one-hour duration on 80m, and are open to all licensed amateurs in ZL, VK and Oceania call areas.

Object of the Sprints

The operator's basic goal in the sprints is to make as many contacts as possible, without duplication, during an hour of operation on a single band. Any contact with ZL, VK or Oceania stations on 80 during the contest period can be counted, but a station may be claimed only once.

Eligibility

The Waitakere Sprints are open to all licensed amateurs anywhere in the ZL, VK and Oceania call areas. SWL logs will also be welcome.

Contest Periods

Phone: 1000 to 1100 UTC, on July 26th 2003

CW: 1000 to 1100 UTC, on Aug 2nd. 2003

Frequencies

Phone: Frequencies between 3.550 to 3.700 may be used.

CW: Frequencies between 3.500 to 3.550 may be used.

Continued on page 43

2003 Remembrance Day Contest

16/17 August 0800z Sat - 0759z Sun

Presented by Alek Petkovic VK6APK

Purpose: This contest commemorates the amateurs who died during WWII and is designed to encourage friendly participation and help improve the operating skills of participants. It is held close to 15 August, the date when hostilities ceased in the south-west Pacific area.

It is preceded by a short opening address by a notable personality transmitted on various WIA frequencies during the 15 minutes prior to the contest. During this ceremony, a roll call of amateurs who paid the supreme sacrifice is read.

A perpetual trophy is awarded annually to the WIA Division with the best performance. The name of the winning Division is inscribed on the trophy, and that Division then holds the trophy for 12 months. The Division also is given a certificate, as are leading entrants.

Objective: Amateurs in each VK call area will endeavour to contact amateurs in other VK call areas, ZL and P2 on

Bands: 1.8 - 30 MHz (no WARC). On 50 MHz and above amateurs may also contact other amateurs in their own call area.

Contest Period: 0800 Z Saturday, 16 August to 07.59 Sunday, 17 August, 2003. As a mark of respect, stations are asked to observe 15 minutes silence prior to the start of the contest, during which the opening ceremony will be broadcast.

Rules:

1. Categories:
   (a) High Frequency for operation on bands below 50 MHz;
   (b) Very High Frequency for operation on and above 50 MHz;
   (c) Single Operator;
   (d) Multi-operator;
2. Within each Category the *Sections* are:
   (a) Transmitting Phone (AM, FM, SSB, TV);
   (b) Transmitting CW (CW); Note: Digital modes such as Packet, RTTY, AMTOR, PSK31 etc are excluded from the contest.
   (c) Transmitting Open (a) and (b);
   (d) Receiving (a), (b) or (c).
3. All amateurs in Australia, Papua New Guinea and New Zealand may enter the contest, whether their stations are fixed, portable or mobile.
4. Cross-band and cross-mode contacts are not permitted.
5. Call CQ RD, CQ CONTEST or CQ TEST.
6. On bands up to 30 MHz stations may be contacted once per band using each mode, ie twice per band using CW and Phone. No points will be awarded for contacts between stations in the same call area on HF.
7. On 50 MHz and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than two hours since the previous contact on that band and mode.
8a. Both single and multi-operator entries are permitted. To be eligible as a single operator, one person must perform all operating and logging activities without assistance, using his or her own callsign. More than one person can use the same station and remain a single operator providing that each uses his or her own callsign, submits a separate log under that callsign and does not receive operating or logging assistance in any way during the contest.
8b. Holders of more than one license or callsign may submit a separate entry for each callsign held.
9a. Multi-operator stations are only allowed one transmitter per band/mode at any one time. Simultaneous transmissions on different bands are permitted. Simultaneous transmissions on the same band but different modes are permitted.
9b. Automated operation is not permitted. The operator must have physical control of the station for each contact. CW and voice keyers are permitted, as is the use of computers for logging.
10. For a contact to be valid, numbers must be exchanged between stations making the contact. *Exchange* RS for phone and RST for CW, followed by three figures commencing at 001 and incrementing by one for each successive contact.
11. Contacts via repeater (including satellite) are not permitted for scoring purposes. Contacts may be arranged through a repeater. Operation on repeater frequencies in simplex is not permitted.
12. Score: on 160 m two points per completed valid contact; on all other bands one point; on CW double points.
13. Logs should be in the format shown below and accompanied by a
    Summary Sheet showing callsign; name; address; category; section; for multi-operator stations a list of the operators; total score; declaration: *I hereby certify that I have operated in accordance with the rules and spirit of the contest*; signed; date.
14. Entrants operating on both HF and VHF are requested to submit separate logs and summary sheets for both areas.
15. VK entrants temporarily operating outside their allocated call area, including those outside continental Australia as defined for DXCC, can elect to have their points credited to their home Division by making a statement to that effect on their summary sheet(s).
16. Send logs and summary sheets to: RD Contest Co-ordinator, A Petkovic VK6APK, 26 Freeman Way, Marmion, WA 6020, by Friday 19 September, 2003. Endorse envelope Remembrance Day Contest on front outside. Late entries will not be eligible.
17. Certificates will be awarded to the leading entrants in each section, both single and multi-operator; in each Division; P2 and ZL. Entrants must make at least 10

contacts to be eligible for awards, unless otherwise decided by the Contest Manager.

18. Any station observed as departing from the generally accepted codes of operating ethics may be disqualified.

Determination of Winning Division:

Unless otherwise elected by the entrant concerned, the scores of VK0 stations will be credited to VK7, and the scores of VK9 to the mainland call area which is geographically closest. Scores of P2, ZL and SWL stations will not be included in these calculations.

For each Division, an improvement factor will be calculated as follows:

(a) For transmitting logs only, HF and VHF Benchmarks for each Division will be established, against which its performance for the current year is judged. The same formula will be used for HF and VHF, inserting the appropriate figures:

B = 0.25P + 0.75L

where B = this years benchmark, P = last years total points, and L = last years benchmark.

(b) For each Division, HF and VHF Improvement Factors will then be calculated. Once again the same formula will be used for both HF and VHF, inserting appropriate figures:

I/F = Total points (this year)/Benchmark

where I/F = improvement factor.

(c) For each Division, the HF and VHF Improvment Factors will then be averaged:

Overall I/F = (HF I/F + VHF I/F)/2.

(d) The Division which achieves the highest overall improvement factor will be declared the winner.

2003 Benchmarks

These are the total scores which must be obtained by each Division to improve on its results of last year:

Div	HF	VHF
VK1	615	189
VK2	3950	132
VK3	3246	5871
VK4	3509	1302
VK5/8	3572	1662
VK6	2390	4315
VK7	1565	935

Receiving Section Rules

1. This section is open to all SWLs in Australia, Papua New Guinea and New Zealand. No active transmitting station may enter this section.
2. Rules are the same as for the Transmitting Section.
3. Only completed contacts may be logged, ie it is not permissible to log a station calling CQ.
4. The log should be in the format shown below.

Example Summary Sheet

Remembrance Day Contest 2003

Callsign: VK3VP
Name: Ian Godsil
Address: 363 Nepean Highway, Chelsea,3196
Category: HF/Single Operator
Section: Transmitting CW
Total Score: 1000
Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the Contest.

Signed: Ian Godsil ***Date***: 30 August 2003

Example Receiving Log

Name/SWL Nr: L33071
Category: HF
Section: Receiving Phone

Time (UTC)	Band	Mode	Calling	Calling	Nr	Nr	Pts
0801	14	SSB	VK1XXX	VK2QQ	58001	59002	1
0802	14	SSB	VK1XXX	VK6LL	59002	59001	1
0806	14	SSB	VK5ANW	VK1XXX	59001	59003	1
0809	14	SSB	VK7AL	VK2PS	59007	58010	1

Examples of logs:

Example Transmitting Log

Remembrance Day Contest 2003

Callsign: VK1XXX
Category: HF/Multi Operator
Section: Transmitting Phone

Time (UTC)	Band	Mode	Call	Nr Sent	Nr Rcvd	Pts
0801	14	SSB	VK2QQ	58001	59002	1
0802	14	SSB	VK6LL	59002	59001	1
0806	14	SSB	VK5ANW	59003	59001	1
0808	14	SSB	ZL2AGQ	56004	57004	1
0811	14	SSB	VK4XX	59005	59008	1

Port Macquarie field day results

Results

2 m Talk-in	WINNER= VK2BZC PAUL,	R/U= VK2BYY-JEFF
80 m One TX	WINNER= VK2ZCM CRAIG	R/U= VK2BI -BRIAN
2 m Two TX	WINNER= VK2ZCM CRAIG	R/U= VK2BYY-JEFF
10 m One TX	WINNER= VK2ZW KIM	R/U= VK2BI BRIAN

2 metre Pedestrian
WINNER= SARAH PIPER (Booral)
R/U= VK2ZCM CRAIG

Fox Hunt Champion
VK2ZCM CRAIG(16 Points) R/U VK2BI BRIAN(7 Points)

Best Presented Foxhunt Vehicle
VK2DGT KEN

Home Brew
VK2GD-ALAN

Guessing Comps

No. of jelly babies	VK2XXU-WILL
Weight of box screws	VK2URK-RODNEY
What's inside bottle	VK2DGT-KEN
What's in kitchen box	VK2TT-TREVOR

Quiz

Ladies' X Word	VK2HZV JUDY	Ladies' Quiz	ALISON of 2GJ
Men's X Word	VK2CLL LARRY	Men's Quiz	VK2CLL LARRY

Men's Lucky Door
($50 DSE Voucher) VK2HOT-BRUCE

Ladies' Lucky Door

1=(Basket Goodies)	ROBYN, XYL of VK2DGT
2=(Wardrobe Pack)	XYL of VK2FA
3=(Manicure Pack) P	AM, XYL of VK2PE

Major Raffle

1ST $100 Big W	VK2TSR GARRY (Sydney)
2ND $25 Dinners (Westport B/C)	VK2DV SNOW
3RD $25 Dinners (Westport B/C)	VK2FSH CHARLES
4TH Wine Pack	VK2CLL-LARRY

Waitakere Sprints 2003

Continued from page 41

Power

In fairness and consideration to others we request that NO LINEAR AMPLIFIERS be used in the contest.

Contest call

CQ Sprint, CQ Test or CQ Contest.

Exchanges

Minimum exchange for a valid contact will consist of a serial number, sent and received.

The serial numbers must start at 001 and increment by one for each contact made.

Note :- Time and signal reports are not required.

Awards

Certificates will be awarded to the overall winner and to the best score in each ZL call area and to the best three scores from VK/Oceania. Other certificates may be awarded at the discretion of WSRC.

SPECIAL AWARDS

To encourage contestants to enter both Sprints we have decided to issue a Special Certificate to the entrant with the Highest combined score. The method of calculation will be: - (Phone points + CW Points) x 2.

All logs received will be considered for this award. To qualify for the multiplied points each log must contain a minimum number of valid contacts.

ie. Ten (10) for Phone, and Five (5) for CW.

Logs

A separate log must be submitted for each Sprint and must be clearly marked PHONE or CW..

Contest logs must show for each contact:- Callsign of station worked, serial number sent, serial number received.

SWL logs must show both Callsigns in the QSO also both serial numbers.

Logs may be sent by Packet Radio please use three columns only with no commas or other delimiters. Any logs received by packet will be acknowledged by the same medium.

Logs are to be in the hands of the contest manager: -

ZL1BVK. Alex Learmond, 14 Takapu Street Henderson Auckland. 1208.

Packet to ZL1BVK @ ZL1AB.

Email zl1bvk@xtra.co.nz

No later than 1st September 2003

Operator Information

Each log must show the following details.

Mode
Callsign
Name
Address
Operating area (eg ZL1, ZL2)
Total Number of contacts claimed
A declaration that the operator has abided by the rules and spirit of the contest

Any entry which is clearly in violation of the rules or spirit of this contest or which contains an excessive number of duplicate contacts (this does not refer to duplicates which have been indicated as such and are not claimed) may be disqualified. The decision of WSRC (Inc) in respect of interpretation of these rules, the granting of awards and disqualifications will be final and no correspondence will be entered into.

Alex H Learmond ZL1BVK Contest Manager WSRC

Bill Magnusson VK3JT

Interference to AO-40 2.4GHz Downlink in Perth

Towards the end of May this year, Phil VK6APH informed the AMSAT bulletin board that an unusual form of interference had almost wiped out AO-40 operation in the Perth metropolitan area. Phil described it thus:

"You may not hear many VK6 hams on AO-40 for a while. Many of us are suffering from interference from some form of wide band data transmission centred on 2.4GHz. The signal covers much of the Perth metro area and is very strong. So strong in fact that it does not matter where you beam you can still hear it - mainly from reflections I expect. The signal, which runs continuously, sounds like a 100 Hz buzzing sound and has a bandwidth of about 4 MHz. Looking at the signal on a spectrum analyser it has a flat top and very steep sides. The signal started about 6 weeks ago and one suggestion is that it might be an image response of our S band down converters to the 2.1 GHz G3 mobile phone service that have just started tests".

Phil went on to say that he was organising a DF party for the following weekend and that he would report his findings to the bulletin board. Indeed he did! Below is his latest bulletin on the subject:

"Many thanks to all those who replied to my recent posting regarding the widespread interference that many VK6 AO40 users are suffering. It turns out that the inerference is due to the commencement of trials of the new 3G mobile phone services in Perth. There are a handful of such test sites over the metropolitan area, one being 1km from my QTH. The 3G services operate in the range 2 - 2.2 GHz which falls into the image response of our S-Band down converters when using a 2 m IF. There are a number of ways to overcome the problem. In the long term we are going to need converters with higher image rejection. The JAs, who have had the same problem for some time, are using interdigital filters to notch out the image frequencies. Rather than modify our down converters we could fit a high-pass, or notch, filter in front of the converter. Unfortunately, the filter will have some loss that will add directly to the overall system noise figure. A simpler alternative is to use high side local oscillator injection. This shifts the image response to 2.7 GHz, which hopefully will be interference free. High injection will mean the converter will invert the tuning direction, but this is a small inconvenience to be back on AO40. I'm working with Charlie, G3WDG, to test this solution with his make of down converter. Based on being 1km line-of-site from a 3G base transmitter it would appear that I need an additional 60 dB of image rejection. This should be quite achievable. A few VK6 operators did not report any interference despite having a 3G base station near by. It would appear that some makes of down converter already have acceptable levels of image rejection. It would be useful to make a table of the image response of converters and if you have the ability to measure yours then I would be happy to collate the results. An Australian manufacturer - www.minikits.com.au -, VK5EME, has already modified his design to meet the rejection figures required. As annoying as the interference is, at least it's not in-band and with suitable engineering it can be overcome. With the projected explosion in the use of 3G mobile phones this could be one problem that many of us will face in the future".

Thanks very much for the input, Phil.

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding

AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034

Graham's email address is:
vk5agr@amsat.org

YACER (Yet Another Camera Experiment)

(Revisited) for Windows (Program Suite)

Package now available

Gunther Meisse W8GSM recently posted this information on the AMSAT bulletin board.

"For those of you interested in the AO-40 Spacecraft technology & Science, I am happy to announce the availability of the YACER Package. You can now capture, view, and analyze the YACE Camera Images and determine the spacecraft Alon/Alat directly from the telemetry beacon raw data stream, or from the AO-40 Archives. This Package includes all the software and documentation of the software, used by the AO-40 Command Stations in their day to day ascertainment of the spacecraft ALon/ ALat. Now you can do it yourself, in the shack. The package (YACER) is supplied as an auto extracting, zipped file containing file structure, the necessary data files to get started, the suite of software programs, the full 40

page documentation and User Manual, and a simple 'Readme.txt'. The documentation is supplied in .pdf format, so you must have Acrobat Reader. A word of caution. This package is not for the faint of heart. This documentation covers software written over the last two decades by some of the best minds in AMSAT, worldwide. We have attempted to make the documentation as friendly as possible, but you must be willing to take the time to read it cover-to-cover prior to getting started. Take your time with it, and you will have a BALL!!! The YACER Package is distributed at no charge. If you like it and use it, why not send a reasonable contribution (say $20.00) to your AMSAT organization. More money = more birds!"

A week or so after this announcement Gunther followed up with this bulletin: "I am pleased to announce that the Revised YACER101 software package is now available on the AMSAT-NA web site. (it was previously only available via email forwarding) The current version is YACER101.zip".

Thank you Gunther, the package mentioned above is available from: http://www.amsat.org/amsat/ftp/software/win32/analysis/yacer101.zip or by FTP from ftp.amsat.org , working down through the directories, /amsat/software/win32/analysis/yacer101.zip

Six-monthly Update of Operational Amateur Radio Satellites

AO-40 AMSAT OSCAR 40

Launched: November 16, 2000 aboard an Ariane 5 launcher from Kourou, French Guiana.

Status: Currently, the U/V/L-1/L-2 to S-2/K passband is active at various times.

Uplink V-band 145.840–145.990 MHz CW/LSB

U-band 435.550–435.800 MHz CW/LSB

L1-band 1269.250–1269.500 MHz CW/LSB

L2-band 1268.325–1268.575 MHz CW/LSB

SI-band 2400.350–2400.600 MHz CW/LSB

Downlink: S2-band 2401.225–2401.475 MHz CW/USB

K-band 24,048.010–24,048.060 MHz CW/USB

Beacon: 2401.323, 24,048.035

The "AO-40 FAQ", compiled by Steve, VK5ASF is now available at:

http://www.amsat.org

For the current transponder-operating schedule visit:

http://www.amsat-dl.org/journal/adlj-p3d.htm

ARISS - International Space Station

Worldwide packet uplink: 145.990 MHz FM

Region 1 voice uplink: 145.200 MHz FM

Region 2/3 voice uplink: 144.490 MHz FM

Worldwide downlink: 145.800 MHz FM

TNC callsign: RS0ISS-1

The ARISS initial station was launched September 2000 aboard shuttle Atlantis. ARISS is made up of delegates from several major national Amateur Radio organizations, including AMSAT.

Status: The ARISS station is operational but the packet system is not switched on at the time of writing. To assist in planning ISS contacts, the ISS daily crew schedule can be found at: http://spaceflight.nasa.gov/station/timelines/ When crew members have free time, they may be available for Amateur Radio operations.

U.S. callsign: NA1SS

Russian callsigns: RS0ISS, RZ3DZR

AO-7 AMSAT OSCAR 7

Uplink: 145.850 to 145.950 MHz CW/USB Mode A

432.125 to 432.175 MHz CW/LSB Mode B

Downlink: 29.400 to 29.500 MHz CW/USB Mode A

145.975 to 145.925 MHz CW/USB Mode B

Beacon: 29.502 MHz, 145.972 MHz, 435.1 MHz, 2304.1 MHz

Launched: November 15, 1974 by a Delta 2310 from Vandenberg Air Force Base, Lompoc, California.

Status: Semi-operational in sunlight. After being declared dead 21 years ago in mid 1981 due to battery failure, AO-7 has miraculously sprung back to life and was first detected by Pat Gowen, G3IOR on June 21, 2002 at 1728 UTC. Jan King, W3GEY reports AO-7 is running off the solar panels only. It will only be on when in sunlight and off in eclipse. Therefore, AO-7 will reset each orbit and may not turn on each time. On July 11, 2002 AO-7 was successfully commanded for the first time since it was declared dead 21 years ago. Commands were sent and accepted to change the CW beacon code speed. Command investigation continues. So far, 11 different commands have been accepted by AO-7.

AO-10 OSCAR 10

Our oldest operational amateur radio satellite.

Uplink: 435.030 to 435.180 MHz CW/LSB

Downlink: 145.975 to 145.825 MHz CW/USB

Beacon: 145.810 MHz (unmodulated carrier)

Launched: June 16, 1983 by an Ariane launcher from Kourou, French Guiana.

Status: Semi-operational.

AO-10 has been locked into a Mode-B, 70-cm uplink and 2-metre downlink for several years. It continues to give good contacts when the solar angles are favourable.

AO-14

Uplink: 145.975 MHz FM

Downlink: 435.070 MHz FM

Launched: January 22, 1990 by an Ariane launcher from Kourou, French Guiana.

Status: Operational, mode J.

RS-15 Radio Sport RS-15

Uplink: 145.858 to 145.898 MHz CW/USB

Downlink: 29.354 to 29.394 MHz CW/USB

Beacon: 29.352 MHz (intermittent)

SSB meeting frequency: 29.380 MHz (unofficial)

Launched: December 26, 1994 from the Baikonur Cosmodrome

Status: Semi-operational, mode-A, using a 2-metre uplink and a 10-metre downlink.

FO-20 JAS-1b

Uplink: 145.90 to 146.00 MHz CW/LSB

Downlink: 435.80 to 435.90 MHz CW/USB

Beacon: 435.795

Launched: February 07, 1990 by an HI launcher from the Tanegashima Space Center in Japan.

Status: Although listed as operational and in mode JA continuously, FO-20 has recently been reported silent by numerous operators.

RS-20

Beacon: 145.828, 435.319 MHz

Launched: November 28, 2002 aboard a Kosmos 3-M rocket from Plesetsk.

Status: Telemetry heard on the 70 cm beacon. RS-20 is an experimental payload aboard the Russian satellite known as Mozhayets — a navigational and scientific satellite. RS-20 transmits CW telemetry. Each frame begins and ends with the call sign RS-20.

FO-29 JAS-2

Launched: August 17, 1996, by an H-2 launcher from the Tanegashima Space Center in Japan.

Voice/CW Mode JA

Uplink: 145.90 to 146.00 MHz CW/LSB

Downlink: 435.80 to 435.90 MHz CW/USB

Beacon: 435.795 MHz

Digital Mode JD

Uplink: 145.850 145.870 145.910 MHz FM

Downlink: 435.910 MHz 1200-baud BPSK or 9600-baud FSK

Callsign: 8J1JCS

Digitalker: 435.910 MHz

Although listed as operational, FO-29 has recently been reported silent by numerous operators.

SO-41 SAUDISAT-1A

Uplink: 145.850 MHz

Downlink: 436.775 MHz

Broadcast Callsign: SASAT1-11

BBS: SASAT1-12

Launched: September 26, 2000 aboard a converted Soviet ballistic missile from the Baikonur Cosmodrome.

Status: Operational but intermittent. The spacecraft is operating in Mode-J, currently configured as an analog FM voice repeater, as power and spacecraft experiments permit.

SO-50 SAUDISAT-1C

Uplink: 145.850 MHz (67.0 Hz PL tone)

Downlink: 436.800 MHz

Launched: December 20, 2002 aboard a converted Soviet ballistic missile from the Baikonur Cosmodrome.

Status: Operational. SO-50 carries several experiments, including a mode J FM amateur repeater experiment operating on 145.850 MHz uplink and 436.800 MHz downlink. The repeater is available to amateurs worldwide as power permits, using a 67.0 hertz tone on the uplink, for on-demand activation.

UO-11 OSCAR-11

Downlink: 145.826 MHz FM (1200-baud AFSK)

Mode-S Beacon: 2401.500 MHz

Launched: March 1, 1984 by a Delta-Thor rocket from Vandenberg Air Force Base in California.

Status: Semi-operational. OSCAR-11 has continued to operate in a default mode, controlled by the watch-dog timer. The satellite transmits continuous ASCII telemetry for about seven days on 145.826 MHz, followed by about 14 days of silence. These times appear to be somewhat variable, and on the last occasion the sequence was ten days off and nine days ON. The mode-S beacon on 2401.5 MHz transmits continuously. At the present time, ground control are unable to command the satellite, due to low temperatures affecting the command decoder. They will attempt to command the satellite when the command decoder temperature has risen to 15C. A Windows program for displaying and capturing OSCAR-11 data is now available. This is MIXW2, a general purpose Amateur Radio data communication program written by Nick Fedoseev UT2UZ. You can download the program from www.mlxw.net You need the latest version 2.07.

AO-16 PACSAT

Uplink: 145.90 145.92 145.94 145.96 MHz FM

(using 1200-baud Manchester FSK)

Downlink: 437.026 MHz SSB (1200-baud PSK)

Mode-S Beacon: 2401.1428 MHz

Broadcast Callsign: PACSAT-11

BBS: PACSAT-12

Launched: January 22, 1990 by an Ariane launcher from Kourou, French Guiana. Status: Semi-operational, the digipeater command is on.

UO-22 UOSAT

Uplink: 145.900 FM 9600-baud FSK

Downlink: 435.120 MHz FM

Broadcast Callsign: UOSAT5-11

BBS: UOSAT5-12

Launched: July 17, 1991 by an Ariane launcher from Kourou, French Guiana.

Status: Operational but UO-22 has been reported as silent. On April 26, 2003 Chris Jackson, G7UPN reported: We're still assessing the situation, but as I posted late last year, when UO-22 entered eclipses again (last week) it was unlikely that the battery would supply sufficient power to operate the spacecraft. This is indeed the case, and the spacecraft is therefore now unusable at this time and on May 10, 2003 Chris reports: Possibly it is permanent. It is currently experiencing eclipses and can not support operations. I haven't run the analyses yet to see when this season ends, and for how long it will be in permanent sunlight again next time around, but it may be possible to revive it for a while at least. At the time of writing UO-22

Continued on page 55

HF Predictions

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

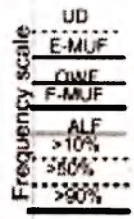
These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

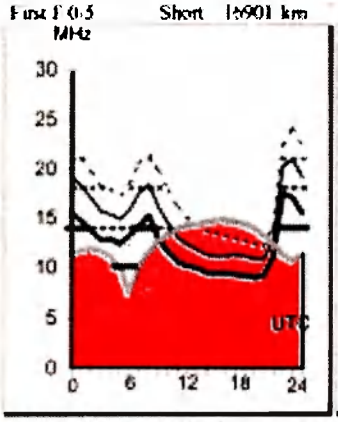
Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

July 2003
T index: 59

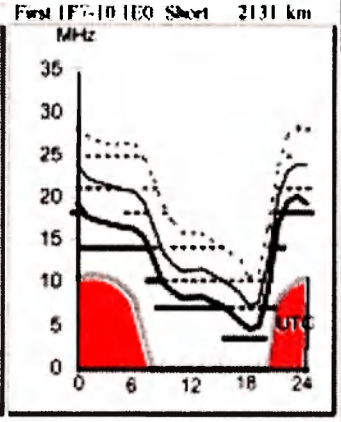
Legend



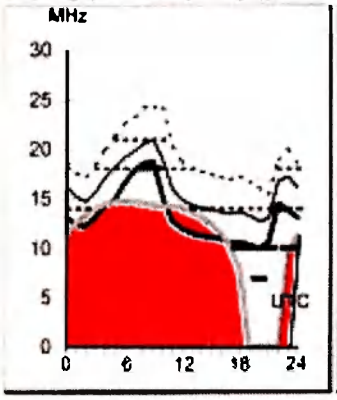
Adelaide-Ottawa 58
First F 0-5 Short 16901 km



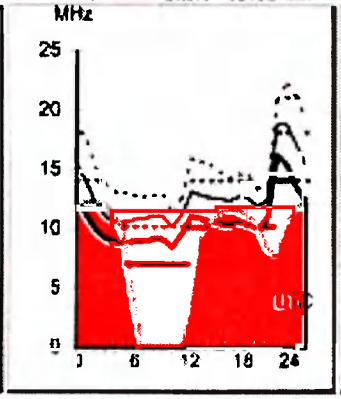
Brisbane-Honiara 21
First 1F5-10 1E0 Short 2131 km



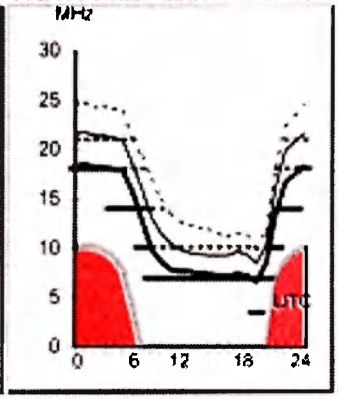
Adelaide-London 312
First F 0-5 Short 10269 km



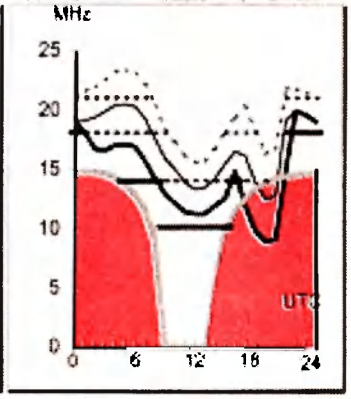
Brisbane-Montiveado 154
First F 0-5 Short 12432 km



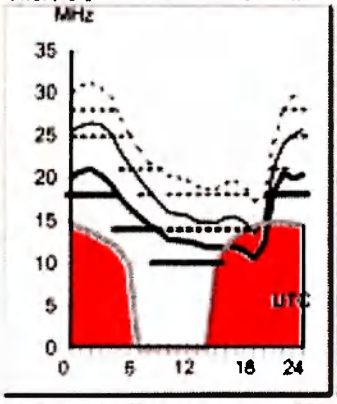
Canberra-Auckland 305
First 1F6-8 1E0 Short 2300 km



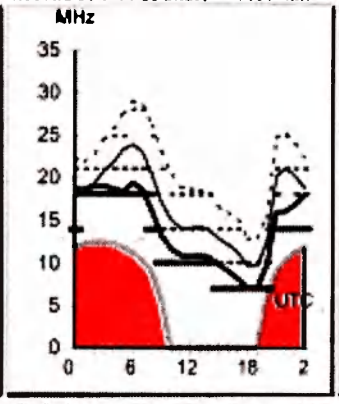
Darwin-Seattle 44
First F 0-5 Short 12282 km



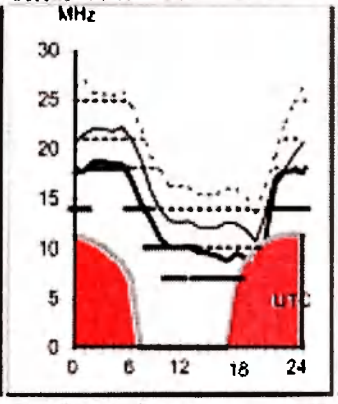
Adelaide-Los Angele 96
First F 0-5 Short 13159 km



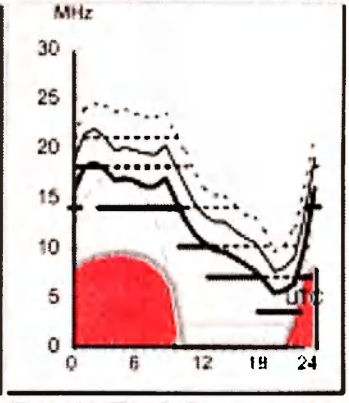
Brisbane-Tokyo 348
Second 3F6-11 3I Short 7159 km



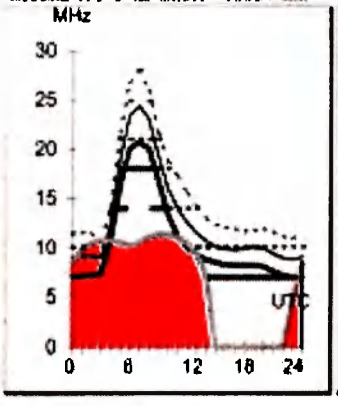
Canberra-Honolulu 50
Second 4F8-13 4I Short 8403 km



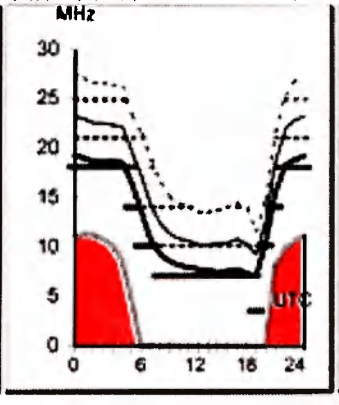
Darwin-Singapoer 295
Second 2F12-19 2 Short 3351 km



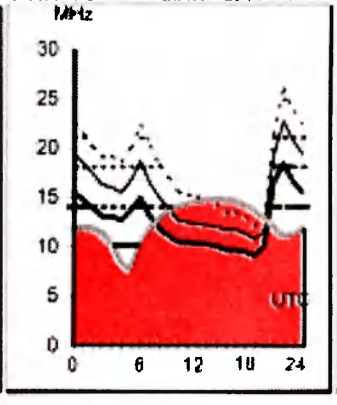
Adelaide-Pretoria 238
Second 4F5-6 4E0 Short 10064 km



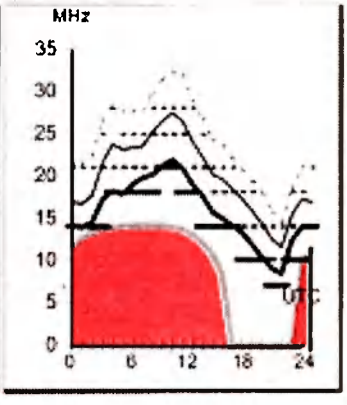
Brisbane-Wellington 133
First 1F5-6 1E0 Short 2508 km



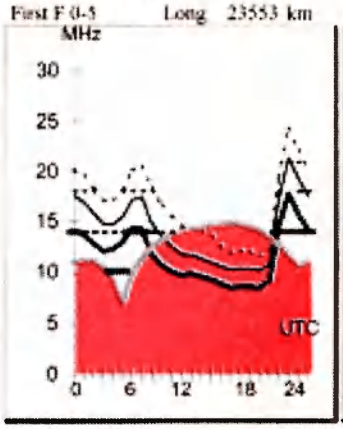
Canberra-Paris 336
First F 0-5 Short 23100 km



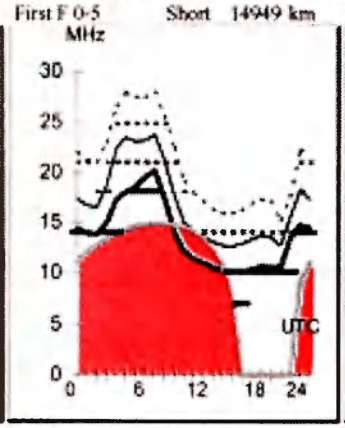
Darwin-Tel Aviv 301
Second 4F3-9 4E0 Short 11302 km



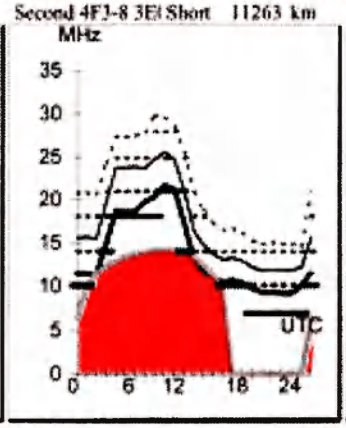
Hobart-Berlin 124
First F 0-5 Long 23553 km



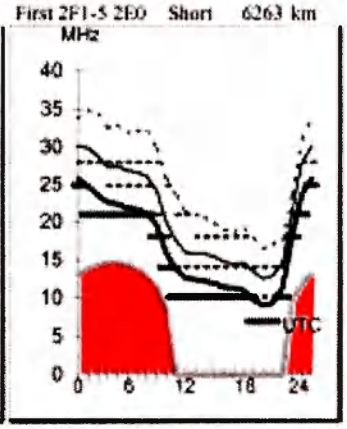
Melbourne-Athens 289
First F 0-5 Short 14949 km



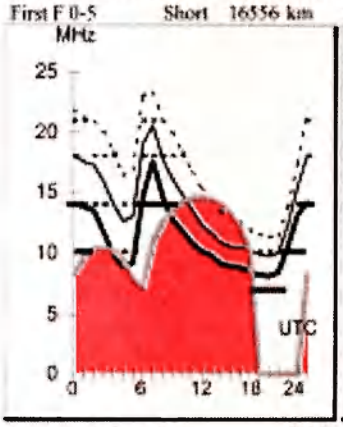
Perth-Cairo 298
Second 4F3-8 3E Short 11263 km



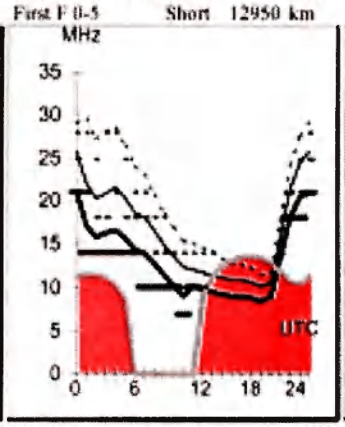
Sydney-Manila 324
First 2F1-5 2E0 Short 6263 km



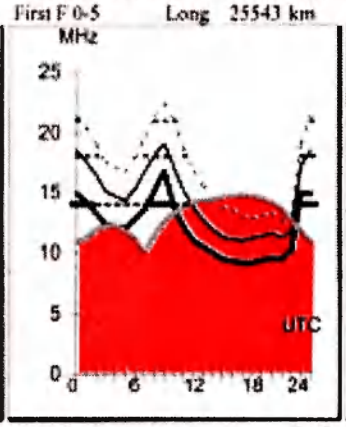
Hobart-Dakar 209
First F 0-5 Short 16556 km



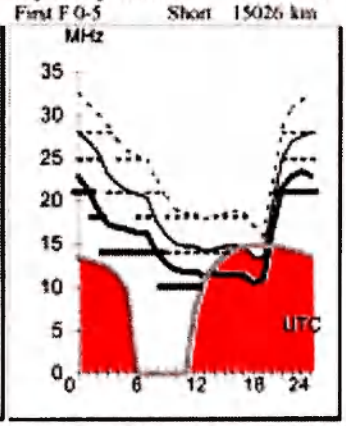
Melbourne-Lima 133
First F 0-5 Short 12950 km



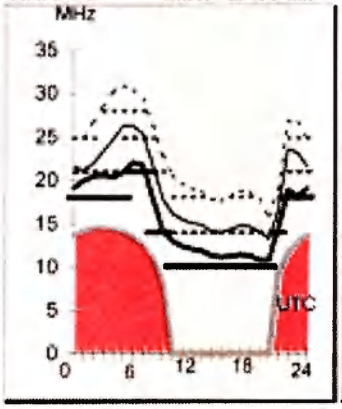
Perth-London 133
First F 0-5 Long 25543 km



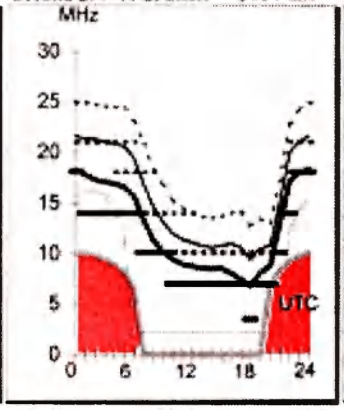
Sydney-Miami 86
First F 0-5 Short 15026 km



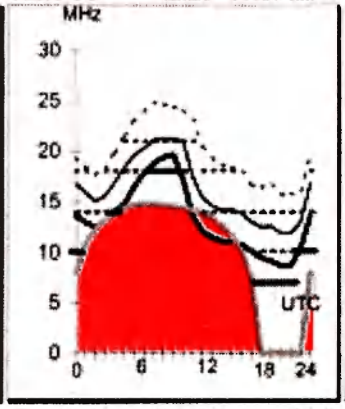
Hobart-Osaka 350
First F 0-5 Short 23451 km



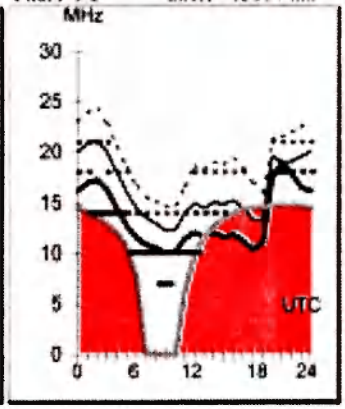
Melbourne-Suva 65
Second 2F9-11 2I Short 3914 km



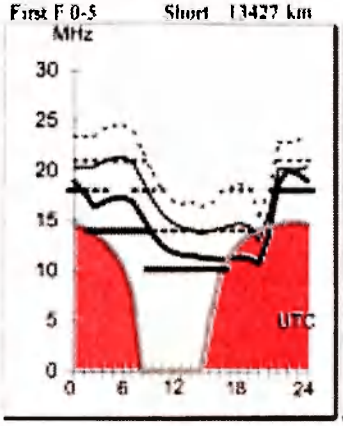
Perth-London 313
First F 0-5 Short 14481 km



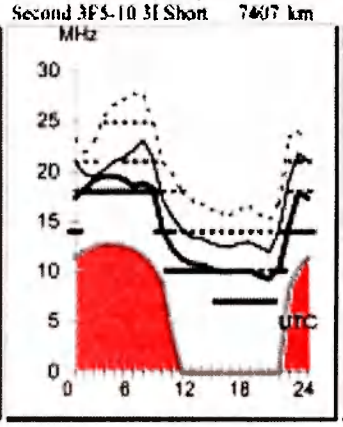
Sydney-Ottawa 58
First F 1-5 Short 15864 km



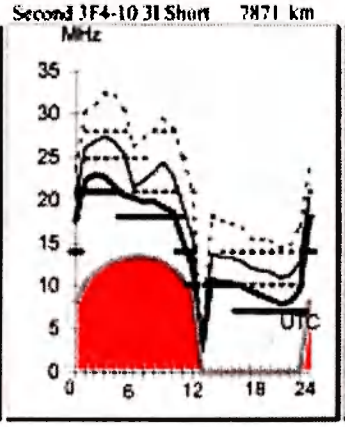
Hobart-Vancouver 49
First F 0-5 Short 13427 km



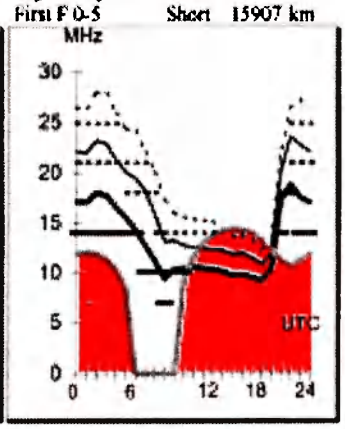
Melbourne-Taipei 337
Second 3F5-10 3I Short 7407 km



Perth-New Delhi 325
Second 3F4-10 3I Short 7871 km



Sydney-Surinam 133
First F 0-5 Short 15907 km



Product Review

ICOM IC-910H VHF/UHF Multimode Transceiver

by Doug McArthur VK3UM

I have been asked by many Amateurs during on and off air discussions, of my impressions and findings of this multimode VHF/UHF dedicated transceiver. As a result I have put together this, my warts and all, appraisal of the radio.

I have had mine for almost 12 months and in that time I have been able to assess the unit's performance and facilities without being constrained by a time scale. The radio, during this time, has not suffered a single failure.

My unit has been optioned for 23cms (UX-910) and the high stability crystal unit (CR-293) as well as the Digital Signal Processing (DSP) UT-106. These options were especially relevant to my particular fields of interest.

Icom has produced many dedicated VHF and UHF radios (many of which I have either owned or "played with") and this latest model provides top of the line performance commensurate with a multi functional radio. I would not go as far as to say the unit provides the best single band performance of all the previous radios, for it certainly does not, but as a compromise its performance and facilities are, in my view, un rivalled.

After unpacking the unit and hooking it up on the test bench (it requires an external 13.8v 25A supply) my first aim was to check the receiver sensitivity and power out put on all bands and modes. I need not have bothered as all exceeded the specifications listed in the handbook, however it does give you a "feel" for the radio's performance and confirms the manufacturer's quality control. Incidentally, the carrier suppression was found to be far in excess of that specified.

The tests took a lot longer than I care to admit. I had seemingly lost my ability to guess the latest "Icom way of multi functional button usage". All clearly explained in the manual mind you, but to front the box and drive it straight off left me struggling a tad.

My immediate reaction to all the facilities, functions, and variables was to question why would you need all these (to me) sophisticated inclusions.

The facilities are just amazing. Probably 60% you will never use, but given everybody's differing interests it will not be the same 60%. Whatever your interest or specific requirement you may have in VHF/UHF, you would be hard pressed not to find just what you require in this radio. I also could not help thinking of the problems a non-technical licensee would face understanding the terms, as well as the implications they would face setting up a modern day radio!

Fundamentally the selectable modes available are SSB (USB/LSB), CW (2.3 kHz), CW-N (500Hz), FM and in VK covers 144-148, 430-450, and 1240-1300 MHz (additional optional)

The IC-910H has two VFOs for each of the standard 2 metre and 70cm bands and each recalls the mode of operation. All provide selectable quick tuning in 1kHz or 1MHz steps. Also you may select the tuning steps from 1Hz (SSB/CW) to 100kHz (FM). Frequency entry can also be made from the front panel keypad.

Receiver functions provide a multitude of options. Most are multifunctional and can be can be set independently for each band or memory function. This is where I found the instruction manual essential as many functions, not initially apparent, were revealed! Here are some of the facilities available. Dual frequency watch, all mode squelch, receive incremental tuning (RIT), Intermediate Frequency (IF) Shift, Automatic Gain Control (AGC) time constant selection, Automatic Frequency Control (AFC for FM only), FM centre indicator, rudimentary (but very useful) band scope with adjustable sweep time interval, selectable attenuator, noise blanker (quite effective on rain static and pulse ignition noise), tone squelch frequency selection, Automatic Notch filter (ANF), Noise Reduction (NR) from the optional DSP unit, auto and manual setting of repeater operations, including tone gated squelch, full all facilities programmable scan function, including a most useful Tone scan facility. Another major feature is the Satellite Operation modes. That in itself could would require many paragraphs to explain. Additionally there are 212 memory channels available. (99 regular, 6 scan edges, plus 10 satellite memories.

Importantly, data communication is well catered for by the provision of rear panel data and accessory sockets. The IC-910H does not provide a Frequency Shift Keying (FSK) option but relies on using Audio Frequency Shift Keying (AFSK). It is stated it is capable of speeds up to 9600 bps.

Transmit wise the power output is a genuine 100 watts on 144, 75 watt on 70cms and 10 watts on 23cms on all modes. The level is infinitely variable

as mentioned above too. The 'on temperature demand' fan is fairly quiet and does not run all the time on receive as some other radios do. Note. 23 cm is not standard but is added as an option. (UX-910).

This radio adjusts power output on CW (or any other mode for that matter) without the spiked wave front many similar transceivers exhibit. (Yes this box has had 90% of its hundreds of contacts on CW!). It also has an in built keyer (no character store facility) semi break-in. with adjustable weighting, delay, pitch, and side tone level. In SSB and FM fully adjustable Voice operated Transmission (VOX) is included. Speech compression is also provided and from off air reports provides an advantage without noticeable distortion. Like most rigs, careful operator adjustment is essential to produce a clean on air signal.

But that's not all !...

The IC-910H can also be remotely controlled from a back panel socket via an RS-232C port. (It will require an optional CT-17 level converter). All the required commands are documented with in the instruction manual for those with a programming flare and nothing much to do on a cold winter's evening.

For the serious-minded, the radio provides, via the accessory output connector, internally programmable switching facilities for both remote transmit amplifiers and receive pre-amplifiers on all 3 bands. (Where fitted). This is a unique advantage for the multiband multi amplifier operator who wishes such switching. Unfortunately, for the "specialist user " who would like separate (rear panel) accessibly receiver inputs, this transceiver does not go quite that far! Hopefully Icom may address this in the future.

Here are some of my specific findings that may interest you gained from operating this radio over the past 12 months.

Receiver noise figure. I have measured all bands by Y factor substitution (corrected Sun Noise) and they equate to: 144MHz < 1.3 dB, 432MHz <1.6 and 1296MHz < 1.8. Not outstanding but well inside what could be expected for modern multiband transceivers. For really serious weak signal work Low Noise Preamplifiers are always must. Receiver sensitivity was measured and was found to be better than stated in the specifications.

The ability to monitor simultaneously two bands at the same time is a very useful and practical feature. A big tick!

The overall end to end gain and frequency stability is excellent. This may not appear important, but for me this characteristic is essential when measuring astronomical noise sources and delving for extremely low level Doppler offset signals. Although not a precision measuring instrument by a long chalk, it does however provide a most ample crosscheck for my purposes. Frequency resolution at ± 0.5 ppm is quite adequate even at 23cms. Note this an additional option. (CR-293). These properties will be of considerable benefit for those venturing in the new digital modes. (Eg JT44 and FSK441).

Large signal handling is better than most radios in its class. Similarly I also found the transmitted spectral quality adequate. Subjectively speaking, with our comparative low activity on the bands, you will not cause any excessive problems to your locals nor will they trouble you. If you happen to live close to a VHF pager transmitter you are unlikely to suffer the cross mode and overload problems many of today's rigs exhibit. If operating in a multi transmitter field day situation then the side band noise could require greater physical (space and or frequency) separation. The bottom line is that the IC-910H performs very well indeed compared with many other similar radios on the market and considerably better than the multi mode multi "all" band transceivers.

The bottom-line: A brilliantly performed Radio with most of the features you could ever desire!

RIT. For EME (and some Satellite applications) operators the range is not adequate. ± 1.0 kHz on 144 and 432 MHz (SSB/CW) or ± 2.0 kHz for 1296 MHz will not provide for the Doppler Shift found under certain circumstances. This is only a minor inconvenience as you can always use the dual VFOs.

Another minor facility lacking (that would be nice) is that it cannot select an alternate frequency display to show the actual and not the intermediate frequency. This would be useful for those that use this rig as an IF for transverters.

Noise blanker. Quite adequate but not fantastic. It handles most impulse noise and to some extent rain static. I am "picky" when it comes to noise blankers and this one, on my scale, rates 5 out of 10. It would also be nice to turn off the AGC.

The Auto Notch filter. Every rig should have one! Works a treat. I would wager most on VHF/UHF don't have CW QRM nor require its use but it's there for your birdies and it is very effective. The IF Shift is also most useful and very effective.

I have left the *DSP option* and its effectiveness to last. From the onset I should declare that my XYL claims I have always had selective hearing and only the sound of food gets through the built in filter. Seriously though, my ability to copy CW off the Moon in the noise (and even slightly below) has well "developed" over many years of practice. Along with this, my upper frequency response has fallen dramatically with time. My HI FI is any thing flat to 1kHz!! (Sounds familiar?). Anyway this is what I have found when using the DSP FFT filters. Others may find totally differing results. I believe a lot of the final effectiveness "can you read a signal better with DSP"? Can depend upon your own situation? Don't get me wrong, I too can mathematically prove to you that an improvement of x dB will be achieved with a FFT of x! The bottom line to all this with the DSP in the IC-910 (and a IC-756 for that matter) was a significant improved readability in cases of very marginal SSB signals where without DSP I could not copy the SSB signal but with it I was able. (I.e. a Q1 was improved to a readability Q3/4). However on CW my old ears seemed its equivalent!!?? Without doubt it is a most worthwhile feature and under weak signal SSB situations in particular the gain in readability can be dramatic. I have played with it considerably listening to my SSB signals off the Moon listening to the fascinating effects of libration fading taking place in such narrow bandwidths ... but that's another story!

The bottom-line: A brilliantly performed Radio with most of the features you could ever desire!

ar

VHF/UHF - An Expanding World

David Smith VK3HZ, vk3hz@wia.org.au
Leigh Rainbird VK2KRR, vk2krr@telstra.com

Dealing with a weak signal

Claims about the demise of weak-signal activities from the southwest are grossly exaggerated. Following last month's statement that Wally VK6WG seemed to be the sole remaining serious weak-signal station in southern WA, I received emails from two people – both national distance record holders, no less - begging to differ.

Bob VK6BE in Albany says that he is still very much active, and serious, on 6 m, 2 m and 70 cm. While down the hill from Wally, Bob has worked many VK5 and VK3 stations, althugh this year working only into VK5 on 2 m. Bob holds the national distance record for a 70 cm contact to a mobile station (VK3KAJ/M3 – 2224.5 km). He complains that he often hears the beacons but there never seems to be anyone at the other end. I've heard that before!

Darrell VK6KDC in Manjimup is also an active station in the southwest. He currently holds the VK6 record on 2 m and the national record for 70cm, both to VK3DEM (now VK3EK) – 2862.2 km. He also complains that he hears beacons but there is no one at the other end.

My apologies to both of you, and to any other active stations in that area. We look forward to hearing more from you.

Regarding difficulties in raising stations at the other end when the band is open, it's probably time to mention a few Internet resources that may help for weak signal work. Many shacks now have a permanent PC with an Internet connection and so the following may be useful:

- The VK-VHF email reflector is a hub for discussion of all aspects of VHF/UHF weak signal work. Band openings and the like are often notified through this reflector. Currently, 265 people are registered on the site. Refer to the NSW VHF DX web site (see below) for details on how to register.
- The NSW VHF DX web site - http://www.vhfdx.oz-hams.org/ - contains a wealth of VHF/UHF information. The site is a "work-in-progress" so check back regularly.
- The VK/ZL VHF-UHF Propagation Logger website -http://www.vk4cp.com/vklogger.php – is a relatively new site with a chat-style interface. Notification of band openings, arranging QSOs and general VHF/UHF chat is encouraged here.
- Hepburn's VHF/UHF Tropospheric Ducting Forecast - http://www.iprimus.ca/~hepburnw/tropo_aus.html - this site takes the skill out of tropo work. It uses weather forecasts to predict tropo conditions and can be uncannily accurate.
- DX Summit - http://oh2aq.kolumbus.com/dxs/ - this site lists reports of openings and DX contacts on all bands. It's probably of most interest to 6 m operators.
- Microwave mail list - http://mbs.valinet.com/mailman/listinfo/microwave - for those interested in the microwave region, this US-based mail list has lots to offer.

EME

Guy Fletcher - VK2KU

The 2-metre EME scene in VK is slowly growing again with active stations at present in VK2, VK3, and VK7; doubtless others too! VK9LS was also recently activated on Lord Howe Island for 2 m EME by Rex VK7MO, who was able to work several of the big guns in America and Europe.

Until recently the continuous spread in capability of 2 m EME stations could be roughly divided into 3 levels – the really big stations like W5UN and a handful of others who could hope to work small stations running limited power at home and on expeditions; the medium stations running 6 to 8 yagis (or 4 very long ones) and at least 1000 W; and the small stations like me who could only really work medium and large stations. Then along came Joe Taylor's WSJT program and the JT44 digital mode. A 4th level of small station has emerged with 1 or 2 yagis (often without elevation) and relatively low power, and which can work level-2 stations (and level-3 sometimes) on JT44. And suddenly level-3 stations can work each other with JT44 relatively easily. I'm having a ball, and so are the others!

I still enjoy CW contacts, and happily accept CW scheds. Many stations in fact refuse to work JT44, either from personal choice or because they see it as somehow an inferior mode! If you want to work them, then it has to be on CW.

In the last month or so (mid April to the end of May) I have made 5 EME contacts on CW and 17 with JT44. Countries include OK, I, ZS, PA, DL, GW, CT, K/W, GI, and UA9. Most of these are new "initial" contacts with only a few repeats, increasing my initials to 74 and my countries to 29.

13 cm Band Interference

VK6 reports interference being suffered by AO40 users in the 2.4 GHz band. It turns out that the QRN corresponds with the commencement of trials of the new 3G mobile phone services in Perth. There are a handful of such test sites spread over the metropolitan area. The 3G services operate in the range 2 - 2.2 GHz which falls into the image response of the S-Band down converters when using a 2 m I.F. Possible solutions include the use of better filtering in the front end of the converter, or changing to high-side local oscillator injection.

With the projected future explosion in the use of 3G mobile phones, this could be a problem that many users of the 13 cm band may encounter.

Digital Modes

Rex Moncur - VK7MO

Welcome to Bill VK5ACY at Kangaroo Island on 2 m FSK441 who will be looking for skeds. Also Jim VK3ZYC who was copied at Lord Howe Island on 2 m FSK441 operating JT44 on 23 cm.

A number of stations have been exploring the use of JT44 on 23 cm for DX on tropo and via Aircraft Enhancement. Contacts of around 500 km plus have been made by VK2KU, VK3FMD, VK3XLD (his first JT44 contact), VK3ZYC, VK3KAI and VK7MO. Guy VK2KU and Peter VK3KAI created a new digital record on 23 cm of 625 km. These contacts require a lot of

skill, as you are dealing with many variables due to the short durations of enhancement, problems of frequency stability at both ends, the need to beam accurately and the fact that you cannot hear the signal most of the time. Because of the short duration of enhanced signals, Guy VK2KU has been looking at an improved format for terrestrial QSOs and even looking into the mysteries of K1JT's source code.

Last month Leigh, VK2KRR, reported on the initial Lord Howe Island VK9 2 m contacts. VK9LS (with VK7MO as the operator) changed location on 10 May to get a better take-off to Eastern Australia. Unfortunately, Brisbane was still obstructed by hills and, despite extensive testing, only a weak tropo signal of around 3 dB in 0.3 Hz bandwidth could be detected from VK4AFL on 70 cm. In addition to last month's report the following contacts were made - JT44 2 m (VK2KU, VK2JKK), JT44 2 m EME (SM7BAE), JT44 70 cm (VK2KU), FSK441 2 m (VK3AFW, VK3CY, VK7DM, VK3UM, VK7JG, VK3HZ, VK3AXH, VK3HY, VK3AEF, VK3BWT, VK3AUU & VK2EI). There was even some SSB with VK2ZAB on 2 m and 70 cm and VK2KU on 2 m.

2 m & 70 cm FM DX

Here, at The Rock, NSW, over the month of May, there were 26 days of dead band, or very poor conditions on 2 and 70 FM. The colder weather is certainly hampering chances of extended distance Tropospheric radio contacts. The other 5 days of May provided some excitement with some particularly good conditions.

Significant Ducting conditions occurred on only two occasions during May in the south. The month got off to an excellent start, when at approximately 6.40 pm EST on 1st May, a Duct became workable. The workable paths varied over time, but took in Southern and Western VK2, most of VK3 and VK5. Significant simplex contacts occurred between myself and with VK5AJW, Jim, in Cowell, with a 5/3 signal at 947 km. Also with Brian VK5ZMB in Gawler, with a weak 4/1 signal at 735 km. These stations were operating only very basic systems; I think Brian may have even only been on a hand held. Some of the more distant repeaters noted pushing their signals across to the east on this night were 146.750, 5RAC from Pillaworta Hill at 1019 km; 146.800, 5REP from Coolanie at 961 km; 146.975, 5RAE from near Port Augusta at 910 km. An interesting one in from up in the northwest was 147.000, 2RBH from Broken Hill at 638 km. Of the bigger signals from the repeaters, Port Augusta appeared to peak at S9 +40 dB, with Port Pirie, Mt Kitchener and Murray Bridge S9 +20 dB. The majority of the repeaters had all but faded out by 2 am, that is all except for Port Augusta and Port Pirie, which were accessible still at 7 am the following morning, with Port Augusta still at S9 +40 dB. They rapidly dropped out by 7.30 am. Noted also during the morning of the 2nd of May was VK2ALN in Canowindra accessing the little, if ever used, 146.850 repeater in Griffith central VK2. VK3ANW at Kyabram and VK3JGL at Bendigo making the grade into 146.950 VK1RGI, a good distance at 400 + km. On 70 cm VK3DCZ reported hearing the Wagga repeater on 438.025 in Yarrawonga. It would appear that the 70 cm long distance repeater contacts are proving quite a challenge at this stage.

After the month's big opening, the band was quite dead until the evening on Saturday 3rd. A Duct became usable which appeared to cover mostly the western side of VK3 and southeastern VK5. This started around 9 pm and went to 10.30 pm. Extending as far as Mt Gambier at 630 km, and Naracoorte on 2 m, also taking in Mt. William in the Grampians, which is not often heard these days. VK3ANW and VK3XDP were copied simplex but had bad QSB.

Then on 4th May, a really interesting and unusual Duct opened into Adelaide. Unusual because it began here at lunchtime, around 12.20 pm. A number of stations from in the east were having a great time taking part in a multi operator, multi location QSO via the Murray Bridge repeater (great voice ident on this repeater), which took in stations from 3 different states. Those involved were VK5NRV, VK5ZMB, VK5PDL, VK3JGL at Bendigo, VK5ZLT at Naracoorte, VK5MM, VK2LRR at The Rock at 733 km, and VK3MTV in Mildura. VK5 noted a number of other repeaters but not to the extent of the opening on the 1st. It ended at 4 pm.

Later that evening the Duct area shifted and contacts were being made into VK7 by some stations as far north as the NSW border. I realised this when, around 8.30 pm, I came across VK3ANW in Kyabram, northern VK3, making a simplex contact 540 km away with VK7LCW in Penguin on 146.500. I believe VK3JOO made a similar contact from Bendigo. Other simplex of note was between VK3YD in Monbulk and VK2LRR, 5/7 signal here at The Rock.

A bit of rare 70 cm activity: late at night on 10th May, a simplex contact was completed between me, VK2LRR, and Peter VK3XDP in Eppalock. Signal from Peter was 5/5 and the distance was 298 km, second furthest on 70 for me. It could have been an aircraft scatter contact as it lasted only a few overs.

In the evening of Friday 30th and morning of 31st I have had reports of a Duct workable from central VK3 up to Central VK2. Being unable to work FM in the latter part of the month I missed this one, but did hear of Bendigo stations in VK3 working into VK1RGI on 2m and a station in Bathurst doing the same.

Meteor Scatter for Winter

DX contacts are still possible because FSK441 is used by copying short bursts or 'Pings' of signals, which have been reflected or 'Scattered' from incoming meteors. The 'Pings' carrying the stations' signal are only received at the far end from as little as 20 milliseconds to over 1 second, but this is enough time to enable the receiving station to get at least some of the information.

Recently a successful experiment was carried out on FM, using the weak signal meteor scatter mode FSK441, between VK7MO, Rex in Hobart and VK2KRR Leigh 847 km away at The Rock. Amazing. If you would like to download the program WSJT, visit Joe Taylor's website at http://pulsar.princeton.edu/~joe/K1JT

FSK441 is not designed with FM as a mode of operation, but, with patience, it still seems to work. For better results, a Yagi and pre amplifier are desirable. Some further experiments need to be carried out using JT6M which, my initial testing shows, may be better yet.

A new group email reflector has been activated, called the VK VHF FM DX Group. This is really handy for exchanging information on the subject and organising contacts. Yahoo site address is at:
http://au.groups.yahoo.com/group/VKVHFFMDX_Group/

ar

Hamads

FOR SALE NSW

• **Valve**: 6216, $5; CV354, $5; **Transformer** PR 240, sec 230 V, 0.12 A and 6.3 V, 0.6 A $15 P.P. Dieter VK2EDD. QTHR. Phone 02 4982 9847.

• **Power supply 10-16 V, 43 A** no interference, current limit, over-voltage protection. Instructions, circuit available. Post anywhere in Oz (5kg). $75. Bob VK2CAN Phone 02 9416 3727.

WANTED NSW

• **Instruction manual for Marconi signal generator CTHS2A** or photocopy. All costs reimbursed. VK2CSS, Phone 02 4821 0756.

• **PMG or any bug key**. Contact Herman Willemsen. email hermanw@smartchat.net.au

FOR SALE VIC

• **Spider quad hubs**, two halves $200. **Solid fibreglass spreaders** to suit same, eight at $20 each. ONO. VK3YJ QTHR, Phone 03 9315 9387, email xdrover@bigpond.com.au.

• **SME pickup arm model 3009**, series II, Shure cartridge original packing, manual, tools mounting template for the connoisseur $70. Phone 03 9592 9957, kea@ozemail.com.au.

• **Service manual Kenwood TS-120V** $20. VK3ECI, Phone 03 5156 7789.

• **Standard C-430 70 cm 10 watt transceiver**, surplus to needs, give away for cost of freight/postage, with handbook. **AWA Forestphone FPI** transceiver, no top cover or plastic case cover, otherwise good condition with photocopied manual $90. Rodney Champness VK3UG QTHR Phone 03 5825 1354

• **Deceased estate: Kenwood comm's receiver R-5000** and manual s/n 80500034, mint cond, $500 ono. Ted VK3ALT QTHR, Pakenham, Phone 03 5941 1248.

• **30 m swivel base tower with mast**. 3 m triangle base, gal angle. Dismantled in 3 m sections, ready for transport or can deliver in Victoria $1000 ono. M Trickey Phone 0419 037 077

WANTED VIC

• **Johnson Viking 500 transmitter** circa 1957. **JR Radio Service handbook** VR series 1964. **No 128 HF transceiver**. Rodney Champness VK3UG QTHR. Phone 03 5825 1354.

• **H/F beam 10/15/20 m,** Moseley, Hy-gain, Cushcraft, anything considered. **Heavy duty rotator.** Complete unit would be great VK3PT, Bendigo. Phone 03 5439 6321, email wjcrmck@netcon.net.au

• **Manual for Daiwa RF-660** speech processor, VK3GMM. Phone/fax 03 5985 2671

FOR SALE QLD

• **Unmarked Yaesu FTDX-401** with spare O/P tubes $150. **Ten-Tec Delta 580** 10-160 m $150. Both have mike and handbook. Paul VK4DJ Phone 07 4775 7998

• **Kenwood TS-50** HF transceiver. Serial 10200172, $950. **Yaesu tuner FC-700** $150. **Power supply, Electrophone**, 35 amp, 25 amp cont. $95. All in perfect condition. John Gillard VK4AJG, 3/75 Queen St, Cleveland Qld. 4163. Email ruth_john@bigpond.com.

WANTED SA

• **Micro switches**, Burgess or similar. Prefer spring lever action. Bruce VK5ZJE, Phone 08 8382 1563.

• **Icom IC-490A** all mode 70 cm transceiver, working or not. Mervyn VK5MX, QTHR. Phone 08 8346 7042

• **Photocopies Kenwood AT-250 auto. ant. tuner manual**, English version. Will pay costs. Post reply. Bob VK5KWR QTHR.

• **To assist with restoration, details on CODAN C-2000C receiver board, circuit/details Granger transceiver type 174.** Also require **plug in modules** for Granger receivers/transceivers and an **AWA Army type A510** transmitter/receiver **whip aerial** (Used on EILCO type 6332 transceivers). Malcolm Haskard VK5BA: QTHR; Phone/fax 08 8280 7192, email mhaskard@chariot.net.au

WANTED WA

• **40 pin double-sided extension board for Yaesu FT-107** QTHR VK6FD

FOR SALE TAS

• **1 x 70 cm Skeleton slot** $70. **2 x Philips 900** remote head 2 metre transceivers with cables and mics, $125 each. **TASS-BELL D904** transformer brand new $100. 3 x patch boxes $15 each. VK7KCC on Phone 03 6429 3294 email klopj@dodo.com.au.

TRADE ADS

PSK-31, SSTV, RTTY SOUNDBOARD Interfaces Fully isolated, ready to plug in. http://www.G3LIV.CO.UK, johnny@melvin.com, G3LIV QTHR.

About hamads....

- Hamads may be submitted by ***email*** or on the ***form on the reverse of your current Amateur Radio address flysheet.*** Please print carefully and clearly, use upper AND lower case.
- Separate forms for For Sale and Wanted items. Please include name, address STD telephone number and WIA membership number if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
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- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
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- Copy typed or printed clearly please, and received by the deadlines shown on page 1 of each issue of Amateur Radio.

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WIA - advocate for amateurs

I find it ironic in the extreme that Peter VK5ZPG is whinging about how little the WIA is doing for him!

A minor excursion into AR history would have informed Peter that the Z-call privilege he enjoys was only made possible by the actions of the WIA. The ACA does not negotiate with individuals.

Peter waxes about the Foundation Licence being some plot hatched by nameless individuals with "personal agendas at play".

Peter, I only read AR too, but I am well informed on the subject. Thanks to AR, I know my Federal Councillor's name and number, and I know the contact details of any number of dedicated WIA members who would be very happy to hear some constructive comments or criticisms from you.

Peter seems surprised and more than a little indignant that the WIA might make a decision on his behalf. Well !! Welcome to the real world ! If you can't be bothered participating in the management and political aspects of your beloved hobby, then you have absolutely no right to complain that the WIA only represents 25% of amateurs in this country. Look at it from the other side - 25% of us are paying for the privileges the other 75% enjoy for free! As our numbers dwindle so will our list of frequencies.

Finally, Peter's last statement says it all. "... let's do something about that....." Peter, to effect change, you must actually DO something - not just grizzle to the AR editor. There are many of us in the proud 25% who would love to see you actively participating in the change and recruitment processes. Let's all hope your letter-writing energies can be chanelled into action !

John Sparkes VK6JX
Ex-WIA VK6 Division Councillor, NCRG member (hon), DX Chasers Club member - participant in Thevenard Island IOTA DXpedition, June 13-23 2003 , Participant in Woody Island and Direction Island IOTA DXpeditions and many JMFDs. Full call since 1975 - 275 countries worked

Reviews of equipment?

Over the years I have been a member of the W.I.A. I have been receiving A.R. magazine. First place I tend to look at is the Hamads, second place is the VK3 notes, then I tend to read the review section of equipment (transceivers etc)

But over the past months and years, there have been no reviews of any new or old equipment. If I wish to read reviews of equipment I have had to buy that other magazine when it's on the newsagents' stands. For a magazine that is for amateur radio could you look at putting more reviews of equipment in it, as its very lacking in this area at present.

Regards

Alan VK3VD
tfolstne@melbpc.org.au

Opinions expressed in the *Over To You* columns do not necessarily reflect official policy of the Wireless Institute of Australia.

AMSAT

Continued from page 47

is still silent. Being the last of the "big-three" KO-23 - KO-25 - UO-22, it will be sadly missed by the 9600 baud digital gang. Should it not come back on it will spell the end of an exciting era in amateur radio satellite digital comms that spawned WiSP and a host of goodies that rivalled the early days of the Internet.

IO-26 ITAMSAT

Uplink: 145.875 145.900 145.925 145.950 MHz FM (1200-baud)

Downlink: 435.812 MHz SSB

Broadcast Callsign: ITMSAT-11

BBS: ITMSAT-12

Launched: September 26, 1993 by an Ariane launcher from Kourou, French Guiana. Status: Semi-operational, the digipeater function is on and open for APRS users.

NO-44 PCSAT

Uplink/downlink: 145.827 MHz 1200 baud AX.25 AFSK via W3ADO-1

Aux/Uplink: 435.250 MHz 9600 baud via PCSAT-2 (off)

APRS Downlink: 144.390 MHz (Region 2)

Launched: September 30, 2001 aboard an Athena-1 rocket from the Kodiak, Alaska launch complex.

Status: Operational.

PCsat is back to eclipses and may not respond.

MO-46 TIUNGSAT-1

Uplink: 145.850 or 145.925 MHz 9600-baud FSK

Downlink: 437.325 MHz

Broadcast callsign: MYSAT3-11

BBS: MYSAT3-12

Launched: September 26, 2000 aboard a converted Soviet ballistic missile from the Baikonur Cosmodrome.

Status: Operational at 38k4-baud FSK. MO-46 is the last of the high speed digital birds still operational. When I last looked there were not many image files available for download.

AO-49 AATiS OSCAR-49 (SAFIR-M)

Uplink 435.275 1200-baud AFSK

Downlink 145.825 9600-baud FSK

(optional voice message)

Broadcast callsign: DP0AIS

Launched: December 20, 2002 aboard a converted Soviet ballistic missile from the Baikonur Cosmodrome.

Status: Operational.

AO-49 (SAFIR-M) is a German amateur radio payload onboard the small German scientific satellite "RUBIN-2". AO-49 was built by the German amateur radio association. AO-49 is designed as a "store and broadcast" system for APRS based messages, dedicated for the use of schools in combination with the existing WX-Net and planned buoy experiments in Germany. No transmissions detected since the 1st of February 2003! It appears AO-49 is not properly aligned to illuminate the solar panels. This should end soon. Due to its orbit, AO-49 was in a phase without eclipses until 13 Feb 03.

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Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Alan Hawes	VK1WX
Secretary	Deane Walkington	VK1DW
Treasurer	Linden Orr	VK1LSO

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga. VK1 Home Page *http://www.vk1.wia.ampr.org*
Annual Membership Fees. Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Brian Kelly	VK2WBK
Secretary	Owen Holmwood	VK2AEJ
Treasurer	Noel May	VK2YXM

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.
Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Jim Baxter	VK3DBQ

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.
Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

VK4 Division Queensland
PO Box 199, Wavell Heights, Old. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Ewan McLeod	VK4ERM
Secretary	Bob Cumming	VK4YBN
Treasurer	Bill McDermott	VK4AZM

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 in both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au
Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web: *http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.
Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

President	Neil Penfold	VK6NE
Secretary	Roy Watkins	VK6XV
Treasurer	Bruce Hedland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website
Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.wia.org.au/vk7*
email: *vk7dg@useoz..com*

President	Phil Corby	VK7ZAX
Secretary	Dale Barnes	VK7DG
Treasurer	Dale Barnes	VK7DG

VK7WI: At 0930 hrs every Sunday on 146.700 MHz FM (VK7RHT, Hobart) and relayed on 147.000 MHz FM (VK7RAA, Launceston), 146.625 MHz FM (VK7RMD, Ulverstone), 146.750 MHz FM (VK7RNW, Ulverstone), 147.075 MHz FM (VK7RWC, Rosebery), 3.57 MHz LSB, 7.090 MHz LSB, 14.130 MHz USB and UHF CB Channel 15 in Hobart area.
Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

Port Macquarie Field Days

(Queen's Birthday weekend)

The Port Macquarie Field Days were held over the Queen's Birthday weekend, 7th and 8th June at the Sea Scout hall in Port Macquarie. The weather was very kind to us, two beautiful SPRING TYPE DAYS even though it is winter. Attendance was up on last year and a wonderful experience was had by all.

It's here somewhere?

The disposal tables were kept busy as were the WIA NSW DIVISION bookstand & the display of Digital Modes. The display of old meters and the effect of magnetic forces on aluminium drew considerable attention.
The hounds were taxed by our local foxes but enjoyed the experience.

VK2HOT– Sarah Piper

VK2GD – VK2ZCM

Some of the crowd

This annual event is organised and run by the OXLEY REGION AMATEUR RADIO CLUB Inc. which may be contacted at PO Box 712 Port Macquarie 2444.
The club would like to thank all participants and sponsors for their continued support.

Results on page 44

ICOM'S GREAT CHAMPIONS

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The magazine for AUSTRALIAN Amateurs

August 2003
Volume 71 No 8

WIRELESS INSTITUTE OF AUSTRALIA

Amateur Radio

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REMEMBRANCE DAY

Contest 2003

16 & 17 August

- Six co-axial Baluns for VHF/UHF Antennas
- AO-40 Dual Frequency LS Dish Feed

Brush up your Morse

with Drew Diamond VK3XU

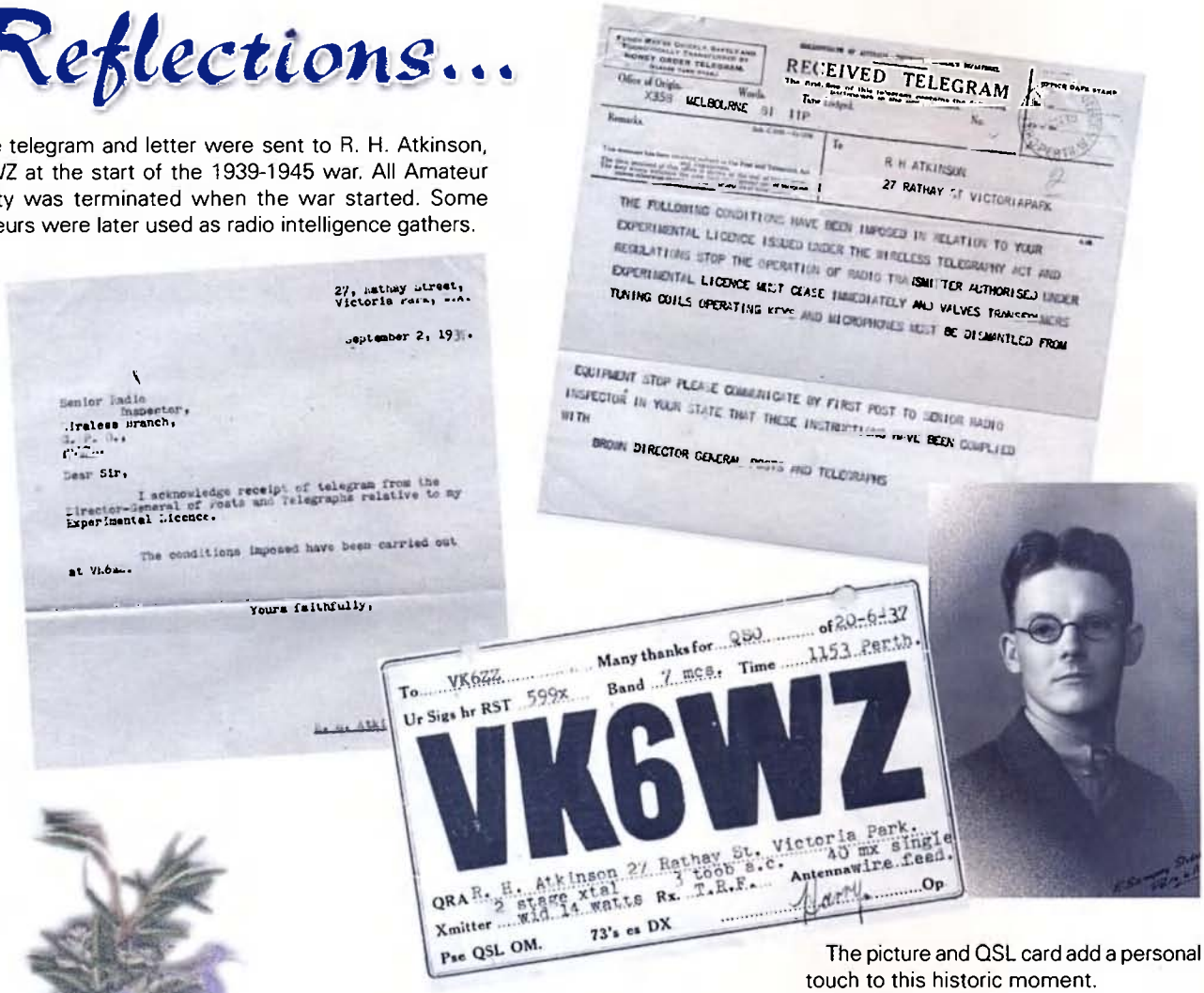
ISSN 0002-6859

Photograph courtesy of

Australian War Memorial
Negative Number 073773

Reflections...

The telegram and letter were sent to R. H. Atkinson, VK6WZ at the start of the 1939-1945 war. All Amateur activity was terminated when the war started. Some amateurs were later used as radio intelligence gathers.



The picture and QSL card add a personal touch to this historic moment.

The following extract from "Clare, A District History" by Robert J. Noye, tells us what happened in Clare, South Australia when the 1914-1918 war started.

Wireless, a new form of communication, appeared in the 20th century. The first wireless station in the district was operated by W. P. "Wireless" Ward at Stanley Flat, next to the Clare Race Course. He had been a marine engineer until he lose an eye in an accident, leaving sea in 1910 to settle at Largs Bay where he had a small radio station. In 1912 the family moved to Stanley Flat, where a large aerial was erected and spark transmissions were made using the call sign AWP. At the outbreak of World War 1, the wireless equipment was impounded by the authorities as a security measure and instructions issued for the demolition of the aerial. When this was not done the Army arrived, an axe was produced and the majestic masts brought crashing to the ground.

The wireless equipment was returned in January 1919. Two sixty foot poles were brought from Bungaree and a new aerial erected, and once more the station was "poking holes in the ether". A new call 5BX was allotted in 1921.

Amateur Radio

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Our Cover this month

Lae, New Guinea. 1944-06-09. TX3302 Sergeant H. Smith (1), testing radio Equipment after its repair in the wireless section of the 2/7th Advanced Workshop. Photo courtesy of Australian War Museum, negative no. 073773.

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

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Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

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Editorial Comment

Colwyn Low VK5UE

"Good Luck in the Contest!"

Well another month has past and at the last moment I'm sorting out my thoughts for this issue.

I have been asked to include two requests for assistance.

The first is for a volunteer to provide reviews of equipment. New and not so new items would be great. New equipment we, WIA, would arrange to borrow from the manufacturer, old equipment would be loaned by the owner to the reviewer following a request in AR. Reviews would have to be objective warts and all. They would have to be backed up by on the bench measurements, referred to good standard measuring equipment, and some on air operation. A reasonable way with the English language would be essential. If you are interested please email me. If you think someone has the necessary qualifications try and talk them into it and promise to give them a hand, if necessary.

The second is the Contest Column. Ian Godsil is no longer able to provide the column in the form he used to and would like to hand over to a Contester with the willingness to encourage greater contest participation and to provide hard copy of contest rules and results to the wider public. Even today not everyone has the Internet.

I am writing this as I endeavour to get my Beetle tidied up for WICEN operation on the Cooper's Pale Ale Rally SA. One door need all the rubbers replaced and the battery arrangements need tidying up from my previous efforts. Firstly the 6 V main battery needs a twin to give 12 V and a system to charge in parallel and use in series. A couple of big germanium diodes and a double pole double throw switch work quite well. However there is a need to have one or two other batteries to run secondary gear. This year, as in other Australian Rallies WICEN supports, there are voice nets, packet nets and the SkyNet equipment all operated by and power sourced by WICEN operators. Of course there is also the need to have back up !!!!.

This issue commemorates the Amateurs who served and died in the Services in World War II. As it is now some 58 years since the war ended, maybe the time has come to remember all amateurs who served in the Forces in all wars. We certainly seem to be involved in continuing armed conflicts so the need to remember those who served continues. Maybe you would like to consider some variation in the significance of the RD in the coming year. However the RD is "The Australian Contest". More amateurs make an effort to take part in this contest than in any other. Most exchanges end with a "Good luck in the contest" wish. The fact that we have an interstate competition as well adds a bit of spice and as long as it is not spite all is well. The formula for determining the winning state try to reward states who get a larger percentage of state amateurs submitting logs than in previous years and those states which make lots of contacts. It does give Tasmania and ACT the chance to beat NSW and Victoria.

> The RD is "The Australian Contest". More amateurs make an effort to take part in this contest than in any other.

Western Australia won last year who will make the effort to come top in 2003?

I hope to work over 100 stations this year, how about you?

"GOOD LUCK IN THE CONTEST" de VK5UE

WIA Comment

Ernie Hocking VK1LK
Email: president@wia.org.au
Or via PO Box 691, Dickson ACT 2602

For a hobby that people keep telling me is dying there appears to be an awful lot of activity

ACA Licence Review

As I indicated in last month's notes the ACA propose to conduct a review of the whole amateur radio licencing arrangements. Today I received the following from the ACA:

> *A review of the amateur service regulations in Australia will commence this month (August) with the release of a discussion paper by the Australian Communications Authority (ACA). The ACA will write to all amateur licensees giving details of how to obtain a copy of the discussion paper and outlining the review program. As part of the review, the ACA is arranging a series of public meetings in each State capital city in early September. The times and locations of these meetings will be advertised by the ACA closer to the date*

As we hear more from the ACA the WIA will be issuing this information using all the means at its disposal such as the weekly broadcasts, the WIA web page and of course QNews (and of course a special thank you to Graham Kemp VK4BB for the sterling service that he continues to perform for all amateurs in Australia in providing this excellent news broadcast).

This review of the amateur service is of great importance to the future of Amateur Radio in Australia. If we get it right then we will be in a position to actively promote the hobby in years to come based on a sensible and practical licencing scheme. If we get it wrong and make entry into the hobby too difficult, bureaucratic, lengthy or costly then we can be certain that the hobby will have a difficult time in years to come with the number of amateurs falling.

Once the details of the ACA discussion paper are known then WIA clubs and Divisions will be the place to discuss the proposals and the nature of our official reply. I would encourage you all to participate actively in these discussions. Where you know of amateurs who are not currently members of the WIA, I would also encourage you to speak to them to seek their views on the ACA discussion paper. As I indicated above it is important that Amateur Radio in Australia achieves a good result as part of this consultation process. We must put aside partisan issues, of whether a given amateur is a member of the WIA or not, and focus on what really matters – namely the hobby of Amateur Radio. As always I will be delighted to hear your views on this important discussion

WRC 2003 and Morse Testing

On Sunday 13 July the WIA held a teleconference to discuss a number of matters including the official WIA response to the removal of the Morse testing requirement after WRC 2003. At this time the ACA has indicated to the WIA that it intends to use the licence reform process referred to above as the single reform of the Licence Conditions. This would have the affect of delaying the adoption of the WRC recommendations until early 2005.

At the teleconference the WIA council voted unanimously to actively promote the immediate removal of the current Morse testing requirement. This has already happened in a number of other countries (such as for example the UK, and Switzerland) with the administrations in these countries simply issuing an administrative order recognising that the Morse Code test is not longer required. The initial response from the ACA has indicated that it does not expect to vary its current position but will at least review the situation. Amateurs that have written to the ACA about the matter have been informed: "The ACA thanks you for your input and/or comments. The ACA will be publishing a discussion paper on our website from August to the end of October. All amateur radio operators will be notified by mail when the document is ready for viewing. Interested persons will be given three months to make any comments or suggestions. At the end of the three month period the ACA will review all comments and consider appropriate changes to legislation. Any changes to legislation will occur in early 2005." I will continue to keep you informed of our progress on this matter as the situation unfolds.

If we get it right then we will be in a position to actively promote the hobby in years to come based on a sensible and practical licencing scheme. If we get it wrong and make entry into the hobby too difficult, bureaucratic, lengthy or costly then we can be certain that the hobby will have a difficult time in years to come with the number of amateurs falling.

The 2003 Remembrance Day Contest

Finally, I'd like to say that I am looking froward to doing some real Amateur Radio during this year's RD Contest and propose to operate on as many bands and modes as I can over the weekend (160 - 2m on CW and phone). So if anyone hears some slow speed CW emanating from the Nations Capital then please bear with me and give me a call. I look forward to chatting with you on air.

73s for now and I look forward to hearing you comments, either directly or via the divisions. All the best in Amateur Radio

ar

Six co-axial baluns for VHF/UHF antennas

by Gordon Mc Donald VK2ZAB

The purpose of Aerial Baluns

Almost all antennas used at VHF/UHF utilize dipoles as the driven element. This includes Yagis, Co-linear/broadside arrays and parabolic reflectors. In order to properly function a dipole must have the same level of current in both halves resulting from equal and opposite voltages applied to its terminals and equal impedances to ground. When this is so we say it is "balanced" .

If this condition is not attained several problems arise. Almost all antenna installations at VHF/UHF make use of coaxial feed lines to the shack. Coaxial lines are not balanced. The inner is supposed to be hot and the outer at ground potential. This condition means that the wave is confined within the coax. It cannot radiate.

If you connect the coax straight on to the dipole you ruin both the dipole balance and the coax propagation mode. RF current will flow on the outside of the coax resulting in radiation not controlled by the antenna, more noise on receive, more loss and difficulty in obtaining a good VSWR. Furthermore the antenna pattern will be offset from boresight, a condition known as squint, most noticeable with narrow beamwidth antennas.

To avoid this catastrophic situation we put this thing which can accept a balanced connection on one side and an unbalanced connection on the other. A BALanced to UNbalanced transformer or BALUN.

Baluns are also used at HF and in circuitry such as to drive push pull amplifiers from unbalanced drivers. These are usually toroidal or conventional transformers and are outside the scope of this article.

Attributes of baluns

The first requirement of a balun is to ensure that balanced currents flow in a dipole even though the line to the shack is unbalanced coaxial. If the currents on each side of the dipole are not exactly equal the balun is less than 100% efficient. This is a normal situation even though the departure from perfect is usually very small particularly at the design centre frequency. At higher and lower frequencies the balance efficiency decreases. Thus baluns have a "balance efficiency bandwidth".

The balun is connected between the coax line to the shack and the antenna dipole. The normal requirements of impedance matching dictate that it must match both the line impedance and the dipole impedance over a band of frequencies. Thus the balun has an "impedance matching bandwidth". This is not the same parameter as the balance efficiency bandwidth and is normally not of the same magnitude either.

Most baluns can only match impedances in set ratios e.g. 1:1 or 4:1. Some can match virtually any impedance to any impedance. Some baluns are easy to make and some are not and some baluns are easy to weatherproof and some are not.

Types of baluns

Broadly there are three types of baluns. Choke baluns function by inserting a high impedance between the balanced load and the outside of the coax so that current can't go that way. A simple one of these is called a "Pawsey" stub. Another, which will be described in more detail under the "Common Baluns" heading is the "Bazooka". At HF and lower VHF choke baluns can be made with coils and/or ferrite beads.

Hybrid ring baluns function by making use of the polarity reversing and impedance transforming characteristics of coaxial transmission lines and wave guides. The most common form of balun used by amateurs, the half wave line balun, sometimes called a trombone, which we will also describe in more detail, is a degenerate form of hybrid balun.

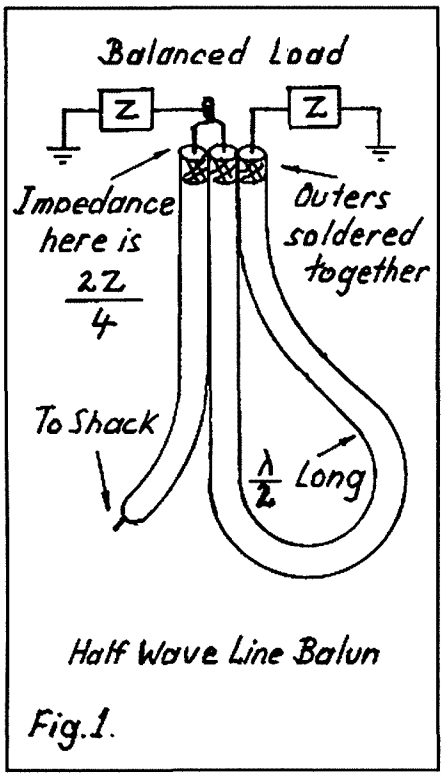
The third category is for those which do not readily fit in either of the above. The slotted tube could be called a "dual mode balun" . It will be described in more detail also.

The motivation to write this article stemmed from a discussion about split tube baluns on the VK-VHF Email reflector. A search for data available to radio amateurs, mainly in overseas books and magazines, was found to be scanty, very basic, often misleading and occasionally quite wrong.

Furthermore, baluns seem to be taken pretty much for granted until things don't go according to plan with antenna installations when they often fall under suspicion leading to questions being raised as to whether or not they are "right". Unfortunately a satisfactory answer to this question is seldom forthcoming because, although baluns are generally broad band non-critical things, their operation is widely misunderstood and it seemed to me that having a bit more information available about them would be a good thing. That is the intent of this article.

Three *common* baluns used by amateurs

[1] **The HALF WAVE line balun** is a hybrid line balun which is not quite all there. See "Uncommon Baluns". It is illustrated in Fig 1. The balanced load is represented by equal impedances from the two terminals to ground. The two terminals are connected together by a half wavelength of coax line so that the impedance from one end to ground



Half Wave Line Balun

Fig.1.

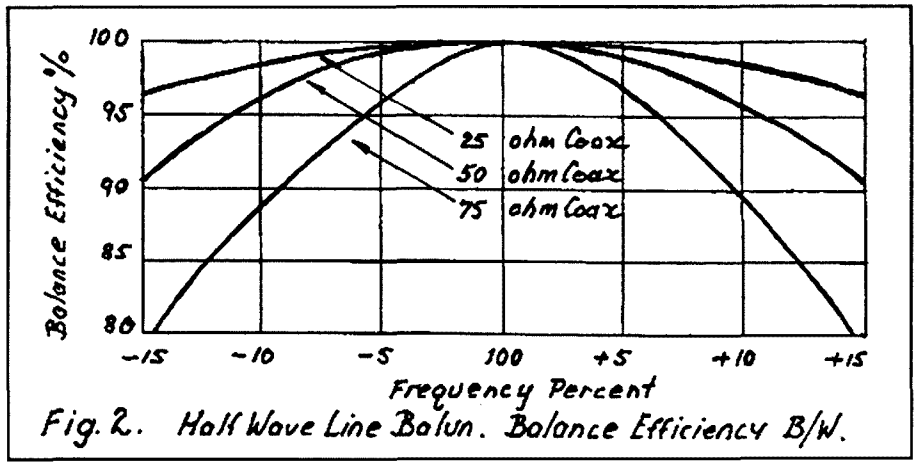


Fig. 2. Half Wave Line Balun. Balance Efficiency B/W.

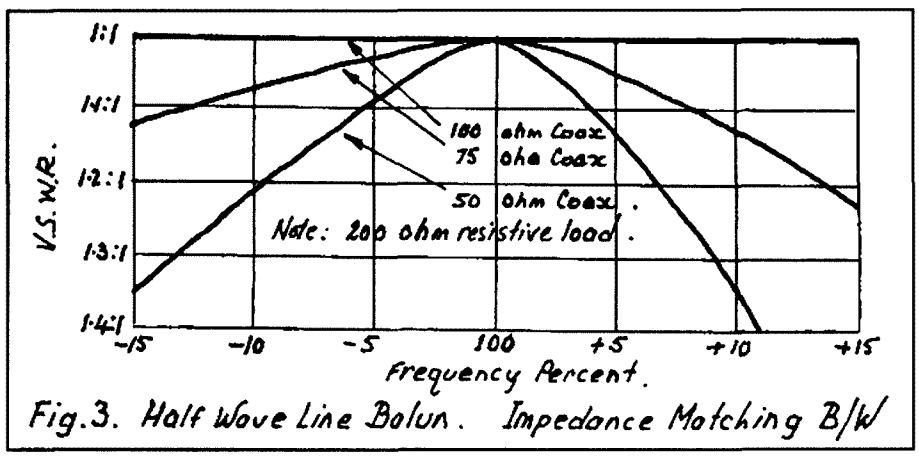


Fig.3. Half Wave Line Balun. Impedance Matching B/W

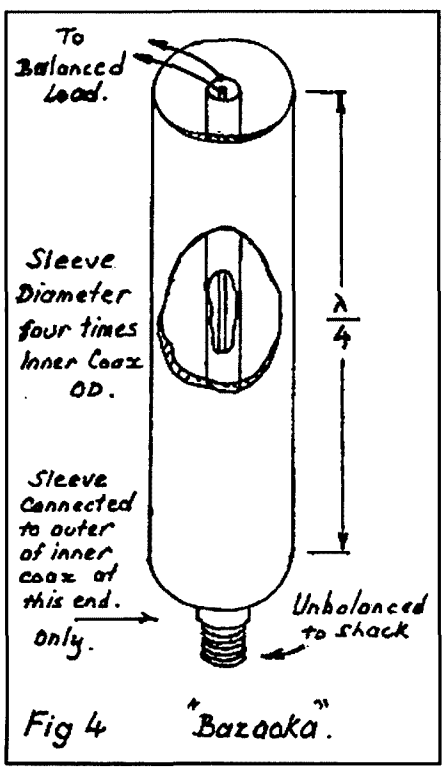


Fig 4 "Bazooka".

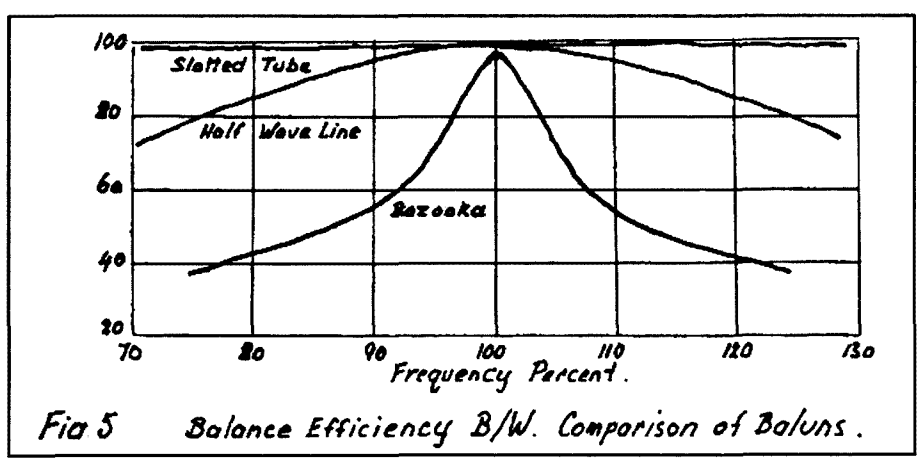


Fig 5 Balance Efficiency B/W. Comparison of Baluns.

appears in parallel with the impedance from the other end to ground which is connected to the feed to the shack. Furthermore the polarity at one end is the opposite to that at the other because it is a half wavelength away.

A 4:1 impedance transformation obtains between the balanced and unbalanced terminals because of the method of connecting the loads. They are in series at the balanced terminals and in parallel at the unbalanced terminal. Thus if there is 100 ohms to ground from each of the balanced terminals, the balanced load is 100 + 100 = 200 ohms and the unbalance terminal sees 100/2 = 50 ohms, a common situation which is not affected by the impedance of the half wavelength of coax. However both the balance efficiency bandwidth and the impedance matching bandwidth are dependent on the impedance of the coax.

The balance efficiency bandwidth was determined by measuring the unbalanced current between the common connection point of the balanced loads and ground over a range of frequencies and for half wave lengths of different impedance coax. This is shown in Fig.2. We see that balance efficiency obtains over wider bandwidths for lower impedance coax.

The impedance matching bandwidth was calculated for different impedance coax and is shown in Fig 3. We see that the widest bandwidth obtains when the impedance of the coax is one half of the impedance of the balanced load.

The most common impedance used for the half wave section of coax is the same as that used for the feed to the shack which is normally 50 ohms. The balun bandwidths which obtain under these conditions are quite suitable for the narrow bandwidth requirements of amateurs.

The half wave balun departs from perfect balance at resonance only by that amount due to the loss in the half wavelength of coax. This is normally negligible.

The half wave balun is waterproofed by sealing the ends of the coax or by mounting the whole terminal region in a box.

[2] The BAZOOKA is a choke balun which comes in several versions. The simplest of these is shown in Fig 4. Basically it is a coaxial line with a quarter wavelength sleeve connected to the coax outer and the balanced load end open. This arrangement presents a high impedance to currents which would otherwise flow down the outer of the coax. Note that the physical realization of this must be such as to maintain the high impedance. To do this the sleeve is normally a copper tube with air space between it and the outer of the coax. The diameter of the sleeve should be much greater than that of the coax. Four times is satisfactory

If the impedance of the coax in the sleeve is the same as that of the balanced load [1:1] the impedance match bandwidth of the balun itself will be so wide as to be not worth worrying about. However the same does not apply to the balance efficiency bandwidth which falls away at all frequencies at which the sleeve is not a quarter wavelength long. See Fig 5.

The bazooka can match a wide range of input to output impedances. The coax line inside the sleeve can double as a quarter wave transformer by making it of that impedance which is the square root of the line impedance multiplied by the load impedance. Of course, if you do this the impedance matching bandwidth will be limited in the same way as the bandwidth of any quarter wave transformer. Nevertheless, it is this attribute which may have accounted for the popularity of the bazooka in the past when it was frequently made with copper tubes making it somewhat more difficult to put together than the half wave line.

The simple bazooka departs from perfect balance at resonance by a significant amount due to physical asymmetry at the balance terminals. It has, in effect, a quarterwave stub on one dipole terminal but not the other. This shortcoming can be corrected at the expense of additional complexity. See "Uncommon Baluns".

The simplest way to waterproof a simple bazooka is to mount it so that the open end of the sleeve faces down.

[3] The SLOTTED TUBE balun qualifies as a common balun because it is used to obtain squint free operation from parabolic reflectors using dipole feeds. See Fig. 6. The slotted part of the coaxial line supports two modes of transmission simultaneously. That is a TEM or coaxial mode which is virtually unaffected by the slots if they are not too wide and TE_{11} or balanced mode which exists between the two wings of the slotted assembly and excites the dipole. The shorting post dictates that coaxial mode voltage can be only half that of the balanced mode voltage and since no power is lost in the exchange, Ohms Law dictates that the balanced impedance is four times the unbalanced impedance at that point. See Fig.6.

The balance efficiency bandwidth of the split tube balun is so wide as to be not worth worrying about. See Fig.5 However the same does not apply to the impedance matching bandwidth which falls away at all frequencies at which the slots and inner are not a quarter wavelength long.

If the slotted tube is used to feed a straight dipole, the balanced impedance will be that of the dipole [nominally 72 ohm if shortened to resonate] in parallel with that presented by the quarter wave shorted twin line formed by the wings on each side of the slot which, at slot resonance, will be very high and the normally low capacitance across the dipole terminals.

In normal practice only the dipole impedance is significant. This means that the unbalanced impedance will be nominally 72/4 = 18 ohm. Fortunately the coaxial line formed by the slotted tube and the inner may also be used as a quarter wave transformer as in the bazooka. Therefore, in this case, the impedance of that line must be the square root of 18 x 50 = 30 ohm enabling the 50 ohm input/output connector to be mounted at the shorted end of the slot as shown in Fig 6.

The slots should be as narrow as practical to prevent radiation. If they are narrow they may be ignored when calculating the coaxial line impedance because the increase in impedance of the line with slots is only 0.03 x A x A where 'A' is the angle subtended by the slot[s] in radians.

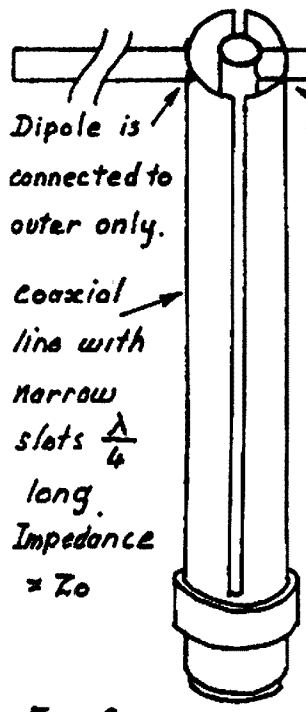
In another common configuration, the slotted tube is used to feed an EIA antenna used either as a gain standard or as a feed for a parabolic dish. In this case the impedance due to the two dipoles, spaced at a half wavelength and mounted one quarter wave above a sheet reflector and connected together with 171 ohm balanced lines is nominally 200 ohm at the balun connection point in the centre making the unbalanced impedance nominally 50 ohm. No transformer action is required and the coax line can be 50 ohm throughout

The slotted tube balun departs from perfect balance by a small amount at resonance because of physical asymmetry at the dipole terminals due to the normal position of the shorting post opposite one leg of the dipole.

This may be improved by placing the shorting post elsewhere in the slotted region. If this is done the impedance seen by the unbalanced connection will be one quarter of the balanced impedance at the post point. This will be the dipole impedance reduced by an amount determined by the distance that the post has been "tapped down" the wing of the balanced slotted assembly. The impedance at the connector will then be that impedance transformed by the section of line between connector and the post.

The split tube balun is the most

Continued on page 10



Impedances: Assume a voltage 'Eb' at the dipole terminals. At the post end of the coax line 'Eu' will be half Eb. As no power is lost:

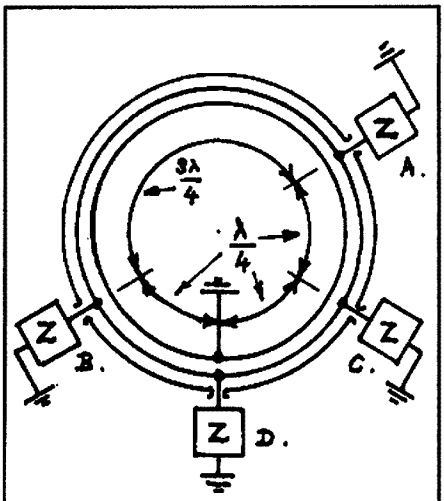
$Pb = Pu$. $\therefore \quad \frac{Eb^2}{Rb} = \frac{Eu^2}{Ru}$

and: $\frac{(2Eu)^2}{Rb} = \frac{Eu^2}{Ru}$ so: $Ru = \frac{Rb \times Eu^2}{4 \times Eu^2}$

$\therefore \quad Ru = \frac{Rb}{4}$

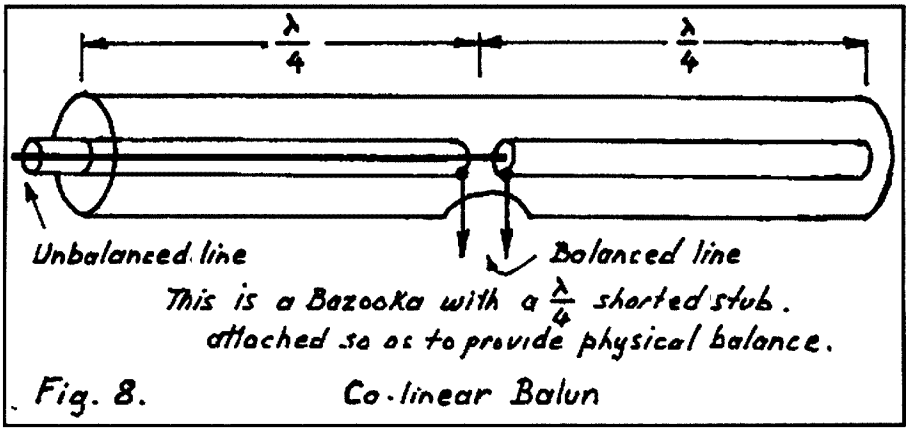
At the connector $Zc = \frac{Zo^2}{Ru}$

Fig. 6. Slotted Tube Balun



Impedance of all lines is $\sqrt{2} \times Z$
Refer to Text.

Fig. 7. Standard Rat Race



This is a Bazooka with a $\frac{\lambda}{4}$ shorted stub. attached so as to provide physical balance.

Fig. 8. Co-linear Balun

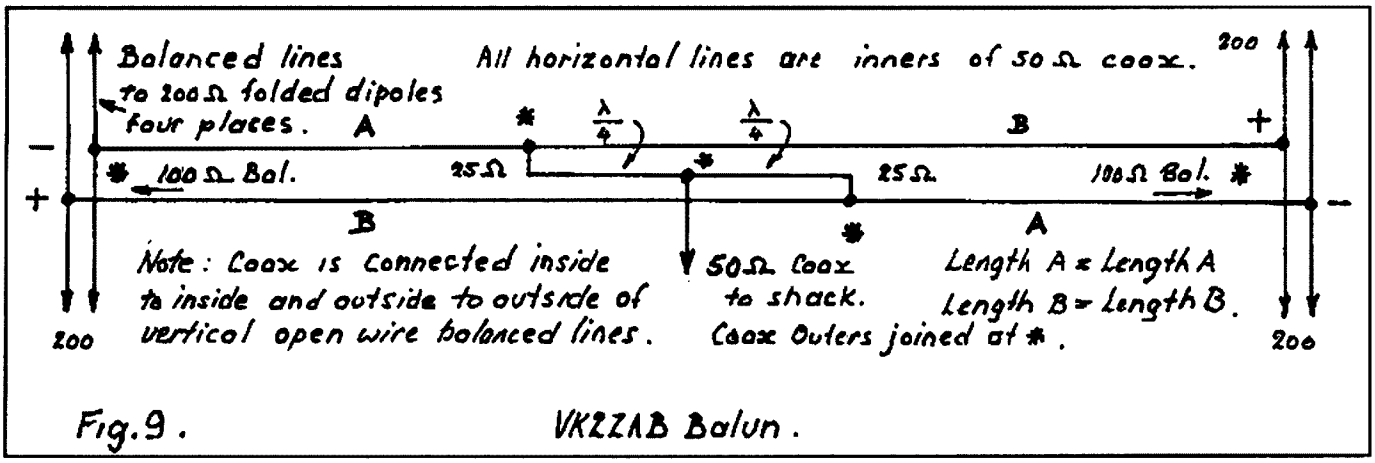


Fig. 9. VK2ZAB Balun.

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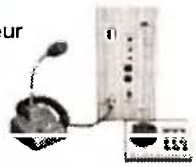

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AO-40 Dual Frequency LS Dish Feed

John Roberts VK4TL
(Located in Tolga near Atherton , North QLD)
Email radcool@tpg.com.au

The 2401 MHz Part

Many of you have struggled to match a helix and then wondered if its integrity is OK. What about getting up to 1296 MHz or in this case 1269 MHz. If you have been experimenting you will find that you get pattern distortion from physically supporting the turns. As the frequency goes up so does the problem. Well in this article solutions are provided for mechanical stability and concentric dish feeds for 1269 MHz and 2401 MHz together with a new way of constructing the matching tab capacitors.

Many of you will have started with the ARRL helix design for 2401 MHz.

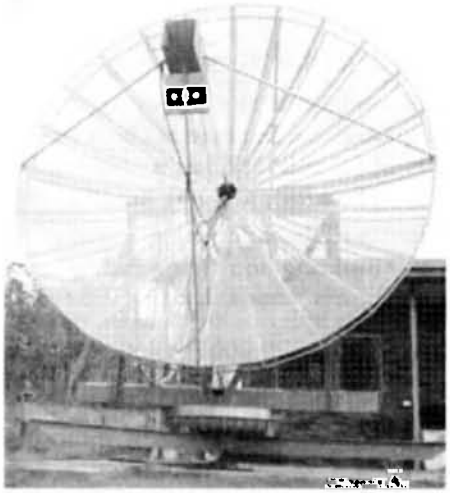

Photo 1. 3.7 Metre Dish at VK4TL.

Building it as per the details and not having the testing ability we wonder, even though it appears to work, whether it is working properly. We have no power source at 2401MHz to feed the SWR bridge even though we may have an SWR bridge such as a Daiwa or suchlike. Some of us may have something special here. What have others done, well the same as myself dig deep in the old pocket and got a G3RUH patch. What next, yes it's too nice to leave out in the weather we will copy it. Guess what it works about the same. I'm making no exaggerated comments. Some of the inspiration then comes from Robert W0LMD and his web site entitled Dish Feed Systems, www.ultimatecharger.com/Dish_Feed.html .

Robert is in the world of Tri-Band dish feeds for AO-40 and his 22 page article is inspirational. It was the first time that

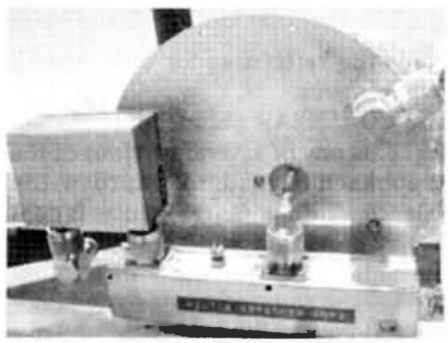

Photo 2 Patch Feed, Filter and Converter, 144 out Bottom Left and 1296 Input to Helix Top Right

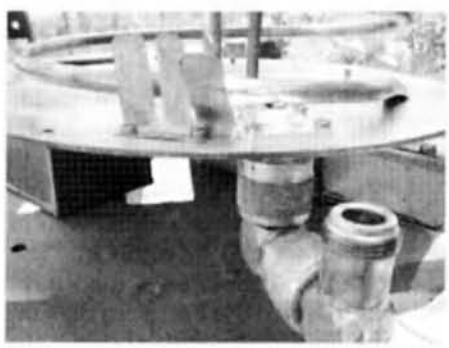

Photo 3 Helix Feed Showing Capacitor Matching Tabs.

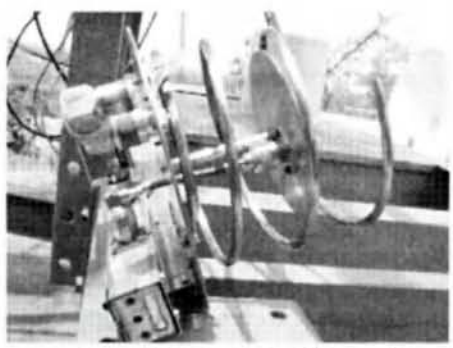

Photo 4 Helix, Patch, Filter and Converter Mounted at Dish Feed.

I learned about circular polarisation with a patch antenna. If you have scoured the Internet for information on patch antennas, as I have, then you will find that although there are practical details, tests have proven that some designs have no circular polarisation. Use the details from W0LMD's website, entitled "Dish Feed Systems" for the patch. Now the concept is so good that you can't throw it away and therefore buying the proven patch from G3RUH could not be put aside no matter how much it cost. For me it was expensive. I bought the G3RUH before testing the one built from Robert's article. Shucks!

The Desensing Issue

OK I have got the 2401 MHz. part of the dual feed out of the way now except for the filter. To transmit on 1269 MHz may desense 2401 MHz so I tried on the bench and it did. I had bought a Down East Microwave Xtal for 100.004 MHz and have an oscillator signal source permanently going 'down in the shed'. An IC1271 supplies up to five watts to a helix inside which is a patch antenna connected to the converter which is a Kuhne DB6NT 2401/144. Yes it desensed.

I searched the Internet for a filter. I thought that with all the extra activity with spread spectrum there would be something appropriate. The filters I found were far too expensive so I got down to it and produced a five section interdigital filter in a few hours. It all came out of my junk box.

Briefly a silver plated brass box 32mm wide with the fingers made from stand off pillars already drilled and tapped then cut to length. The filter was tuned up on my oscillator signal and inserted directly in the receive path as close to the patch as possible. The 1269 was switched on and at 5 watts there was no sign now of desensing. The details of the filter are available from many different sources. I used the German UHF compendium part 3 & 4 page 614. All

fingers are 24mm and I used "N" sockets. That problem is now out of the way. If you use separate antennas, elevating on say a KR500 elevating rotator, the filter will probably not be required but with concentric dual drive for a dish it is required.

The physical set up is shown in photo 2

Mechanical Integrity of the Helix

I have built a few helical antennas over the years. The biggest one was over 6 metres long for 144 MHz. One of these antennas was for 1296 for a beacon. I remember that it worked so well, but I did not record its details although the difference it made was profound. When we get up to 1296 and a helix of three turns then the whole three turns are expected to be supported by the 'N' socket. At this frequency everything near or touching the turns will do two things. One it will distort the pattern and two it will change the matching. As such the very best is not to have forward support. My helix starts earthed to the ground plane and at 73mm from this connects to the 'N' socket.

This is shown in photo 3. The helix is wound from one quarter inch copper tube. It is flattened at one end and bent so that the tube is about 2mm above the ground plane. Drill a hole in the flattened portion to bolt to the ground plane. Measure 73mm from the hole that secures the end of the first turn to ground. Drill a hole at this point that is just a nice fit for the "N" socket solder connection through only one side of the tube. With the solder place of the socket pushed inside firmly you will see that it will not short to ground here. The ground plane is made of sheet brass. It was made 190mm diameter and the helix fastened to it at the appropriate places. That is earth and 'N' socket fastened with, on the helix side, brass or stainless steel hardware. If you tap the threads for these screws then the helix can easily be removed in the future for whatever reason. Now using a 50 watt soldering iron solder the "N" socket to the copper pipe. . The socket position on the inside of the ground plane increases the separation tube to plane for the right height criterion.

Placing the 2401 MHz Patch inside the 1269 MHz Helix

Have you been looking for the helix diameter, yes well surprise, surprise, it's about double what it should be which allows the 2401 MHz Patch to comfortably sit inside. Now remember the old days when you wouldn't dream of putting a metal boom inside the helix. What trouble I went to with my 144 MHz helix finding a marquee tent pole to do service as a boom. I need not have bothered. Helix antennas with metal booms are described all over the place. I'm sure Colin Richards' (9M2CR) chopstick one didn't use a metal boom. OK the diameter of the helix is 150mm and the turn spacing 50mm. The mechanical stability has been dealt with using two fixing points and quarter inch

Six co-axial baluns for VHF/UHF antennas

Continued from page 6

versatile of the three baluns described and convenient for some applications but it is physically complex and cannot be easily waterproofed. However the slotted line does not have to be air spaced.

Three *uncommon* baluns which may be used by amateurs

A standard RAT RACE balun is shown diagrammatically in Fig. 7. This hybrid ring is the big brother of the common half wave balun. If the impedance of all the coax lines is 75 ohm, the impedance of the loads at all ports is 75 / 1.414 = 53 ohm. Note that ports 'B' and 'C' are 180 degrees apart and if these form the two sides of a balanced load with the centre earthed and if port 'A' is used as the input/output we have a 2:1 impedance matching balun. It should be noted that this only obtains when the ring is complete. The load at port 'D' will only dissipate out of balance power. It does not affect the balanced ports.

There are several versions of the rat race.

See the references for other useful arrangements.

The CO-LINEAR balun, illustrated in Fig. 8, is one of several versions of the bazooka designed to improve the balance efficiency at resonance. It does this by providing physical symmetry at the balance terminals. In another version the stub section is folded back to lie alongside the input quarter wave section and the two are enclosed in one sleeve.

The VK2ZAB balun, illustrated in Fig 9, was designed to feed the two balanced loads seen at the centre of vertical open wire lines connecting the dipoles of the top and bottom Yagis of each pair of a two alongside two stack. In the diagram, the horizontal lines are all inners of 50 ohm coaxial cable. The outers are omitted for clarity but are all bonded together at the points marked [*]. The impedances which are obtained at each junction are shown on the diagram.

References:

Baluns in general:

"Antenna Engineering" book edited by Johnson and Jaslk.

"The ARRL Antenna Book"

Ferrite HF baluns:

"Building and Using Baluns and Ununs" book by Jerry Sevick W2FMI.

Three Common Baluns:

"Antenna Theory and Design" book by H. Paul Williams.

Slotted Tube Baluns

"Microwave Antenna Theory and Design" MIT book. Editor S. Silver

"Slotted Dipole Impedance Theory" RL report No 772 by H. J. Riblet.

EIA Antenna / Feed:

"A Proposed Gain Standard for VHF Antennas" Paper by R.F.H. Yang.

"The ARRL Microwave Experimenters Manual" RF Hybrid Networks R. G. Manton in "The Radio and Electronic Engineer" Nov./Dec. 1984. For more data on anything in this article contact the author on VGMCD@ bigpond com

ar.

tube. Next being able to position the two antennas has been solved and the focus and phase point for the system can be the same for both 1269 and 2401. Polish the tube before bending. The helix earth point and the "N" socket are on the circumference of the helix. Photo 3 may explain.

Matching the Helix

Why is it that I cannot find any sophistication in matching systems applied to helix antennas? All the articles are far too dismissive. The old approach is a section of 75 ohm coax line to transform 140 ohms to 50 ohms. I'm sure you will have already decided that you don't know if it is 140 ohms to start with. There are reservations that at this frequency the pattern would be upset with some current flow on the outer of this matching section. The tabs way would seem to be the best choice out of the only two proffered. Experiments were tried with matching screws threaded through from the rear of the ground plane but in the end I came back to the tab. Soldering tabs on and off the quarter inch tube was not the most enjoyable exercise. I thought why not put the tabs on the ground plane. The prototype was built with six "tin can" material caps in a row and screwed down with three nuts and bolts. Instant success.

Putting It Together

Clean and polish the tube then give it some coats of Incrolac. I am looking for a drinks cooler (Esky) that will make a suitable radome for the antennas ahead of the ground plane. The rear will be in a housing or box to keep the converter and filter out of the weather.

The helical antenna has three turns, which determines the dish illumination. I make no claims for what it does but my 3.7 metre dish has an F/D of 0.45 and I hope that this does the job. The tab capacitor on the finished model was made initially to fit on the screws that fix the 'N' socket. This was not successful no doubt due to the RF currents at this frequency requiring direct earth paths. The material was thin brass sheet cut with shears and fixed to the ground plane with two screws right up against the "N" socket and positioned so that the tabs can be bent towards the first turn. Three capacitor tabs or fingers were found to be OK. The patch can be secured with brass rod threaded internally at each end so that the patch will be located at the approximate phase centre of the helix. You must make a hole in the ground plane at a point under the "N" socket of the patch to allow access for an "N" plug. The interdigital filter is secured with a bracket to the rear of the ground plane and the Kuhne 2401/144 converter is directly attached to the filter, which has been built with a male "N" outlet. When winding the helix as an AO-40 dish feed make sure that it travels anticlockwise away from you and the ground plane end. This is for use as a dish feed where reversal takes place in polarisation.

You Are Almost Enjoying Mode "L" On AO-40

The housing box was removed from the dish and taken to the workbench. The system including the filter with final tuning locked down and MKU 24 Oscar converter were installed inside. The helix had a final trim and then was installed on the dish at an offset of 300mm below focal point which is reserved for more important experiments (says he). Two days went by without a suitable pass on AO-40 and as the satellite transponder was off. I was hearing this huge beacon signal. The time of reckoning came 18th Nov. 2002 and with about 3 watts at the dish I worked VK3TBC followed by VK2RW. Now after experience in uplinking on 70cm with a linear feed to the dish and up to 300 watts available I came into stable, non Leila, non-fading operating, a tremendous relief. Leila will move ex high power mode "B" operators to mode "L". Was I? The next days operations confirmed that the system was working properly with contacts all over the place including Jamaica W6FOG/6Y5. There is no SWR to be seen on the Daiwa Bridge in the shack and I have now removed it from the line. The IC1271 that had previously been peaked for 1296 has about 5 watts output on 1269. I expect to add an M57762 Mitsubishi RF brick to give up to 18 watts and leave the rig tuned as it is. See you on AO-40.

Useful Websites

W0LMD www.ultimatecharger.com/Dish_Feed.html

G3RUH www.jrmiller.demon.co.uk

DB6NT www.kuhne-electronic.de/english/frameset.htm

Down East Microwave www.downeastmicrowave.com/

Original publication John Roberts VK4TL on Phillip Charlier's website at www.reefandrainforest.com/

Photos and web design by Phillip Charlier phillip@reefandrainforest.com)

John Roberts Email radcool@tpg.com.au

ar

Over to you

Towering victory

Amateurs in Victoria at least and who may be having trouble with their local Councils in relation to the erection or use of a mast or tower, will be pleased to learn that a in recent case at the Victorian Civil and Administrative Appeals Tribunal (VCAT), the Tribunal held that no town planning permit was required for a mast 13.7 metres in height.

Some Councils, notably Casey City and Banyule City, have held that such a mast is a "Telecommunications Facility" and accordingly needed a permit. VCAT has, in a strong judgement, decided otherwise.

I would suggest that anyone who is having trouble should visit the VCAT website, and look up the decision which is listed at the following address:- http://www.vcat.vic/gov.au/2003-vcat-pl-402.htm

The written decision made on 10 April 2003, gives full details of the reasons behind the judgement, and may well serve to assist amateurs in other states.

The case may also be of interest to amateurs in other states, where the town planning legislation may be similar to that in Victoria.

Don Jackson VK3DBB.

Brush-up your Morse and join in the action

Drew Diamond, VK3XU
45 Gatters Road, Wonga Park, 3115.

When it was announced that the U.S. Coast Guard had dropped Morse critics of the mode were saying, "It's official. Morse is dead because the U.S. Coast Guard don't use it any more". However, our parameters are very different from the commercial world, and that's the key word, "commercial" = commerce = for money. Certainly Morse is no longer commercially viable, as there are now much cheaper ways of sending messages to and from ships at sea, aircraft and remote stations. But we don't communicate for financial gain. We do it for self-training, technical investigation, public service, the challenge, and for enjoyment and relaxation (Refs 1 and 2).

Interestingly, hardly a week goes by without my hearing, at radio meetings, or on-air, the remark; "I must brush-up my Morse". The motive presumably comes from individual realisation that CW Morse (CW from hereon) remains a powerful communications tool, one which is well worth maintaining on our bands. The technical and operational advantages of CW are well known, and have been extensively aired in this and other journals (e.g. Refs 3 – 8), and need not be repeated here. Suffice to say that amateur CW is very much alive, and continues to prosper on the low end of our HF bands, 1.8 MHz and 6 m and 2 m, where the mode is used for both local and DX contacts. On 14 MHz for instance, particularly when conditions are good, it can be 'standing-room only' from 14.001 to perhaps 14.060 MHz. For QRP operators and those with modest stations (typically less than 100 W and basic wire antennas), CW may be the only effective simple mode for DX work.

For persons with a desire to improve their CW skills, an often stated (and probably valid) complaint is that the CW bands seem to be occupied by 'speed demons', there being very few conversational contacts to be found which are below about 10 or 12 W.P.M. Unfortunately, some 'expert' operators either cannot (or will not) slow down to accommodate a new or rusty operator. In order to encourage new enthusiasts, a helpful amateur should try to send at a speed which is commensurate with the ability of the other fellow, because such exchanges offer real support to learners keen to improve their skills.

Quite good and useful CW work can be done at perhaps 10 W.P.M., but it is generally agreed that the mode may be more fully enjoyed at higher speeds. Things really start cooking at speeds above about 12 or 14 W.P.M., and naturally it becomes easier to find more contacts as skill improves. In this "I want it and I want it now" age, it seems to have become unfashionable to attempt anything that requires work and dedication. This attitude is perhaps summed up by Homer Simpson's advice to his son Bart, "if something's hard to do then it's not worth doing". As far as is known, there is no easy way of gaining speed and proficiency in CW except by hard work and practice.

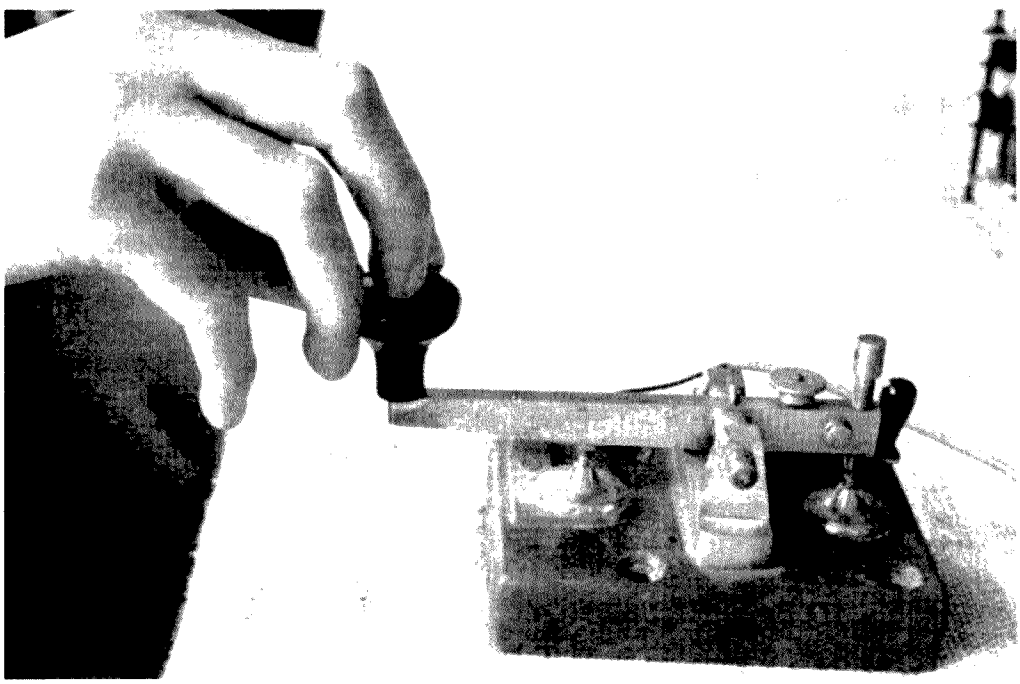

Photo 1

Receiving

If you are still with me after that news, you may be thinking "fair enough, but where do we get the practice?" There's lots of material. Tapes are adequate, but off-air is more like the real world. For instance, the VK2WI Dural practice beacon on 3.699 MHz and 145.650 MHz is a good one — plain language at a range of speeds, and so also are

the nightly W.I.A. sessions on 3.550 MHz starting at 0930 Z. Do as much listening as you can on the CW portions of the HF bands. Listen-in to the low end of 3.5 MHz any night of the week, and between 7 and 8 AM Eastern Time for the "Early-bird" practice net on 3.539 MHz (newcomers welcome).

Try 7 MHz, between about 7.001 and 7.030 MHz, either very early in the morning, or late afternoons and evenings (there is sometimes a little CW activity during the day). 7 MHz is particularly active on Sunday mornings between 0000 and 0200 Z during the "CW Net". 14 MHz provides a rich harvest. This band is usually open to Europe and North America in the afternoons and well into our evenings where slower operators seem to favour 14.040 to about 14.060 MHz ('Fists' CW Club members may often be heard on 14.059 MHz at moderate sending speeds). The A.R.R.L. broadcast excellent practice sessions (with the "works", including punctuation) from W1AW at 1300 Z on 14.0475 MHz. 5 – 15 W.P.M. Mondays and Wednesdays, 15 – 35 W.P.M. Tuesdays and Thursdays.

If you can listen down on LF, see how many navigation beacons can be identified between about 200 kHz and 400 kHz. Also, tune-in to the HF beacons on (say) 14.100, 21.150 and 28.200 MHz, where the various transmitters may be heard "chiming-in" cyclically during their allotted time-slot. It is interesting to note the distant call areas that may be heard at different times of the day, and these provide excellent receiving practice. And don't forget your local radio club, many of which broadcast CW practice sessions for students in their area.

Sending

When sending CW, we are not setting out to win a race, or impress the neighbours. We are trying to convey information. Speed is not the whole thing, but quality is the goal. Excellence in sending must always come first. With practice and perseverance, speed will gradually improve. And some days may be better than others. Always remember, the mark of a good CW operator is sending which is not necessarily fast, but is correctly spaced, rhythmic and contains the right number of dits and dahs for each character. No one enjoys having to decode a jerky, rushed, badly formed racket which is riddled with errors; it's just too much like work. However, when your sending is correctly formed and pleasant to copy, then the world will be queuing up to work you, and radio friends will stop you in the street to offer compliments on your sending style.

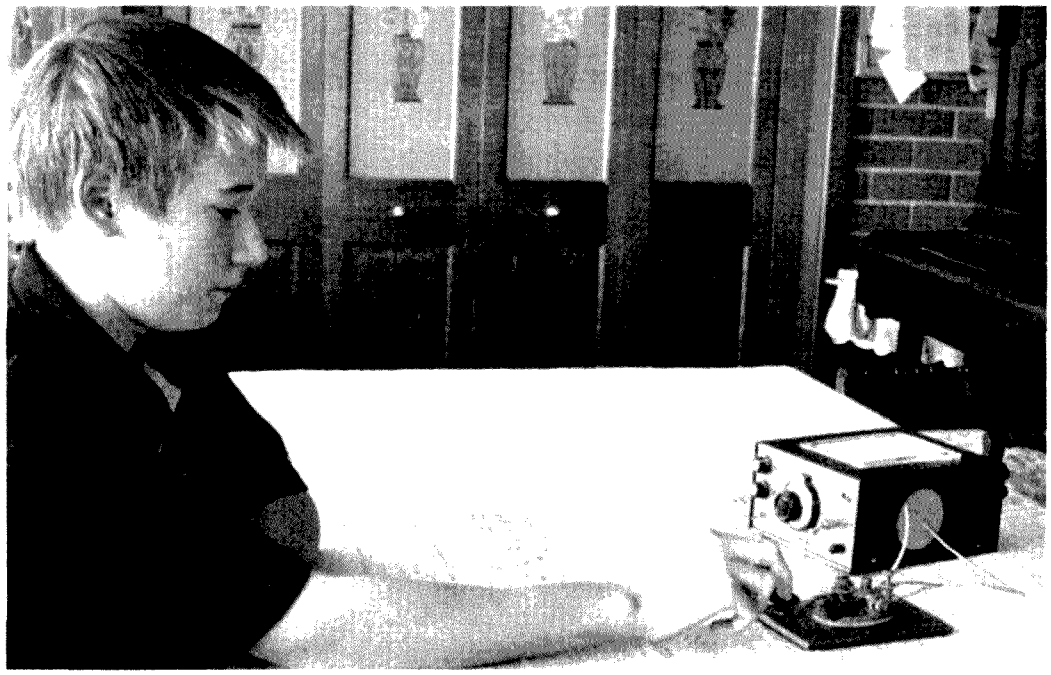

Photo 2

There are basically two common types of hand key; the familiar (to most of us) B.P(ost) O(ffice) or A.P.O. pattern (Photo 1), and the American pattern (Photos 2 and 3). If you have the opportunity to try different types, select a key that is comfortable at first go; you can always change to another kind later on.

The key contacts should be adjusted initially for a gap of about 0.3 – 0.5 mm, or the thickness of a card. Tension of the return spring must be found by experiment: if the tension is too great, the operator will tire too easily, and if the tension is too small there is risk of losing the correct rhythm. I like to think that the wrist muscles and spring tension are "tuned" or "matched" when a string of dits or dahs can be produced which are almost effortless and properly formed (Ref. 9).

A Post Office style key should be fixed at or near the edge of the operating table. The height of the chair should be such that the operator's lower arm is horizontal when the fingers are placed upon the key knob. Upper arm should hang almost vertically down the side of the body. Sit squarely at the table with your back straight and both feet flat upon the floor.

Everyone seems to acquire his or her own method of "pounding brass" (see QSL card). However, there is a "correct" arrangement of the fingers for the P.O. key, which is depicted in Photo 1. Index and second fingers are placed in a relaxed manner upon the top of the knob, thumb and ring finger touch each side (perhaps just slightly under the knob), and little finger is free (Refs 10 and 11).

An American pattern key may be used in a similar manner to the P.O., but more correctly it should be located at a comfortable distance from the table's edge, as depicted in Photo 2. Note that only the elbow rests upon the table, lower arm and wrist should not contact the table during sending. It may be found of benefit to place (say) a 100 x 200 mm rectangle of carpet under the elbow. Photo 3 shows finger placement; index and second fingers upon the knob, thumb on the side (perhaps slightly angled under the knob), ring and little fingers free (Ref. 12).

For both key types, manipulation should come from depression of the

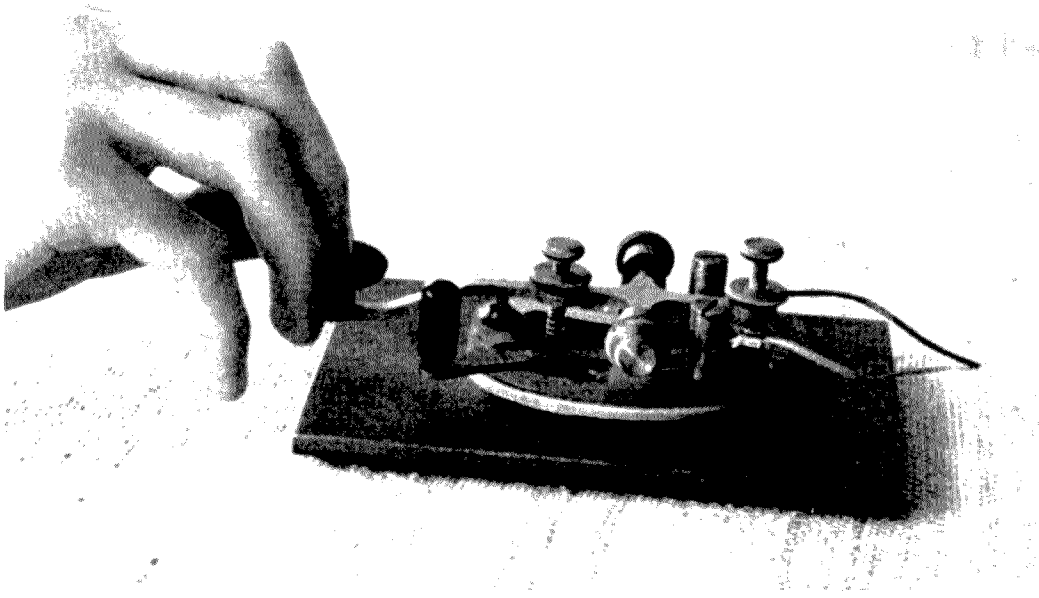

Photo 3

fingers and wrist, there being little arm movement, only that produced by the downward motion of the wrist. The relevant wrist and finger joints may be initially trained by sending strings of dits and dahs until it is easily done. Then try alternating the dits and dahs in a didahdidah.... pattern. At no time should the pace be forced or rushed. Dexterity and speed should improve naturally and gradually with regular practice.

Choose sending practice material, which uses all letters of the alphabet and numbers. If you like music, have some fun sending; MISSISSIPPI, TENNESSEE, BENEFIT, BEEFESSENCES and BEST BENT WIRE. Although punctuation is not an exam requirement, it is handy to know full-stop (didahdidahdidah), comma (dahdahdididahdah), question mark (dididahdahdidit) and forward slash (dahdididahdit) because real CW traffic uses these. You will also need dash (dahdidididah), which is used as a general-purpose filler-in and thought separator (um, er) during conversational CW.

Tape-record your sending from time to time for "quality assurance" in order to correct any bad habits, which may creep in. Some common sending errors are: running certain letters together (like PD instead of AND, NST for TEST, and NAG for NAME), adding extra dits (5 for H, and 6 for B), and dropping dits (S for H and H for 5). If you can't copy your own sending, how are others expected to?

For most of us, speeds beyond about 18 W.P.M. (on a good day, with a tail wind) of good quality are hard to achieve with an ordinary hand-key. Electronic keyers make CW even more enjoyable, and allow the operator to cruise along at a cracking pace without fatigue. It is hoped to make these devices the subject of a later article.

Going On-air

As receiving and sending speed improves, so should confidence to the point where at last it is felt that an on-air CW contact may be attempted. The best way is probably a prearranged "sked", either with a mate in a similar position to yourself, or better still, with a more experienced operator that you know will treat you with kindness and patience, and who (hopefully) can offer constructive comments on your sending style, or "fist". If possible, choose an uncrowded part of an appropriate CW band.

By convention (not always observed), CW operators should send at a speed, which is about the same as the station being "worked". Therefore, when putting out a "CQ" call, or in replying to a call, try to send at a speed at which you would like to continue the contact. That is, if your top speed is (say) 10 W.P.M.; don't call at 14 W.P.M., because the other fellow may (quite rightly) assume that you can do 14 W.P.M. If the other operator is going too fast for you; send "PSE QRS" (please send more slowly).

When we studied for the sending exam, it was pounded into us not to forget to send "message begins"; CT (C and T joined; dahdidahdidah) and "message ends"; AR (didahdidahdit). However, CT is seldom used on air today, as it is rather superfluous (it's a bit like saying; "I say..." and then saying something). Most operators simply start (you may hear dididididahdit (VE) which is a similar "ahem" to CT). Message ends (AR) however, is very useful, and tells the other station that you have concluded your "over", and to get ready to reply. Even to this day, there is no standard form in the use of AR. Most operators put it at the end of the message, but before the call signs. Let's say I'm working Jim, G6ZO, and am about to put it over for his reply. I would send; HW?

AR G6ZO DE VK3XU K" which translates to; "how did you receive that? Message ends G6ZO this is VK3XU go ahead.

Although a CQ call does not contain a message (as such), many operators put AR at the end of a CQ call e.g. CQ CQ CQ DE VK3XU VK3XU AR. However, the more usual is to end a CQ call with a K (K means "go ahead" or "over" or "invitation to transmit"). If you are only interested in receiving replies from DX stations, then the call may be something like; CQ CQ CQ DX DE VK3XU VK3XU DX K. You will occasionally hear; dahdidahdahdit (KN), which is an invitation to a specific station to reply (all others please keep out). Unless you are the station nominated, do not reply. Unfortunately, KN seems to be the most misunderstood signal of all, but use it if you think it will help. For example, when a DX band is "wide-open", VK's are very popular, and some stations may only catch your call sign and K, and assume that you have called CQ, and start calling you and thus interfere with the station you have been working. A "KN" might work (but often not, I'm sad to say). It is meaningless to send "KN" at the end of a CQ call.

As with 'phone operating, have a good snoop around the band first, to see what's happening. If a contact is desired, it may well be that you will hear a station calling CQ, or the tail end of a contact where you would like to work one of the stations just signing (but see next paragraph). When calling a station, send his call-sign once or twice only, then your call-sign twice or three times, then K or AR (he knows his own call-sign what he wants to hear is your call sign).

Although none of us "own" frequencies, it is quite correct, when finishing a contact with a station which was on the frequency first (you replied to his CQ for example) to move off that frequency, even if you get a "gaggle" of callers at the end of the contact. The "owner" may sportingly send; "it's yours", or "GA" (go ahead), in which case only then may you use the frequency for a new contact. Similarly, when concluding a contact with a rare or unusual station (even if it was "your" frequency) the courteous thing to do is move away if they get a gaggle of callers.

One of the most annoying practices is the "endless CQ". You know the sort; we've all heard them, long strings of seemingly endless CQ's, when all you want is the call sign. To avoid unnecessary interference, CQ calls should be short and to the point. The 3 by 3 (three CQ's, three call signs) is usually regarded as the "standard" form. Of course small variations are fine. A form that I have had success with is three CQ's, then three call-signs, then 2 by 2, then 1 by 1 then K.

Before putting out a CQ, it is important to monitor the frequency for a little while first. If it appears to be free, send "QRL?" (are you busy?). You may hear "YES" or "WAIT" (didahdididit) or "C", which is short for "YES". If there is such a reply, find another frequency and try again.

To save time there are many standard (and non-standard) abbreviations used for CW work. A few have already been mentioned. Some of the more common ones are: TKS (or TNX), PSE (or PLS), ES (and), WID (with), WUD (would), WL (will), WX (weather), HW (how usually means how did you receive my message?), FER (for), R (received and understood), UR (your), HR (hear or here) in addition to all the usual Q-codes. Most radio handbooks and operating manuals contain a fuller list.

During a normal contact, it is usual to take a few notes or, if the whole message is written down, to underline points which require a reply.

A common dread with learners is in sending long or difficult words. Try not to get too fussed about this. Always use the simplest word that will do the job. But sometimes there is no apparent alternative. Some operators write the word down beforehand, which is excellent if you have time. Otherwise, simply do the best you can, or invent a mnemonic "on the fly". For example, assume the word "probably" is needed. If instead you send "PBLY", the other fellow will get your meaning. Another method is the break the word into separate parts in your mind. Let's suppose the word "understandably" is needed. It may be separated into UNDER- STAND-ABLY, but sent without the gaps, thus making the whole word.

When a contact is concluded, the signal for "end of work" is VA (didididahdidah), which is sent at the end of the final transmission. For example, in finishing my contact with G6ZO, I might send; TKS FER ANR INTERESTING QSO JIM - 73 ES CU AGN SN AR G6ZO DE VK3XU VA E E. Those two little dits are a sort of friendly little wave, which many operators often tag right at the end of an enjoyable contact.

Summary

For many technical and operational reasons, Morse CW continues to be actively used on the amateur bands. It

Continues on 17

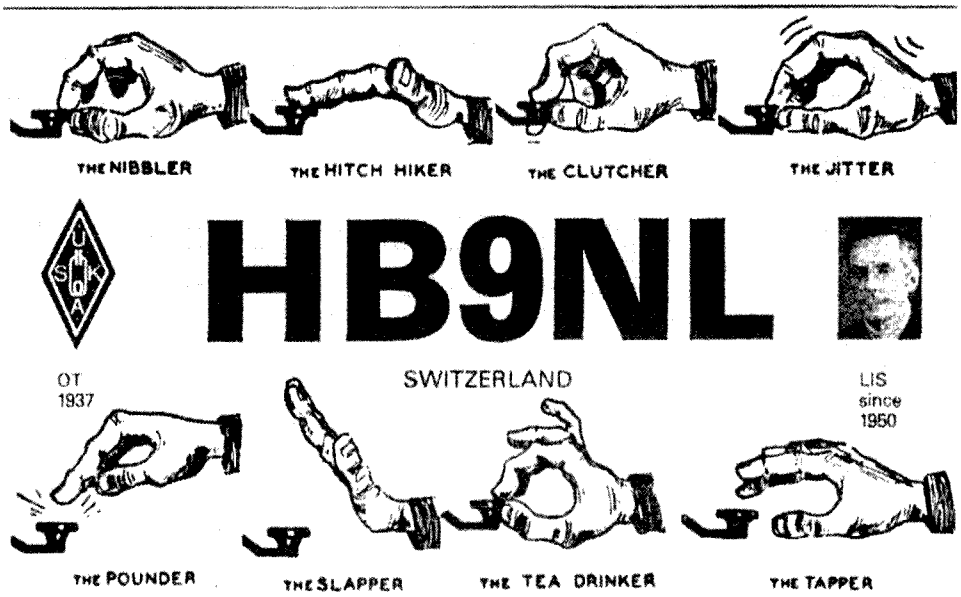

Photo 4

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Transceiver-Computer Interfacing

Many transceivers now have provision for connecting the transceiver to a serial port of a computer so that they can be controlled using the computer running suitable software.

The transceiver ports, however, need an interface circuit to the computer serial port that is an RS232 serial port. Many transceiver ports are using TTL levels that are not compatible with the computer serial RS232 port. The solution is to use an interface and these are available from the transceiver manufacturers. You can make your own as they are relatively simple circuits. Information on interfacing and some suitable circuits appeared in the *In Practice* column of Ian White G3SEK in *RadCom* for December 2002.

Generic interfaces for both Yaesu and Kenwood are shown in Fig 1. The Yaesu interface, Fig 1(a), is simple using level shifters to connect the transceiver to the RS232 serial port. A practical circuit using a MAX232 to generate true RS232 levels is shown in Fig 2. The two electrolytics C5 and C6 are usually 10 microfarad 35 VW tantalum, but some other makers' MAX232 varieties may allow lower values.

A Kenwood generic interface is shown in Fig 1(b) and a simplified version in Fig 1(c). These require inverters in addition to the Level Shifters. The simplified version loops back the hardware handshaking and may be suitable

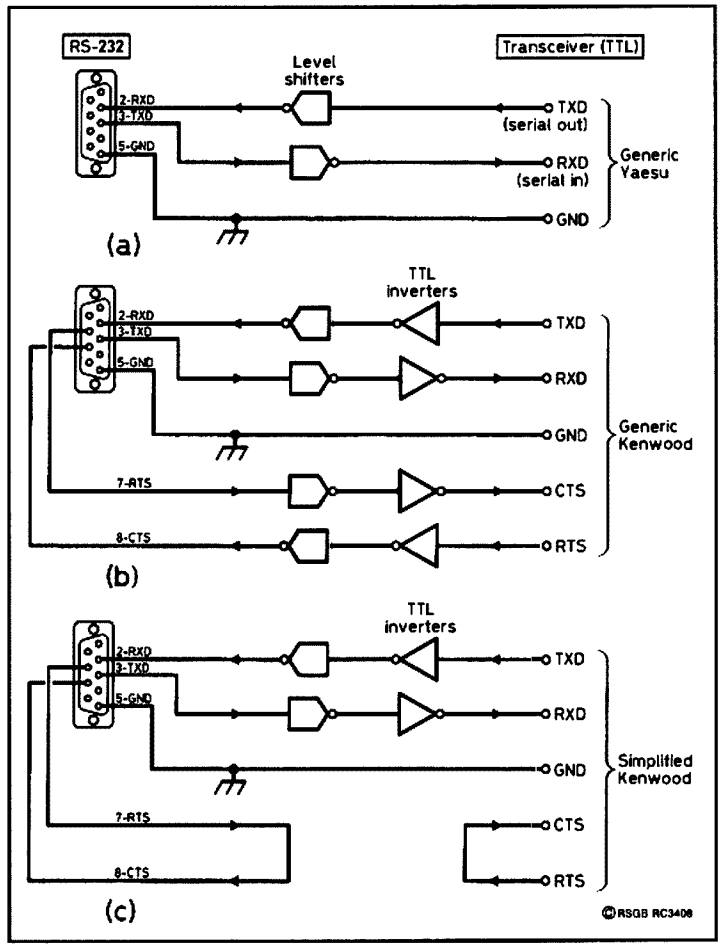

Fig 1. Generic RS232 Interfaces. (a) Three wire Yaesu. (b) Five wire Kenwood with full RTS - CTS handshaking. (c) Simplified three wire Kenwood with handshaking emulated by CTS-RTS linking at each end.

Brush-up your Morse and join in the action

Continued from page 15

appears that a significant number of amateurs, having passed the 5 or 10 W.P.M. Morse CW test (or having allowed previously held skills to become "rusty"), are willing to "have a go", but lack the necessary confidence to use CW on-air. Salient guidelines have been presented to assist such persons to reach a higher sending and receiving speed necessary for a fuller appreciation and enjoyment of the mode. Some hints on contemporary operating procedures have also been outlined.

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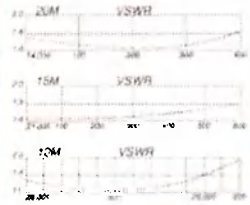

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for use with many Kenwood rigs and software types. For a practical circuit you only need to add inverters in the TTL lines between the MAX32 and the transceiver serial lines in the circuit shown in Fig 2. Six suitable inverters are usually contained in one IC and are readily available. If you need the full interface as shown in Fig 1(b) this would only require two MAX232 ICs and one hex inverter chip. The power supply would be adequate for this.

Interfaces may also be somewhat simpler as computer serial input/output circuits often can operate without the full RS232 signal range. You can often also derive power from the serial port to run the interface circuit. These are not as noise immune as the circuit of Fig 2. However, for short screened leads they may be adequate. A practical Yaesu/Icom interface circuit deriving power from the computer serial RS232 port is shown in Fig 3.

Icom use a single wire bus with bi-directional data. The data is in the form of packets, which are addressed to the transceiver, allowing several rigs to be paralleled. To use the interface circuit of Fig 2 you link the TXD and RXD at the transceiver side as shown. The Icom CI-V bus is shown in Fig 4. A similar bus is used by Ten Tec.

For more information and links, Ian White G3SEK has a website which has a lot of information on this and other topics at www.ifwtech.co.uk/g3sek.

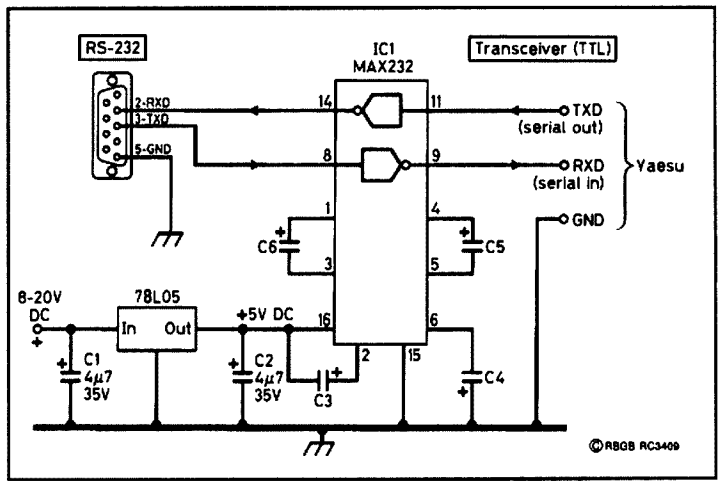


Fig 2. Practical Yaesu interface using MAX232. C5 and C6 are 10 mF 35 VW tantalum electrolytics. Some makes of MAX232 may allow smaller value capacitors, so check the data sheet.

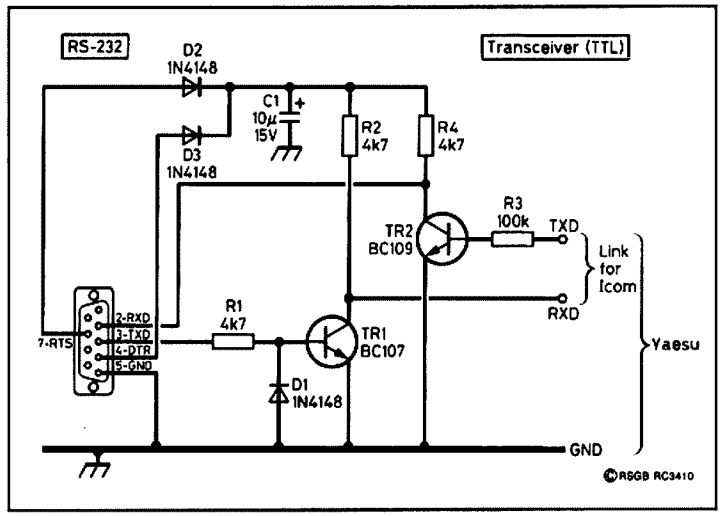


Fig 3. Practical Yaesu/Icom interface deriving power from the computer serial port. Link is for Icom CI-V single wire data bus (see Fig 4).

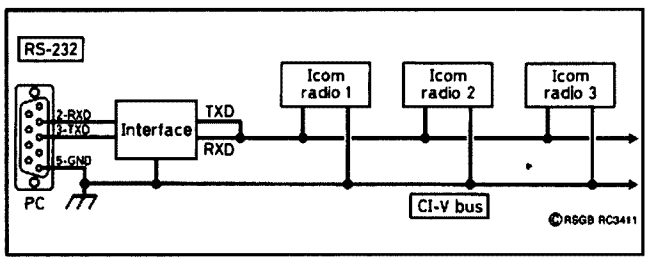


Fig 4. Icom single wire plus ground CI-V data bus allowing multiple rig control. Also used by Ten Tec.

Terminated Vee Beam

A simple broad band antenna was described in *CQ* magazine for September 2002 by Arnie Coro CO2KK in his *Antennas* column. Arnie CO2KK attributes the antenna to Dr Jose A. Valladares PhD, who showed him how to use it in 1961.

The antenna is a sloping Vee beam supported by a mast of 15 metres (50 ft approx) which slopes down to approx 6.5 feet above ground. The antenna is terminated at the ends and the example described covered the 6, 10, and 12 metre bands and also, with reduced performance, 15 and 20 metres.

The antenna is shown in Fig 6. A side view is shown in Fig 7. Two sloping wires 20 metres long (67 ft approx) slope down from the feed point to terminating resistors two metres (6.5 feet) above ground. The other ends of the terminating resistors are joined by a connecting wire. The resistors are in the range 250 to 500 ohms and should be non-inductive types capable of dissipating around 30 % of the power used. The apex angle is between 30 and 60 degrees. The angle should be closer to 30 degrees if 6 metres is the primary interest, but can be widened toward 60 degrees if the lower bands are of more interest.

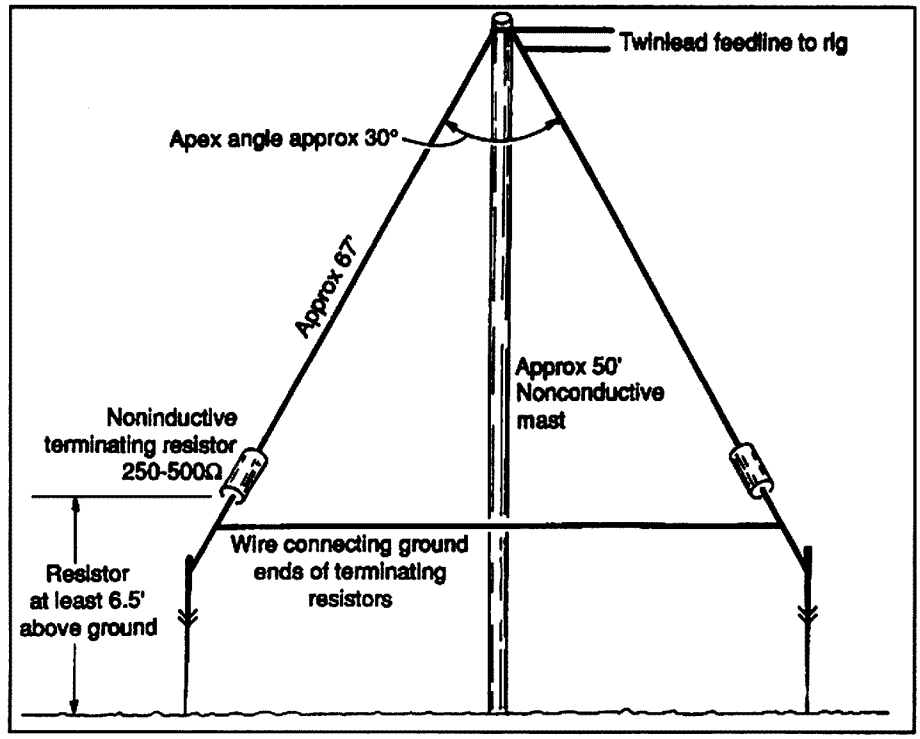


Fig 6. Terminated Vee beam.

The feed line used was 450 ohm open wire line to a 4:1 balun feeding a tuner in the shack. With some experimentation you could probably find a combination of apex angle and terminating resistors which would allow reasonably low SWR operation with a balun at the feed point over a wide frequency range.

Arnie CO2KK has used the antenna for pointing in a favoured direction for 6 metre and 10 metre DX. The antenna beam is in the direction from the mast support through the midpoint of the line between the terminating resistors.

If a metal support mast is used then the apex of the Vee where the feed-point is suspended should be a minimum of one metre from the metal support.

The advantage of this antenna is the wide bandwidth allowing operation or monitoring on a range of frequencies with directivity and some gain.

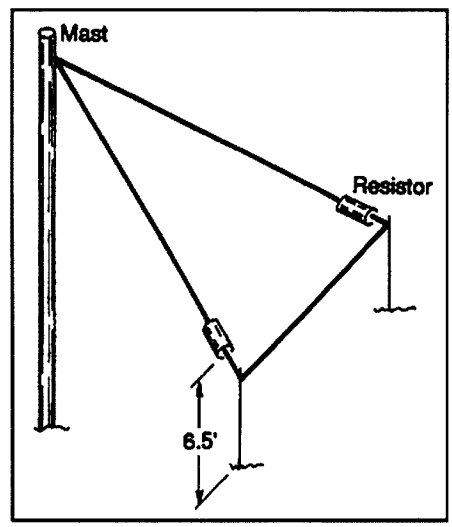


Fig 7. Side view of terminated Vee beam.

Cable Entry

There are many ways to get antenna and rotator cables into the shack. You can simply run them in through an open window, but this has some problems as a permanent arrangement.

Drilling holes in a window frame is another way, but it can be messy. In the *Antennas* column of Peter Dodd G3LDO in *RadCom* for December 2002 the problem was addressed and Peter showed how to provide a neat entry point through a brick wall. This was in response to the need for a tidy cable entry to satisfy the domestic management.

Peter drilled a number of holes in the brickwork so as to allow a plug to be removed thereby enabling insertion of a 40 mm plastic pipe to be used as a cable entry. Many handyman power drills provide a hammer setting, which allows masonry drills to be used. These are ideal for drilling holes in a brick wall. However, most domestic drills can't handle a bit which would drill a 40 mm or 50 mm hole. This is overcome by drilling a sequence of holes around the circumference of the desired hole size to accommodate the plastic pipe to be used as the cable entry. The drilling pattern can be seen in Fig 7. The irregular gap around the pipe can then be filled with mortar to give a neat finish.

The cables leading to the entry point can be contained in a length of plastic cable duct fastened to the wall. This material can be obtained from electrical wholesalers. The result will be a neat cable entry with the cables contained in the duct.

One point when dealing with cables is to use connectors which will not result in problems and which are relatively easy to terminate. The old style PL259 is not ideal and soldering them can result in a fairly unsatisfactory result. There are UHF connectors available which are terminated in a manner which is similar to Type N connectors and these are much more satisfactory. The principal improvement is in the use of the same type of clamping as used in other connectors such as the type N and BNC type connectors. Such connectors are available from a number of advertisers as well as from other suppliers. They are well worth the extra cost and effort in obtaining them.

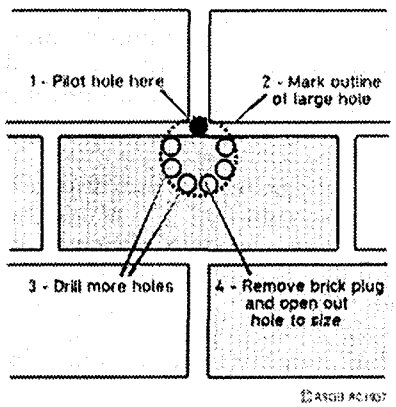


Fig 7. How to make a 40 mm or larger hole through a brick wall to allow insertion of a plastic pipe to serve as a cable entry point.

NOTICE TO CONTEST PARTICIPANTS

JMFD 2003 LOGS

Logs sent by email have been lost due to HDD failure and not backing up Logs received onto FDD (as was done last year). Would those stations that had submitted email log please re submit to: esr@powerup.com.au or esr01@optusnet.com.au by 23rd August 2003.

Or if you known of any stations that you had worked in the contest who might have used email to send in their log, please pass on the info, thanks.

Eric Fittock VK4NEF
JMFD Contest Manager

Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 28 –Frequently Asked Questions

Since this column started in April 2001, email messages continue to flood the writer's in-box from all over Australia almost on a daily basis. The majority of messages are FAQ's (Frequently Asked Questions) on "how-to" install and setup software on a myriad of computer platforms. By far the most prolific questions highlight Computer Viruses (AR 4/02), Computer Noises (AR 10/02), Computer Security (AR 4/03) and combating spam rather than specific Amateur Radio related questions. Whilst this publication is about supporting Amateur Radio enthusiasts and not about computers directly, it now highlights the impact of computers upon the AR fraternity. Readership is growing especially with the Ham Shack Computers Web Site where readers can access past copies of articles and hunt for, or download the software featured each month. The following reader topics have drawn the most on-line debate with the writer.

1. Computer Noise (AR 10/02)

Most AR operators suffer from these problems depending upon equipment installed in the average ham shack. AR 4/02 dealt with the topic in depth, but some readers found they still have problems. Try to keep the computing equipment away from the AR gear. This means separating the computing leads from antenna leads and installing a station earthing system. Start tracking "birdies" with the DigiPan (1) waterfall feature and do some detective work slowly. Remember, with free software and several evenings mucking around moving things around the shack will produce excellent low-noise results. G3SEK in RadCom 6/03, pp80-81 offers good advice on what he calls The Equipotential Strip. However, the writer suggests using a long flat bar of brass screwed to the rear of the shack desk, suitably tapped along its length, and short lengths of thick insulated earth braid (made from old RG58 coax) connected to each AR shack item - including the computer case.

2. Computer Security (AR 4/03)

The writer said that if readers ignored the suggestions offered under this heading then "Stay off the Net"! Many readers agreed and were relieved to find solutions for long suffering virus, spam and nasties that seemed to pour from the Internet every hour! Most computer users have bought their new machine and just use all the default software supplied by the vendor. If the computer fails to work, they take it somewhere to be fixed! However, things are always changing in the computer world, and in the end readers will need to follow the trends. Steve Ford WB8IMY (Editor of QST - The Journal of the ARRL) has written a superb article in QST 5/03 called "You've Got Spam". Well worth the read, and includes references to the top four for Windows:

MailWasher at: www.mailwasher.net
MailShell-SpamCatcher at:
www.mailshell.com/spamcatcher
McAfee **SpamKiller** at:
www.mcafee.com/myapps/msk/
DeerSoft **SpamAssassin Pro** at:
www.deersoft.com
For Linux users try **Mailfilter** at:
mailfilter.sourceforge.net or
ScanMail at:
www.scanmail-software.com

Mac users have not been forgotten either, they can try **Spamfire** at:
www.matterform.com or **Spamsieve** at:
www.c-command.com/spamsieve

3. Annoying Pop-Ups

These nasty little pop-ups (unwanted windows) that keep appearing on top of web pages and are annoying adverts, game play solicitations, sexual promotions and the like. What's needed here is a "Pop-Up Blocker", Hi

For Windows XP users Tweak UI for XP clobbers these instantly so you can enjoy ad free surfing. Tweak UI XP is available from the CD that comes with the July 2003 issue of Australian Personal Computer Magazine. In addition, the same CD has all the "tweaks" for Win95, 98, 2000 and ME as well, but for all these readers will have to buy a copy of the magazine. Incidentally, for readers wishing to protect, customise, optimise and personalise their Ham Shack Computers, the same issue of the APC Magazine offers over 180 tips, fixes and tricks, and hundreds of dollars of software all for less than $10 from your newsvendor.

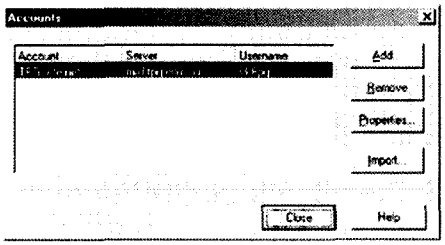
4. MailWasher Setup

This topic confused many readers so let us take another look:

Once connected to the Internet, MailWasher "peeps" into your own mailbox at the ISP and lists the messages waiting.. The list is displayed on the MailWasher screen and offers the options to Delete, Bounce or Blacklist messages. At this stage, the messages are still on to ISP mail server and your computer is safe from them. If you "click" onto any one of the messages in the MailWasher window, the download process is started and the message can be read. DO NOT DO THIS, as it's too late in saving your computer from undesirables.

Delete unwanted mail, Blacklist those who are persistent spammers, and Bounce only those that are regular offenders. Use the Bounce option sparingly for habitual spam and check the Blacklist to avoid repeated attacks from the same source.

To setup your account in MailWasher, go to Tools, Account and enter your Account Name, POP server address and Username like the window shown above as programmed for the writer: Your own entries might be:



Account - Server - Username
OziMail - mail.ozimail.com.au - vk4te

Hit the close button and MailWasher is ready to do it's best in filtering your own mail from now onwards.

5. Kerio Personal Firewall

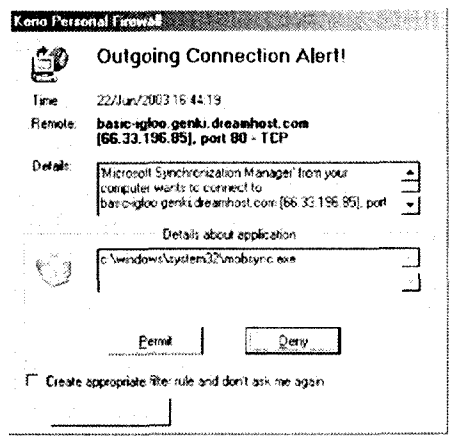
Kerio is more for the experienced user, and a defence shield against hackers looking to "connect" with your computer seeking your personal details, landing cookies into Windows and the like. Advertisers in particular are looking for you to dump their product information everywhere on your computer. Kerio (1) downloads as a self-extracting file, which should be placed in a temporary folder. Just "click" the filename and the Kerio installer will guide you through the setup process. For Windows XP users ALWAYS set the Windows Firewall to inactive and the Kerio Administration active. Deny anything that connects to you that's unrelated to what's happening with your machine. Permission's are give as a group of activities. An example being that permission is authorised when connecting to EchoLink, your own ISP, Microsoft Messenger and other regular activities including your own POP server for e-mail.

6. Hackers, Spam & Viruses

Hackers and spam messages should now be a problem of the past if readers have followed the threads so far. However, viruses come in many forms and might me attached inside downloaded files, part of the software you bought from a shop, came from a friend's floppy disk, or the kids brought it home on a floppy disk copied at school. The solution being to run up-to-date virus scanning software such as Norton AntiVirus 2003 or freeware from AVG (1). Trust no one - not even the kids! If the kids play games on your computer, well, you asked for it! If they do want to play games, buy them a computer of their own. That way they won't stuff-up your computer.

7. Is the above Kerio alert image a nasty problem or not?

Not really once the processes are understood. It looks like a "nasty" but it's trying to synchronise a IE bookmark to view a web page off line. To Permit and set a rule for the site (www.vk6bx.com) check the box to create the filter rule, then "click" the Permit button. Read the alerts very carefully before the Deny is chosen. In the above example, the request to synchronise the page points to c:\windows\system32\mobsync.exe - opening the mobile sync plug-in for Windows. Once permitted as a rule for further sync operations, other pages can be synchronised in the future. What seemed to be an alert problem was a word of caution that can be permitted.



Summary

This topic has featured the major issues face by readers. There are dozens more of course but with limited space in this publication, they are better addressed by e-mail back to the inquirer.

Many readers have asked for back issues of Ham Shack Computers. All are now available on CD-ROM - including the major software packages featured in this column. For interested readers anxious for copies, send a postal request to the writer enclosing a $10 note to cover costs and postage.

Ham Tip No. 28. Check the Ham Shack Computers Web Site for software and links described in this series and/or e-mail the writer.

Ham Shack Computers, Part 29 - "Backing Up" discusses modern ways to keep all your data safe and sound without breaking the bank!

(1) Ham Shack Computers Web: http://www2.tpg.com.au/users/vk6pg

73's de Alan, VK6PG

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Over to you

More on "the Licence"

As an Amateur who did it the hard way all those years ago, I could see all the grizzles about the Foundation/Entry Level Licence coming up all over again. Did we not see it with the introduction of the "Z" calls, the "K" calls and the "H" calls?

I believe some of the suggestions made by other writers to this column are worthy of consideration.

1. Wait till the Morse is abolished by WARC 2003 and see what it does for prospective Amateurs.
2. Compulsory membership of the WIA for a Licence.
3. Make the Foundation licence a combination of the "H" and "N" licences with similar concessions re, bands, modes power etc.

I will not comment on what this may do for Amateur radio, others have done so in their letters.

Steve VK5AIM
70 years old and still keen !
President of the Elizabeth Amateur Radio Club.

30 years young!

The 16th North Queensland Amateur Radio Convention

September 19, 20 & 21, 2003
James Cook University, Douglas Campus

Hosted by
The Townsville Amateur Radio Club (Inc).
PO Box 333, Garbutt East QLD 4814
Phone 07 4779 7869, Fax 07 4779 1161
Packet: TARC@VK4RAT.#NQ.QLD.AUS.OC
Email: vk4wit@wia.org.au

something for everyone!

— Ladies' and children's activities, Car boot sale, Trade displays, technical lectures, Home Brew Contests including Technical and Arts and Crafts, Club Station facilities available, sightseeing in local area.

For further information and costs, contact the TARC (details above).
Registration deadline: 29 August, 2003

Adelaide Hills Amateur Radio Society

Geoff VK5TY gave a very interesting talk this month, about the way in which the WIA(SA) obtained the Burley Griffin Building as their clubrooms, and the difficulties encountered and overcome to convert a rubbish destructor furnace into a meeting hall. If you can imagine what the inside of the furnace looked like after 20 or 30 years of rubbish burning it will give you some idea of the problems involved.

Having been involved in the investigation of a number of other possible properties on offer, as well as the actual conversion, the talk was quite far-ranging and amusing. Some actual plans of the before and after and photographs of some of the really beautiful concrete work with which Walter Burley Griffin decorated all his structures added to the evening.

The latest newsletter for AHARS has been sent by email to many members and will be available in hard copy at the mid-year dinner in July. It is also available for download, on the AHARS website http://www.qsl.net/vk5bar/2003-Jul.htm

The website is worth a look at anyway, with a rogue's gallery of photos etc.

Lower Murray Dinner

A very successful dinner was held in a country pub, the Callington Hotel, recently. There were 21 present and while we were slightly crowded we chose to be that way so we could all be together. It was a lovely meal and a very happy evening. It wasn't possible to get a photo of everyone but a number were taken by Lionel VK5ACW.

The Lower Murray Club is, strictly speaking, a part of AHARS but it has a clubroom where it runs a station for JOTA and conducts some of its meetings. Clubs like this illustrate the companionship offered by amateur radio everywhere.

Richard VK5KRB and friends at the Callington Hotel

North East Radio Club.

David Clegg VK5AMK, Hon Secretary
vk5amk@chariot.net.au

On Friday 13th June we were treated to a talk by Andrew VK5ZUC on the topic of MRI and Ultrasound imaging techniques used in treating conditions of the human heart. The talk was illustrated by a power point presentation showing various ailments. The meeting got off to a shaky start when we found the power off to all the local suburbs. Amateur ingenuity to the fore and we had portable lights rigged up all round the hall; fortunately the power was restored in time to run the projector for Andrew's talk.

A Chicken and Pizza night was held on July 11th for our AGM, this saw some fresh and younger blood elected to the committee.

Training nights were also held in July for WICEN operators who wish to operate in the Rally of South Australia.

The August 8th meeting will include a talk on Fox Hunting presented by Keith VK5OQ. Keith is involved with the Scout Radio movement and is introducing the scouts to this fascinating part of our hobby. Also this month is the Rally of South Australia. Amateurs from NERC and many other clubs are participating in this event to be held over the weekend of August 9th and 10th.

The September meeting is yet to be finalised, October is a visit to the West Torrens Railway Museum, November will be a Quiz night and December a BBQ and some Fox Hunting practice.

The North East Radio Club meets on the second Friday at the Ardtornish Primary school, Saarinen Ave St Agnes.

Postponed: Official opening of the Townsville Channel 8 UHF CB Repeater

The Townsville Channel 8 UHF CB Repeater was to have been officially opened by Peter Lindsay, MP for the Federal Electorate of Herbert, on 31st May 2003, but this was not possible.

The Townsville Amateur Radio Club (Inc) President Gavin Reibelt, announced "The establishment of the Channel 8 UHF CB Repeater for use by the community within the Townsville-Thuringowa region marks yet another function of service to the community by Amateur Radio. Media are invited to attend at the Amateur Radio Repeater Site, Mount Stuart, and record this historic event."

The Channel 8 Townsville/Thuringowa UHF CB Repeater, callsign TAC08, is a co-operative venture by local amateur radio operators, local radio equipment businesses, local leaders of the community, national regulators and national equipment suppliers. Radio transceivers donated by ICOM Australia Pty Ltd, Yoshi/VK3BYX. Procurement by Navcomm Electronics, Barry/VK4TBD and Lucia Duplexing equipment and antenna purchased at trade price through Townsville CB, Geoff Farnell and Kerry/VK4TUB. Filter alignment by ITACS EMC Test Lab, Don/VK4MC. Licensing and accommodation by The Townsville Amateur Radio Club (Inc) with help from Peter/VK4TO MP for the Federal Electorate of Herbert and the Australian Communications Authority.

Repeater TAC08 is available for use by anyone in the community equipped with an ACA approved UHF CB transceiver for voice communications. For reliable coverage, usage of transceivers with power output of 5 watts is recommended.

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Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

Ham gear sales scam uncovered

You know those unsolicited scam letters from Nigerian royalty asking your help in getting money out of that nation? The ones that offer you a percentage if you are willing to help? Well Amateur Radio NewsLine listener Bill Whitney, N7CD, passes along word of a similar hoax now running around our world of Amateur Radio. In a posting on eham dot net by Mark Stennett, NA6M, he warns to watch out for offers to buy your gear with a cashier's cheque from someone who claims they are owed money above and beyond the price of your sale and has a cashier's cheque in that higher amount. The person offers to send you the cheque if you will wire back the difference. This, while he or she is arranging for someone to pick up the equipment you want to sell. You receive the cashier's cheque. It looks real so you deposit it and send the purchaser the difference. Within days you are informed that the cheque is forged and the lending institution holds you responsible for the entire amount. You are not only stuck with the gear you were trying to sell but a big bill owed to some bank as well. Caviat Emptor. That means buyer beware.

(ARNewsLine)

Ionosphere Studies

We received a letter from Florio, IW2NWB, who is the Co-ordinator of the Sky Wave/Inosfera project. This project is supported by the European Space Agency in a study of Space Weather focusing on the many interactions between the Sun and Earth.

They are seeking volunteers from the Amateur fraternity to assist with this study. More information can be found on the ESA web site http://www.estec.esa.nl/wmwww/wma/spweather/

Or contact Florio direct at iw2nmb@amsat.org . It could be a most interesting project.

Royal Honour for PA0LOU

Congratulations to Louis van de Nadort, PA0LOU, who has been awarded the title Lid in de Orde van Oranje Nassau (Knight of the Order of Orange Nassau) on the occasion of the birthday of Queen Beatrix of the Netherlands. Lou received the honour for his outstanding work for the community of Radio Amateurs, in particular his work for IARU Region 1, of which he was chairman for many years.

Broadband over power line

It was interesting to read in July QST that the FCC continue to receive hundreds of electronically filed comments over their Notice of Inquiry concerning BPL technology being investigated in the USA. Over 500 of the comments filed were from the amateur community. The concern is the effect it will have on HF services as the frequency range considered is between 2 MHz and 80 MHz. The data rate is claimed to be up to 20 MB/s.

The major interference threat to amateurs comes from so-called access BPL because its signals can radiate from outside power lines possibly for great distances. Comments are due by August 6 with a reply by September 5.

(July QST)

Keeping our bands clean

In the USA the ARRL has Observer Officials that monitor the amateur bands to assist and advise U.S. amateurs that may have problems with their equipment on-air that they may not be aware of. With modern-day transceivers we no longer monitor our outgoing signals. Such problems as key clicks, bad CW notes, over modulation, etc. can only be heard by the receiving stations. No, they are not police and have no enforcement provisions. They are there to assist and hopefully keep our coveted bands clear of transmissions that do not fall within good engineering or operating practices. When they hear something wrong they send the station a card pointing out the problem. They also send cards for good operating!

Big brother is watching in the USA, but it is not something that has recently been introduced. The first OOs were appointed in 1920, revised in 1934 and again in 1980. In the early days OOs had to undertake a special course and it was necessary to have good frequency measuring equipment. Today it has been more streamlined with modern equipment. The FCC supports the OOs and from time to time haS used them to the advantage of radio amateurs.

(July QST)

If you have interesting news from overseas, please email it to davpil@midcoast.com.au

Real life Foxhunt

Jon Wornham, GD4RVQ, works as an Air Traffic Control Officer at Ronaldsway Airport on the Isle of Man. On May 1, Kinloss Air Rescue Co-ordination Centre called to say that a satellite had picked up a rescue beacon signal on 121.5 MHz, thought to be located about 6 miles south of the airport. Unfortunately, although equipped with D/F equipment, it was only set on airport frequencies.

Jon just happened to have his TH7E hand-held with him. He found the signal on 121.5 but also found it was S-9 on 243 MHz suggesting it was very local. Jon walked the airfield and found the signal was originating from the nose of an aircraft. Jon's quick thinking and Amateur Radio skills saved considerable cost and effort, negating the need for a full scale search and rescue operation.

(June RSGB RadCom)

Amateur radio fascinates a new generation

Lachlan Bruce, VK2LGB

I have recently obtained my Novice license at the age of 17 and would just like to thank all those Hams who encouraged my interest in radio and helped me through the exam process to achieve my callsign.

My Grandfather, George Bruce VK2GT, had me fascinated as a child with his large HF set and talking all around the globe. He received his callsign when he was my age, and I hope I will still be as active as he is when I am his age, 88. I was especially privileged to have been given my first Ham Radio, a little Yaesu VX-5r Handheld, from my Grandfather and it is used everyday to have a chat with him.

My Uncle Lloyd Bruce, VK2ELB who was questioned many-a-times in the lead up to the exams, and was always able to answer every question. Lloyd has been licensed since 1979 so there must be something about the radio waves that tune up the Bruce family.

Last but not least I would like to thank John Gibling, VK2EKG who allowed me to tag along to JOTA and get in the way. JOTA allowed me to get a first hand feel of the radios and how to get them all set up. John also helped me with many technical questions as well as study material, and is still supplying me with bits and pieces of gear to help me get set up.

Lachlan Bruce, VK2LGB (centre) with his uncle, Lloyd Bruce, VK2ELB (left) and grandfather, George Bruce VK2GT (right)

Once again, thank you to all that have helped me achieve this outcome, it was made a lot easier through all of you. I have also joined the Mid-South Coast 'ARC and appreciate the friendliness and good times I have already had. I am thoroughly enjoying this hobby and look forward to becoming involved in many more aspects of Amateur Radio.

ar

AMSAT

Bill Magnusson VK3JT

Latest on the AO-40 Interference in Perth

Last month I quoted from a BB post from Phil Harman, VK6APH. Phil has acted as co-ordinator for the efforts of the Perth group in tracking down and dealing with the recent interference to AO-40's "S" band downlink. Here is Phil's latest summing up of the situation. "As previously posted, the problem has been traced to inadequate image rejection of some 2.4GHz AO40 down converters when used with a 2 m IF. So far we have found two solutions to the problem.

1. Change the down converter local oscillator from low to high side injection. I use a G3WDG converter and Charlie very promptly provided me with a replacement crystal. This completely cures the QRN problem although it has the slight draw back that the down-link tunes in the opposite direction. I consider that a small price to pay to be back on AO40.
2. Choose a down converter with higher image rejection. In my particular location, about 1 km line-of-sight from a 3G base station, I needed >65dB of image rejection. After requesting image rejection figures from a number of manufactures I selected an AIDC 3731AA from Bob, K5GNA. Using this converter, and beaming directly at the base station, there is absolutely no trace of the previous S9+20dB signal.

Others are looking at fitting various filters to either the input of their down converters or adding a filter part way down the RF chain. More details as these designs materialise. I hope this information is of use to others if and when they encounter the new 3G phone service. It's great to be back on AO40!". Thanks Phil.

Ailing Satellites

The last few months has seen some rather dramatic events in the Amateur Radio Satellite Service. Several of our most reliable birds appear to have reached their use-by date. Let's hope we can look forward to better days.

UO-22 report

Following the demise of KO-23 and more recently KO-25, the only 9600 baud digital store and forward satellite in service was UO-22. It had been valiantly holding on to provide the digital group and the packet-satgate group with reliable store and forward communications for a long time. It came from the Surrey stable and we thought it would live forever! But sadly its batteries began to show signs of failure last year and the situation got progressively worse until now it goes to sleep during its eclipse phases and it may not wake up again after this current phase ends some time around August/ September.

UO-36, MO-46 report

Things are a bit grim in the 38k4 digital field too. UO-36 was closed down last year and now the only digital bird left working is MO-46. Its imaging systems are still producing fair to good quality images but it has never given the image clarity or resolution for which UO-36 was legendary.

PCsat report

This satellite has been hovering on the edge of extinction for a couple of years now. It's a credit to the control team led by Bob Bruninga WA4APR that it is still workable during periods when it is in full sunlight. A replacement (PCsat-2) is underway and will be launched from the shuttle or ISS some time later this year or perhaps next year due to delays caused by the shuttle disaster. PCsat-2 will also be devoted primarily to APRS and UI digital communications.

FO-29 report

Recently it seemed like FO-29 was lost forever. JARL FO-29 command team succeeded in recovering FO-29 on 16th June. Now it is sending a loud CW beacon and the transponder is also available. The command team said the problem was most likely caused by a spate of major solar flares. The command team would like to hear from amateurs who can collect telemetry data. Please send the telemetry reports to the command team via email at lab2@jarl.or.jp Mineo, JE9PEL, has an FO-29 satellite telemetry analysis program that will automatically analyse all digital telemetry from the satellite (such as current, voltage and temperature). FO29CWTE is available for download at the following web site: http://www.ne.jp/asahi/hamradio/ je9pel/

The "CubeSat" revolution

The recent launch of a batch of tiny "CubeSats", many with downlinks in amateur radio bands, created quite a furore on the AMSAT-NA bulletin Board. Opinion seemed to be just about equally divided between those who agreed with the idea of using the satellite segments of the amateur bands for the downlinks and those opposed to the idea. There is a further batch of some 15 such devices due for launch later in the year. They are nearly always creatures of some University or College course that is training people for work in the space industry. Those in favour used positive experiences like University of Surrey's UoSats and University of Marburg's involvement in our past high flying flagship satellites. Those against saw it as the thin end of the wedge in allowing "non-amateur" projects a slice of the amateur bands without any benefit or advantage to radio amateurs. At the time of writing, the debate is still raging. As is usual, once the feathers have settled, some good thoughts will no doubt come to the fore. People still have bad memories of the "Swatch" debacle of a few years ago and of the earlier BADR satellites. These non-amateur-radio satellites also used frequencies in the amateur radio satellite segments to downlink their telemetry. However, with

some degree of co-ordination between AMSAT and the various groups during the design phase it should be possible to have a win - win situation. We were lucky at the time to have high profile people like Prof. Martin Sweeting and Dr Karl Meinzer at the head of the Surrey and Marburg teams. Efforts are being made to consult with the team leaders but it may be too late for those already in the late planning or construction stages. Time will tell. It would be nice to hope for a positive outcome.

Treasures or Space-Junk

Following on from the above a new thread has opened for discussion and it is one which could have far-reaching ramifications. Frank Bauer KA3HDO brought up the subject, one that has worried many in AMSAT and in NASA and in the American FCC. To quote part of Frank's message: "I do have a big concern. One that I know is shared by the FCC. One that I have seen the AMSAT community talk about extensively. NASA is so concerned about it that they have developed policy on it. It has to do with keeping our space environment clean for all to use in the future. In other words, orbit debris. I have applauded Bob Twiggs work on the Cubesats. However, it has been my understanding that these satellites would be placed in a very low orbit...allowing the university to utilise these satellites for about their expected lifetime (<1 year, maybe more) and then they would burn up in the atmosphere. I must tell you that I was very upset to learn that these first cubesat satellites were going to be placed in an 820 km orbit". I won't quote Frank's message in full but he did include this table which may raise a few eyebrows.

"How long do you think the cubesats will be up there? Well, here are some predictions for various orbits:

800 km — 285 years
700 km — 66 years
600 km — 15 years
500 km — 3 years
400 km — 0.5 years
300 km — 0.1 years

So the latest cubesats will be there for probably more than 300 years!!. It is my understanding that there are over 50 universities working on these satellites. I think that we (universities, AMSAT, and all space enthusiasts) all need to pause and think about how to effectively utilise the two important precious resources we have in our possession—the frequency spectrum and the precious space orbits".

A real test of amateur receive systems

Back in November 1996 the Mars Global Explorer was launched and shortly after it left its parking orbit a 437.1 MHz beacon transmitter was turned on. The spacecraft was 20 days out and some 6 million km from Earth. Now that's a long way and you would need a good setup to warrant even trying to hear it. Despite that several amateurs "heard" the signal. "Heard" is in inverted commas because you can't hear a signal that far down by ear and in any case it was just a continuous carrier with no modulation. The best you can do is to detect such a signal on a DSP display. Several amateurs did this and their results were written up in the AMSAT Journal. Now, Mars Global Surveyor is in orbit around Mars and going about its job. It has a companion, Mars Odyssey. Beacon transmitters on both packages are again transmitting, now from Mars orbit. Radio astronomy facilities will be using these beacons to calibrate their receive systems. It's a lot more than 6 million kilometres away though. More like 200 million. Not many amateurs, even EME devotees will have an antenna and receiver system capable of detecting this signal, but it still may be possible. It will be interesting to see the outcome this time. I was not aware that any VK stations tried to detect the signal back in 1996. You would need to have a station capable of easily coping with the rigors of EME communication. Some AMSAT devotees have such systems. You would also need to have DSP software and a highly sensitive, low noise receive pre-amp. The current series of tests is already in progress but may be finished by the time this reaches your shack. Another series of tests is scheduled for late August so if you think your Oscar station's receive performance is up to the job, keep watching the BB for details. Remember, the satellite is in orbit around Mars, and in August Mars will be exactly on the opposite side of the Earth to the Sun and will in fact be closer to Earth than it has been for some 70,000 years. This situation has the astronomy circles buzzing with excitement of course as it will give astronomers their best ever view of the red planet. But it also means the best possible communication conditions for the Mars missions. If you want to point your antenna at Mars for the tests you will need an astronomical "planetarium" program to tell when the planet is in your sky and to get its AZ/EL position. Fortunately (or unfortunately) no amateur antenna system is going to have anywhere near enough gain to track the MGS around Mars. We'd best leave that to the big blokes. Pointing at Mars will be close enough for even the very best amateur installation. Up-to-date information will no doubt be posted on NASA's JPL web site under Mars missions.

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The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034
Graham's email address is:
vk5agr@amsat.org

VK1 News

Forward Bias

Peter Kloppenburg VK1CPK

You never have to go far in any direction to find a Radio Amateur who is involved in the forefront of communications technology.

This was very much in evidence in the early hours of Thursday, 12 June 2003 when the new Optus/Defence satellite, C1, was launched from Kourou, French Guiana (S-America) to go into a geo-stationary transfer orbit at 156 East, just a little North of Bougainville. Pointing angles for those with a dish in Canberra: 12 degrees East Azimuth, 48 degrees Elevation, 35 degrees Polarisation.

Canberra staff from Defence, Optus, Contractors, and local Radio Amateurs had been invited to attend a live video broadcast of the launch, via satellite, in the Defence theatrette in Russell Offices.

Many radio amateurs keep up a lively interest in communication satellite launches because some of these carry an amateur radio payload. Remember "Phase 3D / AO-40"?

As there is so much preparatory work done on the ground before the launch takes place, satellite owners to-be, and contractors are very anxious to know if the satellite makes it to its assigned parking spot over the equator. If it doesn't, they may have to wait years before a replacement satellite can be launched.

It was therefore not surprising that the atmosphere in the theatrette was tense that morning after a weather delay from 7.36 until the launch at 8.39 am. It became even more tense at 9.07 am, when C1 was supposed to have separated from the Ariane 5-G vehicle. For about 2 minutes there was no message that C1 had separated from the launcher's second stage! The silence that had been palpable until now, was broken by a sigh of relief from everyone present. It was later discovered that this information was delayed while data was being polled from various sources.

The Division's publicity officer, Peter Ellis, VK1KEP, who is on the staff of Defence, said that he knew seven radio amateurs in the crowd. Among these, four are current Defence/Contractor employees; two work for a major Defence supplier, and the other is a retired Defence employee. It just shows that the group was actually quite 'in-house'. They were Michael Dower, VK1ENG, who is with Comsyst (Australia) working for the C1 project, John Clare, VK1CJ, ex-army Reserve; Andy Sayers, VK2AES; and Virgil Ionescu, VK1VI, of CEA Technologies Pty Ltd; Kerry Richens, VK1KRF, from the Australian Defence Force Academy, Keith Gilby, VK1KG, and Peter Ellis, VK1KEP, both from Defence. Additionally, Lyle Williams, VK1KLW, watched the video broadcast at another Defence site in Canberra.

There were three 'in-house' guest speakers at the June 23 general meeting: Alan Hawes, VK1WX; John Clare, VK1CJ; and Gilbert Hughes, VK1GH. All three spoke to the subject of WICEN activities in the ACT from three different perspectives.

With reference to the WICEN Training Manual, Alan expanded on the practical application of the subjects dealt with in the manual. Being an active participant in WICEN activities himself, Alan listed the things that have gone wrong in the past and could go wrong in the future when an operator is in the field without having made proper preparations for it. Alan said that there are two main concerns that WICEN participants should prepare for. They are equipment and the environment. The first one includes throw-away spare alkaline batteries, mikes, torch, headset, portable antenna, power extension leads, car petrol, fuses, backpack, coaxial adapters, collapsible table, and a list of frequencies in use on the day.

To deal with the environment, a field operator should carry wet-weather gear, an area map, and wear strong light-coloured clothing, and headgear. Personal requirements include food and drink, sun crème, insect spray, and sunglasses. As communications is the name of the game, a field operator should report to ComCentre on arrival and introduce himself to everyone there.

John Clare showed how to stow personal communications gear in a toolbox while driving to and from the operations area. John had build himself two vertical antennas, one of which was a 'Slim Jim' type. This antenna was mounted inside a 20 mm-diameter plastic tube and could be raised several metres with extension rods.

Gilbert Hughes spoke about the relationship between WICEN and the State Emergency Services (SES). He said that SES does not recognise WICEN as an emergency service because none of its members have completed a training course in either WICEN or SES procedures. Gilbert added that, to become recognised, WICEN members would have to become members of SES and complete its training course.

The next general meeting will be held on Monday, September 23 at Scout Hall, Longeronong St., Farrer, at 8.00 pm. Cheers

VK2 News

Prepared by Tim VK2ZTM.

This month is the annual RD Contest and we encourage all VK2s able to take part to do so. While the winning Division last year was VK6 we still have the Trophy on display at Parramatta. It looks nice there, so we would like to win it again. The opening address for the RD Contest will be transmitted from VK2WI just prior to the 6 pm start on Saturday evening.

As is our practice we will come on air at 5.30 pm with some news items and conclude with the opening address and Honour Roll. Normal news sessions will be conducted on Sunday at 10 am and 7.30 pm.

Seppo VK2SMA has joined the VK2 Council to fill the ninth position left vacant after this year's AGM. He will be looking after the operations of the Parramatta based Trash and Treasure. A reminder that these activities are conducted on the last Sunday of the odd numbered months. The next will be on the 28 th September.

Following the T & T the Home Brew meeting is conducted in the upstairs library. A recently introduced activity – related to the Home Brew group – is a monthly construction night. The first Tuesday of the month has been selected. Times are from 7 to 9 pm. The next will be on September the 2nd. The first project was a Q-meter and the August meeting suggested a low [very] powered 80 metre CW transmitter – ideal perhaps for the Limited licence holder! During the evening the office, library and bookshop is open for business.

Members unable to attend the office on weekdays can avail themselves of these nights as well as the T & T afternoons. While on the subject of the Bookshop have a look at the VK2 web site for details. Amateurs throughout Australia can purchase from the Bookshop. WIA Members discounts may apply on the marked prices. Some copies of the RSGB Foundation Licence lecture on videotape may still be in stock with the Bookshop.

Many Amateurs have collected and often have displays of military radio equipment. One is Ian VK2ZIO, who has for many years, operated the Castle Hill Military Radio Collection. Recently he moved to Kurrajong, west of Sydney where he is setting up as the Kurrajong Radio Museum. Ian displays a piece of restored equipment at the Trash and Treasure events as well as at the annual Central Coast Field Day. For each restored item Ian produces a printed handout contained a circuit, photograph and description. These have now been placed on the web. The URL is www.froggy.com.au/vk2zio/museum Ian is always on the lookout for military based equipment. If you find yourself cleaning out a deceased estate or the like, think of Ian before you consign old military equipment to land fill. Contact with Ian VK2ZIO may be made by email to: vk2zio@yahoo.com.au or on telephone 02 4573 0601.

A reminder that the Wagga ARC have moved their field day to the long weekend in October. Divisional Council is considering holding their monthly meeting in Wagga that weekend.

There has recently been interest from New Zealand in the development of a low powered time and frequency standard for this region to act in place of VNG. The only source currently available to this part of the world is WWVH but it tends to suffer with distance. It has been suggested that the 80 metre band could be utilized with powers as low as 1 watt. Last year the Dural Technical Committee looked into the operation of VNG from the Dural site on low power on one or two frequencies for the VNG Users Consortium. There were no problems from the technical side with the proposal but the lack of funding sources to cover the power bill etc prevented the project from being undertaken. VNGUC identified the main remaining users on the previous VNG service as amateur Astronomers, who used the time voice announcements as reference on recordings made of their observations. It was felt that GPS reference sources driving a speaking device could be a likely replacement and they were proceeding to develop suitable systems. Since then the Dural Committee has looked at possibly adapting some of the existing beacon or continuous transmissions from VK2WI as a time service.

While on the subject of Dural we have a need for a heavy duty brush cutter. If anyone has such a device for which they no longer have a use, please get in touch with the Parramatta office. We even have an interest in a ride on mower. The Dural site is too wild for the lighter domestic equipment.

VK3 News

WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au
By Jim Linton VK3PC

WIA teleconference report

A telephone hook-up of the WIA Federal Council was held on Sunday 13 July.

Also participating in the two-hour teleconference were the four WIA Directors, Federal Education Officer and Federal Technical Advisory Committee (FTAC) Chairman.

Representing WIA Victoria were its Federal Councillor Jim Linton VK3PC, Alternate Federal Councillor Peter Mill VK3APO, and Vice-President Barry Robinson VK3JBR.

The teleconference was initiated by WIA Victoria due to rapid developments occurring in relation to the World Radiocommunications Conference that concluded on 4 July, and the proposed Entry Level licence.

The key outcomes are:

Morse code requirement:

- The WIA is to keep as separate issues the removal of the Morse code requirement, and the restructure of the licensing system. Up until the teleconference WIA/

ACA liaison team and the ACA had combined these two matters, which imposed a delay of at least 18 months on the removal of the code requirement.

- The WIA is to write immediately to the ACA asking that the Morse code requirement be removed as soon as possible to permit Limited and Novice-Limited licensees access to the HF bands. It is WIA policy that the code requirement be removed as soon as possible after WRC03. The ACA's latest position is that this should occur in early 2005. However the teleconference, noting the recent prompt action of the Swiss telecommunications authority in removing the code requirement, considered that there may be a way for the ACA to waive or remove the code requirement by gazettal or other simple means. At worst, it should occur on 1 January 2004 when the amateur LCD is to be changed to take into account the expansion of the 80m DX window.

Licensing system restructure:

- The WIA is to make a preliminary submission to the ACA outlining WIA policy on licence restructure. Previously the WIA had intended to make a full submission to the ACA but has now decided to develop this in response to the ACA's proposed discussion paper due to be issued for public comment soon.

In the preliminary submission the WIA will state its policy and preferences in relation to a restructure of the licensing system. These are:

- That an Entry Level licence be introduced. The results of the WIA consultation surveying on the Entry Level licence have provided strong support for WIA policy that there be such a new licence.
- The new licence is to have qualification criteria similar to the British Foundation licence with a prescribed study text, tutorial and practical sessions, plus theory/ regulations and practical assessments.
- The theoretical knowledge of the Entry Level certificate qualification should reflect the basic radio communication and electrical theory knowledge that was originally proposed for the Novice licence, plus supervised practical demonstration of amateur station operation, and assessed theory/ regulatory knowledge.
- The WIA will propose that the Entry Level licence have all modes of transmission (subject to band planning requirements), on the majority of amateur bands (parts of some bands but not all of all bands), and a transmit power limit be considered.
- That all new radio amateurs after the restructure of licensing enter the Amateur Radio Service in Australia via the Entry level certificate, with that certificate incorporating the Regulations qualification. The current Regulations exam (to be drastically reduced in content due mainly to changes flowing from WRC03) is proposed by the WIA to be incorporated into the Entry Level certificate. It would replace the current Regulations Examination.
- That there be a two-tier licence structure - Entry Level and Unrestricted. As previously stated, the WIA recognises that the level of theoretical knowledge needed for the Novice licence has become inflated over the years. There is a small gap or difference between the Unrestricted theory and the Novice theory. At the same time, the Unrestricted theory exceeds what is required internationally and will be trimmed in the next 12 months. This will further reduce the gap between the Novice and Unrestricted theory syllabus, and it is desirable that they be merged.

WIA submission seeks education sector support for amateur radio and the Entry Level licence:

The WIA Federal President, Ernie Hocking VK1LK became aware of an opportunity for the WIA to make a submission to the Federal Department of Education, Science and Technology (DEST), in response to its discussion paper on innovation in the schools sector. The WIA submission discusses the proposed Entry Level licence and amateur radio generally as a way of developing an innovative capacity in students, and a culture of innovation in schools. The submission can be read on the website www.dest.gov.au

WIA callbook:

The callbook was discussed and agreed that there should be a 2004 edition. The Federal President Ernie VK1LK thanked WIA Victoria for its detailed written input on the callbook and constructive suggestions on how to improve it next edition. That input included comments made by WIA Victoria members in response to an earlier request for member feed-back on the callbook. Due to the length of the teleconference, the issues raised about the 2003 edition are yet to be discussed by the WIA Federal Council. But all on the teleconference supported the 2004 edition being out earlier to capture the hamfest season and Christmas gift market.

August Contests

August 16/17 **Remembrance Day Contest – Rules in July 2003 edition of Amateur Radio**

August 30/31 **ALARA Contest – Rules same as last year, published in June 2002 Amateur Radio**

VK7 News

Branch Meetings/News

Northern Branch's July meeting was a dinner talk given by Mr Ian Reid on the ins and outs of digital TV. Ian covered many aspects including the new standard, why 100Hz is better and what is available to view this new standard. An informative and entertaining evening.

North West Branch's July meeting was a fascinating night at the commercial radio station 7AD/SeaFM in Devonport. The tour was conducted by Mark Nightingale, VK7KMA, the technical officer for the stations. The tour started with the hardware of the stations and the 24 hour programming links between Launceston, Sydney and Brisbane. Particularly impressive was the way each station 7BU, 7AD, 7LA and 7SD break their own advertising slots completely automatically. A great night was had by all.

Southern Branch was treated to a talk by our own Rex Moncur, VK7MO on his recent trip Digital DXpedition with Trevor Spargo, VK7TS to Lord Howe Island, operating as VK9LS. Lord Howe is around 780 km east of Sydney and in meteor scatter range of VK2/3/4/5/7 as well as ZL and FK8. It is is roughly 10 km by 2 km, of saddle shape, with mountains of 800 metres at the South East end and hills of 200 metres at the North West end. This presented some problems occured at the original location in one of these saddles. However, another location in the second week gave greater access.

Rex outlined the logistics challenges like 18kg being the limit for luggage and nothing more than 1.4 m long. He brought along the 2 metre antennas to demonstrate that with a bit of ingenuity you can make small, light yagis that fold down to 1.4 metres! Rex took 2metre, 70cm and 23cm equipment got 32 contacts via FSK441, SSB and even JT44 weak-signal EME contacts with the USA and Sweden. Rex presented this talk at GippsTech. A very entertaining talk from our digital modes pioneer!

Tasmanian Awards/Contest

A reminder about the Tasmanian Amateur Awards and Contest:

Tassie Devil Award

To qualify for this award it is necessary to make contact with a certain number of Tasmanian amateurs, dependent upon your own location. There is a HF, VHF/UHF and IRLP section of the award. There are also 150, 200, 250, 300 upgrades available as you contact more VK7 amateurs. For more information please take a look at: http://www.wia.org.au/vk7

Tassie Trout Award

Points or "kilograms of trout" are awarded for contacts made with Central Highlands Amateur Radio Club of Tasmania members. The Club callsign (VK7CHT) gains you 3 kg of trout, the President, 2 kg, etc. Once you have 14 kg of trout you can claim the basic award, 25 kg – gold award and 50 kg – platinum award.

For more information please take a look at: http://www.vk2ce.com/vk7cht/award.htm

Wadda Cup Contest

Open to all VK amateurs the Wadda Cup is named after Waddamanna on the West Coast of Tasmania and is run by the Central Highlands Amateur Radio Club

Continued on page 35

VK4 News

Qnews

From Alistair Elrick VK4MV

Brisbane Area WICEN Group CAR RALLY REPORT

Caloundra's Falken Rally Queensland organised by the Brisbane Sporting Car Club took place on the weekend of 14-15 June. The Brisbane Area WICEN Group Inc. with assistance of Amateur Operators from as far North as Rockhampton and as far South as Melbourne, manned the start and stop points and transmitted the start times and scored times using packet, to rally headquarters at Caloundra. In addition an Amateur Radio Operator was positioned at all of the Safety On Stage points situated every 5 km along the track. Portable voice repeaters were set up on Mt Borumba and Mt Kandanga, while packet was relayed from the field to Mt Kandanga, digipeated to Maleny then on to Rally base at Caloundra.

This year saw a major upgrade of the group's equipment with the voice repeaters being linked together by UHF, so that most of the operators were able to sign on to Mt Kandanga when they left home for the exercise. Also the scoring software had to be rewritten to allow for scoring to 1/10 of a second. Special thanks must go to Nev VK4TX, who took 3 weeks annual leave just to prepare for the event.

Thanks must also go to the Sunshine Coast Radio Club who organised the scoring of the "Hella Hill Climb" and to the Queensland Digital Group for their assistance with organising the equipment upgrade. Also to Brian VK4XS who had to revise his software. VK4TX says in the lead up to the official presentations at the ARC dinner the Clerk of the Course acknowledged each of the major sponsors by name and made a general thanks to the other sponsors. Then he made the following statement (words to this effect): "I acknowledge the assistance provided by many people and by the WICEN group who have the best meals on Mt Kandanga. WICEN are amateur radio Operators who provided us with the scores and safety communications during the event. Without them we would not be able to have this event."

So from Neville, congratulations to all the operators who attended on your professional service provided to the ARC. "All I can do is to congratulate each of you on a job well done".

Things go swimmingly in Townsville

It was a case of "The weather is here, wish you were beautiful" last Sunday June 22nd when the third heat of the Strand Mini Swim was held. Providing communications support were some Townsville WICEN operators at some very stunning points around the bay. Alan/VK4PS was perched for a while on Strand Jetty observing participants in the 1km race until that event was completed. Alan then moved across to picturesque Gregory headland to keep an eye on the 2.5 and 5km swims. Meantime Phil/VK4HAI was shadowing the event organiser Bob James relaying information from the WICENnet including competitors dropping out of the race and information from stewards on course.

Ken/VK4HAI scored the best WICEN checkpoint in the state - bayside at the C-BAR cafe with great table service and a great vantagepoint of the race area. Wallaby Bob/VK4WJ found himself a comfortable rock amongst the breakwater and observed the swimmers on the turn-around leg. Then and gave timely position information back to base Gavin/VK4ZZ scored a ride in the boat for the event, helping the deployment of the swim buoys with GPS and then relaying to officials on course any problems with competitors observed by the shore based operators.

The first swimmer came home doing the 5 km event in just over an hour whilst the oldest swimmer in the race, 86 years old Thelma, completed the 5 km in just over 2 hours.

The event started at 8am and operators were released by 10-30 am, just in time to join Ken/VK4HAI at the C-BAR for a big breakfast.

Sunfest

The Sunshine Coast Amateur Radio Club Hamfest will be held in the Woombye School of Arts on Saturday 13 September 2003, from 9 to 3. The venue will be open to exhibitors from 7.00am with food and refreshments available from the kitchen. Entry fees are $5.00 single and $6.00 family. Table bookings are $15.00, which includes entry for two persons. The hall is located in the centre of Woombye township just 100 metres from the railway station.

Ample parking is available in close proximity. Entry ramps provide easy access to both halls for exhibitors and the disabled. A talk-in service will be provided on 146.850 MHz FM. Call VK4WIS for assistance. Further enquiries to the Coordinator Sunfest, Ron VK4GZ, phone 5448 4063.

North Queensland Amateur Radio Convention

Don't forget this big event will be held on 19th, 20th and 21st September.

At the TARC Management Meeting on 1st July, members appraised a number of issues regarding the plan to have part of the Convention as attending the Townsville Skyshow. Concerns included the costs of public risk indemnity, the logistics of getting hams through large crowds and a dislike of most hams to be situated in large noisy crowds. Once the concerns were reviewed it was decided to revert the Convention back to its traditional program.

The following are activity highlights of the NQ Convention Friday evening 19th September - official opening of convention at Centenary Hotel Saturday 20th - registration, trade displays, lectures, demonstrations, home brew entry and judging, convention banquet Sunday 21st September - QNEWS, WIAQ seminar, car boot sale, trade displays, monster auction. Attendees requiring accommodation need to book it NOW - it's a big weekend in Townsville during the convention weekend and accommodation will be scarce.

Spotlight on SWLing

Robin Harwood VK7RH

The country of Yugoslavia was consigned to the history books after the Serbian parliament formally abolished it and renamed it as the Federal Republics of Serbia and Montenegro. The external service, which has been using shortwave senders in Bosnia- Herzegovina, now identifies as the international radio of Serbia and Montenegro or Radio Srbija i Crna Gora in Serbian. The station still uses the old interval signal of Radio Yugoslavia.

Just to clear up a typo in last month's column. High Adventure Ministries or H.A.M. did indeed buy the former senders of FEBA in Seychelles and intended to install one of the three transmitters in Liberia but abandoned plans after civil war flared up in Monrovia, the capital city. Intensive international negotiations failed to produce a durable ceasefire and at deadline time, so far efforts to get the US administration to commit to an American led peacekeeping force to end the protracted civil war, which has spilled over into adjoining nations, have failed. As I stated, H.A.M. were hoping to relocate their transmitters to Uganda in East Africa but recent reports also speak of a tribal rebellion in the north of the country close to the Sudanese border.

Many listeners will remember the voice of Jonathan Marks on Radio Netherlands popular "Media Network" program. Jonathan also was the head of English programs at RN. After 22 years being in Hilversum, he has decided to start his own media consultancy business as from September. We will miss his voice over RN and wish him well.

On the 26th of June, there was a remarkable transatlantic VHF opening as high as 97.3 MHz. Paul Logan of Lisnaskea in Northern Ireland heard several North American FM radio stations close to the ocean. One station may have been WFRY, Watertown, New York, USA on 97.3.This would be a great circle distance from Lisnaskea, North Ireland to Watertown, New York, USA of 3,050 miles (4,912 km). This beats the current Es world record by 110 miles.

At the same time, Paul recorded an identification from WHCF in Bangor, Maine, on 88.5 MHz. David Hamilton in Ayrshire, Scotland made a recording of CBTB-FM from Baie Verte, Newfoundland, at 1950 - 2010 UT, on 97.1 MHz. Video carriers plus their sound channels were also logged from American NTSC signals lower down the VHF dial. These were heard however and not necessarily seen, making identification difficult. I believe some Quebec French language television was seen but it was extremely difficult actually finding out where they are as there are several stations on the same channel.

By now you may have noticed that HCJB-Australia has commenced a morning release of their South Pacific release. This is supposed to be from 1900 to 2000 and the evening release will be from 0800 to 1200 as from July 21st. The actual channel has yet to be announced at deadline time. I also believe that there may also be an early morning release to India at around 0100z in addition to their evening release from 1230 to 1700.

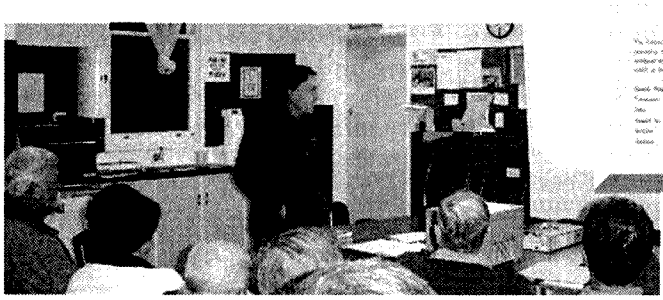
Well that is all for this month. Don't forget you can email your news to me at vk7rh@wia.org.au.

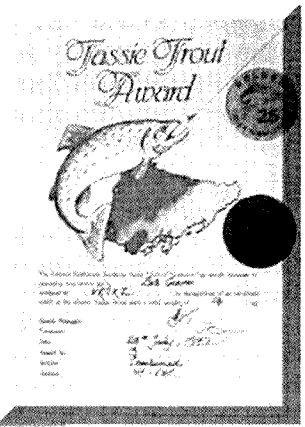
73 from Tasmania.

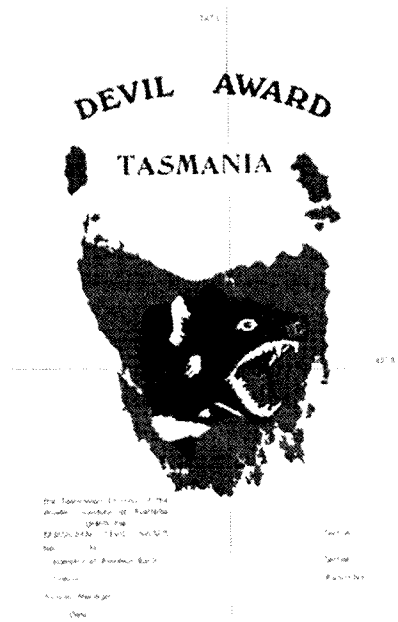
VK7 News *Continued from page 33*

of Tasmania (CHARCT). A quick fire hour long sprint where stations may only be worked once during the contest and must move at least 5kHz each contact. It's single operator phone only, using LSB on the 80m band between 3.540mhz to 3.625MHz with a maximum power of 100 watts. This contest is held in late June. For more information please take a look at the May 2003 edition of AR or the CHARCT website for details: http://www.vk2ce.com/vk7cht/wadda.htm

73, Justin Giles-Clark, VK7TW







Below: Rex, VK7MO presenting his talk about the Digital DXpedition to Lord Howe Island to the Southern Branch. South Australians may recognise Martin Luther (now VK7GN) and XYL Linda (now VK7QP) who have made Tassie their home. *Right:* the Tassie Trout Award. *Far right:* the Tassie Devil Award

ALARA

Christine Tylor VK5CTY
vk5cty@vk5cty or
geencee@picknowl.com.au

Remember the ALARA Contest

It will run for 36 hours again to give us all time to make contacts and still indulge in our other activities. There is no excuse for missing out! Repeat contacts are allowed after three hours and everyone is welcome to participate.

If you are CW proficient, or even capable, there will be people looking for CW contacts as scores towards the Florence McKenzie Trophy. As this acknowledges the large contribution made to our services in WW2 as well as one of the earliest amateurs ALARA would like to continue to have winners of the trophy. Please help if you can by giving someone a CW contact.

When the contest is over remember to send in your log. Every year there are many more participants than there are log submitted. Make sure yours is there this year. You can send your log by snail mail to Contest Manager

99 Magnolia Street,
MILDURA 3500

or by email to alaracontest@wia.org.au

Also, watch out for the new ALARA web page and the new address for the next ALARAMEET in Mildura in 2005. Both are on their way and look great. The address will be given in the next NOTES, but you can have a look at it through the old address. Links will be set up to both the MEET information and the Contest, all thanks to another of Dot VK3DB's sons. Our thanks to you, Roger.

Another interesting contest

Called the "Black Hat Contest", it is offered by the Finnish YLs. The date is August 9th, 0500-1700 UTC. All HF bands except the WARC bands are allowed. CW and SSB can be used. Stations may be worked once only on each of the modes, in fact you will have a score deduction for duplicate contacts!! YLs may work any stations, OMs only score for working YL stations.

Scores are 11 points for CW contact with YL station, SSB contact is worth 8 points, and the YLs earn 3 points for each OM contacted.

There are several prizes for each class of operator and logs should be sent to SARL, YL-ohjaaja, PO Box 44, FIN-00441 HELSINKI, Finland, no later than 31st August.

The 222 Net more active as the season progresses

Do participate in our YL DX net on a Monday afternoon. More and more of the overseas YLs are to be heard whenever conditions are good.

Dave is still conducting the Nets for us but we hope June will feel she can join us again soon. She is missed, though we understand it may take her a time to go back to her old activities.

ALARA gets a very generous offer

Vic VK2EVK has offered a complete radio station to ALARA to use for the furtherment of YLs in amateur radio. Vic has had an interesting life as both a land-based and a maritime radio operator during which he has developed an admiration for YL operators and the contribution they make to the amateur scene.

He would like to see the station used with young people to allow them, perhaps, to have the use of the station either as a club station, before they pass their amateur exams or as an encouragement for new operators.

ALARA is rather overwhelmed by the offer but is examining ways in which the station can be put to use as Vic would like to see it used. More information will appear in this column in the future.

ALARA is extremely grateful to Vic (with encouragement from his XYL, we believe)

An SK from NZ

Pearl ZL2QY, patron of our sister organisation, WARO, passed away in June. She reached the great age of 94. She always took an interest in YL activities and was present at many of the conferences. Pearl sent greetings to the participants of the Hamilton YL2000 International Meeting by video film as she was unable to attend in person. We are all saddened by the news of her passing.

Greetings from an old friend

Many amateurs will have good memories of Heather VK2HD, a long time DX operator. Heather has now retired to Cobar to be near her family but unfortunately there is no possibility of erecting aerials there. The DX take-off from Cobar would be marvelous, and the absence of electrical noise would be great, but we cannot always take advantage of conditions.

Heather sent greetings to all her amateur friends and thanks you all for that friendship by someone who visited her recently. Maria VK5BMT passed on the message over the 222 Net.

Silent Key

The following was advised by Greg Bird 8/7/03:

It is with much regret to inform your organization that one of your members,

Harry Bird VK2XI

passed away at 11pm on 2/7/03
May he rest in peace

W.I.A. DXCC Standings (335). (June. 30th. 2003)

Callsign	Countries
Honour Roll(326)Phone	
VK5MS	335/389
VK4LC	335/382
VK4UA	335/370
VK5WO	335/368
VK6LK	335/360
VK3AMK	335/354
VK3QI	335/349
VK3AKK	335/348
VK2FGI	335/341
VK3DYL	335/341
VK3SX	335/341
VK3EW	334/340
VK6NE	333/349
VK2AVZ	333/344
VK1ZL	333/339
VK6HD	332/358
VK3OT	331/345
VE6VK	330/366
VK4OH	330/337
VK4AAR	330/334
CT1EEN	330/000
VK3CSR	329/338
VK2DEJ	329/335
VK3YJ	327/333
General listing-Phone	
VK7BC	324/329
EA3AKN	323/331
VK5FV	323/326
VK3EUZ	323/324
VK4SJ	321/322
VK6VS	319/323
VK1TX	318/000
VK6ABS	316/000
VK4LV	313/307
VK3JI	310/325
VK6APK	310/315
VK2UK	309/314
VK5W V	306/326
VK6RO	306/312
VK6LC	306/309
VK4ICU	303/305
VK3IR	302/306
VK6DY	297/301
JA3EY	296/300
VK4DP	293/305
VK4EJ	291/293
VK2HV	288/000
VK4BAY	287/290
VK2CSZ	286/289
VK7TS	285/286
VK3DP	274/277
VK6ANC	272/276
VK2CA	265/000
VK3UY	264/266

Callsign	Countries
General listing-Phone	
VK3VQ	261/278
VK5IE	258/261
VK8NSB	255/000
VK3CIM	254/258
VK2FHN	232/000
VK8KTC	231/233
VK4AO	227/000
VK8AM	225/000
9V1RH	216/218
VK4IL	212/000
VK3DVT	206/209
VK6BH	200/000
PY2DBU	195/197
VK7JAB	186/000
G0VXX	184/000
VK6EH	170/000
VK6APH	168/169
VK4CHB	167/168
VK2BQS	164/167
VK4BP	164/000
LU5DSE	161/000
VK4ARB	159/160
VK2EJK	153/000
VK2GSN	152/000
VK7LUV	148/000
VK5EMI	148/000
VK2SPS	141/143
VK8LC	137/000
OK1ZSV	136/000
VK3DQ	133/147
VK2LEE	130/132
SV1XV	130/131
VK4FNQ	130/000
VK4VIS	127/129
VK2IRP	125/101
TG8NE	125/000
SM6PRX	121/126
VK4EZ	119/125
VK2MH	116/118
VK2YN	113/115
VK5UO	112/115
VK3MRG	108/000
VK2QV	107/000
AX4EJ	105/000
VK9RS	104/000
ZS6IR	102/104
VK2FZR	102/000
SV1GYG	102/000
3W2LC	102/000
VK2EJM	101/103
VK3KTO	101/102
VK1PRG	101/000
VK6ISL	101/000
VK5JAZ	100/000

Callsign	Countries
Honour Roll(326)CW	
VK3QI	334/346
VK6HD	333/354
VK5WO	331/347
General listing-CW	
VK3AKK	312/317
VK3KS	307/335
VE6VK	303/326
VK4LV	297/300
VK4ICU	291/000
VK3JI	274/299
VK6MK	249/252
VK7BC	246/255
VK2CWS	245/247
VK3DP	245/247
VK4DA	237/239
VK3CIM	235/236
VK3DQ	234/261
VK7TS	219/000
IK1ZOD	210/000
VK4DP	205/216
DL7PA	203/000
VK2YN	201/203
VK5UO	171/172
VK4UA	151/164
VK4AAR	144/146
OK2BNC	144/000
VK8AM	138/000
N0TM	135/000
VK7DQ	131/132
DL6UGF	126/000
DK6AP	120/000
VK8KV	112/113
K5QNM	110/113
VK5BWW	110/113
SM6GZN	110/111
VK4CXQ	106/000
UR5BCJ	103/105
VK3DG	102/000
SM6PRX	101/102
(Vacant)	000/000
Honour Roll(326)Open	
VK4LC	335/382
VE6VK	335/380
VK4UA	335/372
VK5WO	335/372
VK3AMK	335/354
VK3Q1	335/350
VK3AKK	335/348
VK3OT	334/348
VK7BC	334/343
VK6HD	333/360
VK2AVZ	333/344
VK3UY	333/336
VK4AAR	332/336

Callsign	Countries
General listing-Open	
VK3JI	322/351
VK4LV	320/319
VK2UK	320/315
VK6RO	314/320
VK4DV	313/328
VK4ICU	311/313
VK4DP	309/323
VK6LC	308/311
VK3DP	305/308
VK7TS	295/296
VK2HV	289/000
VK3CIM	284/288
VK3VQ	276/293
VK6ANC	274/278
VK6MK	256/259
VK8NSB	256/000
PY2DBU	254/257
VK5UO	251/255
VK2CWS	251/253
VK3DQ	246/275
VK4DA	237/239
VK2FHN	237/000
VK8AM	236/000
VK2YN	204/206
VK2BQS	182/185
VK4CHB	177/179
VK6APH	171/172
9A4KA	168/000
SM6PRX	162/169
DL6UGF	161/000
VK3VB	153/155
SV1XV	142/144
VK2SPS	142/143
VK4EZ	140/147
ON9MCR	129/140
VK3OZ	126/127
VK7CQ	123/125
N0MSB	117/000
VK9RS	111/000
VK3MRG	109/000
VK2AJE	100/000
General listing-RTTY	
VK3EBP	253/255
VK3AMK	200/202
VK2BQS	125/127
SP3CUG	124/000
VK5RY	100/102
Gen-listing 6m. Open	
VK4FNQ	137/000
VK4ABW	109/000
Gen-listing-2m. Open	
(Vacant)	000/000
Gen-listing-Satellits	
VR2XMT	112/114

The W.I.A. DXCC program and its members pay tribute to Doug Simm VK4BP now SK and condolences to June VK4SJ. "Thanks for your participation Doug".

The W.I.A. DXCC program is audited to June 2003, if your Callsign is not listed it means you have not updated in 5 years or your score is below 100.

W.I.A. DXCC Certificate achievement awards 2003.

DXCC 125, 150, 175, 200, 225, 250, 275, 300, 325. -

DXCC Honor Roll. 326.

DXCC Excellence 335. achievement award labels are free for one Certificate only to financial W.I.A. members. A small charge is made for all non-financial members and extra award labels. For those wishing to upgrade their Certificate, enclose a SAE including two of your qsl cards to prevent postage distortion. Available now from the Federal Awards Manager.

Members submitting DXCC updates who require returned confirmation please enclose a SAE.

Callsign 4U1WB only qualifies for Washington DC, U.S.A., it is not valid for 4U1HQ United Nations HQ.

Adjustments to all computerised DXCC documents can be made on your next upgrade or email me your program if required earlier. If you notice a "silent key" listed please advise me. Federal Awards are now computerised and we are scanning all existing documents. We have developed our Award Documents using Microsoft Excel spreadsheet document saved to a common file that runs on Excel 5.0/95 & 97-2002 versions.

With email you can use the fast service of the computerised awards system. One document runs for the life of the award.

Awards and information are available at awards@wia.org.au or by post to Federal Awards Manager P.O.Box 196. Cannington. Western Australia. 6987.

"de Mal. VK6LC"

DXCC Country name changes from May 2003.

4W from UNTAET (East Timor to "Timor-Leste"). XA4-XI4 from Revilla Gigedo to "Revillagigedo". YT-YU,YZ from Yugoslavia to "Serbia and Montenegro"

Gridsquare Standings at 28 May 2003

144 MHz Terrestrial

VK2FLR	Mike	106
VK2KU	Guy	94
VK3FMD	Charlie	82
VK2ZAB	Gordon	75 SSB
VK3BRZ	Chas	68 SSB
VK2KU	Guy	67 SSB
VK3EK	Rob	62 SSB
VK3KAI	Peter	62
VK2DVZ	Ross	60 SSB
VK3XLD	David	54 SSB
VK2EI	Neii	53
VK3TMP	Max	53
VK3ZLS	Les	51 SSB
VK3BDL	Mike	50
VK3CY	Des	50
VK3BJM	Barry	45 SSB
VK2TK	John	44
VK3WRE	Ralph	44 SSB
VK7MO	Rex	44
VK2DXE	Alan	43
VK3KAI	Peter	43 SSB
VK2KU	Guy	39 Digi
VK3CAT	Tony	39
VK3KEG	Trevor	39
VK4TZL	Glenn	38
VK4KZR	Rod	33
VK2TK	John	29 SSB
VK7MO	Rex	29 SSB
VK3HZ	David	28
VK3KME	Chris	28 SSB
VK6HK	Don	28
VK4DFE	Chris	26 SSB
VK3ZUX	Denis	25 SSB
VK3YB	Phil	23
VK2TG	Bob	22 SSB
VK2KRR	Leigh	21 FM
VK7MO	Rex	21 Digi
VK3BBB	Brian	19
VK3TLW	Mark	19 SSB
VK6KZ	Wally	19
VK3AL	Alan	18 SSB
VK3KAI	Peter	18 Digi
VK2TK	John	16 Digi
VK6KZ/p	Wally	16
VK3ZYC	Jim	14 SSB
VK3DMW	Ken	13
VK2CZ	David	12
VK2EI	Neil	11 Digi
VK2DXE/p	Alan	10
VK3ANP	David	10
VK7ZSJ	Steve	10
VK2TWO	Andrew	5
VK2AKR	Neil	3 Digi
VK2AKR	Neil	1 SSB

144 MHz EME

VK2FLR	Mike	108
VK2KU	Guy	67
VK3CY	Des	66
VK3KEG	Trevor	4
VK3FMD	Charlie	3
VK2DVZ	Ross	2
VK7MO	Rex	2

432 MHz

VK2ZAB	Gordon	52 SSB
VK3BRZ	Chas	48 SSB
VK3XLD	David	46 SSB
VK3FMD	Charlie	41
VK3ZLS	Les	40 SSB
VK2KU	Guy	37
VK3EK	Rob	34 SSB
VK2KU	Guy	33 SSB
VK2DVZ	Ross	29 SSB
VK3BJM	Barry	29 SSB
VK3BDL	Mike	26
VK3KAI	Peter	26 SSB
VK3TMP	Max	25
VK3WRE	Ralph	25 SSB
VK3CY	Des	23
VK3KEG	Trevor	21
VK3HZ	David	18
VK7MO	Rex	16 SSB
VK3CAT	Tony	14
VK4KZR	Rod	14
VK2TK	John	13 SSB
VK3TLW	Mark	13 SSB
VK3ZUX	Denis	13 SSB
VK6KZ	Wally	12
VK4TZL	Glenn	11
VK3AL	Alan	10 SSB
VK3ANP	David	10
VK3YB	Phil	10
VK2TG	Bob	9 SSB
VK4DFE	Chris	9 SSB
VK3KME	Chris	8 SSB
VK6KZ/p	Wally	8
VK3BBB	Brian	7
VK2FLR	Mike	6
VK2KU	Guy	5 Digi
VK2KRR	Leigh	4 FM
VK3ZYC	Jim	4 SSB
VK2CZ	David	3
VK2TWO	Andrew	3
VK2DXE/p	Alan	2
VK7MO	Rex	2 Digi
VK2AKR	Neil	1 SSB
VK3DMW	Ken	1
VK3KAI	Peter	1 Digi

432 MHz EME

VK4KAZ	Allan	14 CW

1296 MHz

VK3XLD	David	32 SSB
VK3BRZ	Chas	31 SSB
VK3FMD	Charlie	31
VK2ZAB	Gordon	26 SSB
VK3ZLS	Les	26 SSB
VK2KU	Guy	20
VK3EK	Rob	20 SSB
VK2KU	Guy	19 SSB
VK3KWA	John	19
VK3WRE	Ralph	16 SSB
VK3KAI	Peter	14 SSB
VK2DVZ	Ross	13 SSB
VK3BDL	Mike	12
VK3BJM	Barry	12 SSB
VK3TMP	Max	11
VK4KZR	Rod	10
VK7MO	Rex	10 SSB
VK2TK	John	8 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK3HZ	David	6
VK2CZ	David	5
VK6KZ/p	Wally	5
VK3BVP	Shane	4
VK3YB	Phil	4
VK3ZYC	Jim	4 SSB
VK6KZ	Wally	4
VK3BBB	Brian	3
VK3KEG	Trevor	3
VK2DXE/p	Alan	2
VK2FLR	Mike	2
VK2KU	Guy	2 Digi
VK3CY	Des	2
VK3KME	Chris	2 SSB
VK3DMW	Ken	1
VK3ZUX	Denis	1
VK4TZL	Glenn	1
VK7MO	Rex	1 Digi

2.4 GHz

VK3BRZ	Chas	11 SSB
VK3XLD	David	11 SSB
VK3FMD	Charlie	8
VK3WRE	Ralph	8 SSB
VK3KAI	Peter	7 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	4
VK3BJM	Barry	3 SSB
VK4KZR	Rod	2
VK3TLW	Mark	1 SSB
VK4TZL	Glenn	1

3.4 GHz

VK3FMD	Charlie	8
VK3WRE	Ralph	6 SSB
VK3KAI	Peter	5 SSB
VK3XLD	David	4 SSB
VK6KZ	Wally	4
VK3EK	Rob	3 SSB

5.7 GHz

VK3FMD	Charlie	10
VK3WRE	Ralph	9 SSB
VK3KAI	Peter	7 SSB
VK3XLD	David	5 SSB
VK6KZ	Wally	4
VK3BJM	Barry	2 SSB
VK3EK	Rob	2
VK6BHT	Neil	2

10 GHz

VK6BHT	Neil	9
VK3FMD	Charlie	8
VK3WRE	Ralph	8 SSB
VK3KAI	Peter	7 SSB
VK3XLD	David	7 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	5
VK3TLW	Mark	3 SSB
VK3ZYC	Jim	3 SSB
VK2EI	Neil	2
VK3BJM	Barry	2 SSB
VK4KZR	Rod	1
VK4TZL	Glenn	1

24 GHz

VK6BHT	Neil	3
VK2EI	Neil	2
VK6KZ	Wally	2

474 THz

VK7MO	Rex	1

Additions, updates and requests for the guidelines to Guy VK2KU, vk2ku@hermes.net.au, or by mail (QTHR 2002).

The guidelines (and the latest League Table) are also available on the website of the NSW VHF DX Group at www.vhfdx.oz-hams.org - click on Gridsquares.

Next update of this table will be done this month.

Stations who do not confirm their status for more than 12 months may be dropped from the table.

ar

Ron Smith VK4AGS
Federal Education Co-Ordinator

Stir, don't fry

Over the past months I have mentioned various assessment methods with their strengths and limitations. What is interesting and exciting is that currently around the world education is undergoing significant paradigm shifts, not just tinkering. These shifts are large, so much so, that within say a decade, maybe even sooner, education practice will bear little resemblance to what happens now. This certainly poses challenges for those involved in designing and implementing the education and assessment system for the proposed licence restructure. If common current practices are adopted, the system will be out of date before the ink is dry on the policy documents.

Education is looking at a range of problems that have evolved. The push started just under forty years ago with Australia leading the world. This happened in Queensland with a report published back then by W. C. Radford about school assessment. The system that has evolved since then is still considered by world level research to be the best in the world, at least for school purposes. The issues that were looked at and acted on were the inaccuracy of single event assessments and the inaccuracy of central authority assessments. When the two went together, which was and still is, common, the inaccuracy increased manifold. The solution relied on two key assessment aspects. One was to have the assessment as continual with selective upgrading of results as information was superseded, and the second was that the teacher at the "coal face" was in the best position to determine the nature and timing of the assessment, and interpreting the results.

For a long time it was believed that if a student had gained the necessary knowledge and skills then they should be successful on any valid assessment task in any format. Research in the past decade or two has shown that this is actually untrue. Education psychology has shown that people's learning styles and consequently their reaction to assessment styles, are quite individualistic. Consequently modern educational assessment involves a range of assessment methods with selection and updating of data to match the uniqueness of individuals. More recent research has shown that this change can be significantly improved when assessment and learning are matched.

In the past decade another issue is taking on significant importance. This issue has come from society in general. If you had been involved in any form of education, you would have heard comments from industry that they were receiving people who were well credentialed by the educational institution they came from but were quite hopeless in the workplace where they did not demonstrate the knowledge and skills the pieces of paper said the "graduates" had. Such comments have been directed to all types of education, schooling, vocational and trade education, and tertiary. Historically, the comments were ignored for a time, but in Australia, and interestingly also in our major economic competitors, the comments were eventually listened to, mainly in Australia by regional universities. The research showed that there were two issues, which are linked. One was what is called shallow or surface learning. The second was the low level of holistic assessment and learning, particularly with the growth of modular education. In the amateur radio scene this appears as learning the exam answers with usually little understanding, and then substantial forgetting within a very short time following the completion of the exam. It also appears as a mind-set which sees the qualification as an end point rather than the beginning of independent learning for life.

These shifts are so large that within say a decade, maybe even sooner, education practice will bear little resemblance to what happens now.

There is definitely not a single modern education and assessment method. Modern education and assessment involve a range of assessment tasks and scenarios, integrate assessment and learning, aim for understanding and application, take holistic cross-curriculum views, recognise the special knowledge about students of the lecturer/teacher, and use a range of learning activities which maximize the participation by the students by using the multi-intelligences to which modern learning psychology refers. This all sounds org-anisationally complex, but it is not necessarily so. In summary, the main difference between modern education and historical education is that historical education focused on content alone, modern education focuses jointly on content and context. Future education will emphasize context even more.

Next time I will outline one method that uses all of the modern features and around the world is leading educational reform. It is also one I use professionally in an institution which is now internationally recognized as leading the world by a significant margin in this particular education and integrated assessment method.

As the articles about education over the past year have indicated, education and valid assessment is a complex issue. The vision is to have the forthcoming educational and assessment practices for amateur radio in Australia something the rest of the world can be jealous of. To do this I have asked a highly talented group of people to work with me on this task. In addition to myself the group is (in alphabetical order) Ron Bertrand VK2DQ, Brian Clarke VK2GCE, Jim McLachlan VK5NB, Neil Penfold VK6NE, and Trevor Ward VK6HTW. The Federal President, Ernie Hocking VK1LK, is fully informed on activities and provides feedback and input from time to time. Many readers will know the talents of these people. There is nearly two

hundred years of educational experience spread across schools, universities, and vocational education. In addition all have been involved in amateur radio education with an impressive track record. All hold some form of tertiary education qualification, some in electronic engineering or related fields and some in education as well. Some are also qualified in planning and development. There are links to IARU, WIA Federal Executive, and WIA Strategic Planning Group. Educationally there is the full spectrum ranging from traditional to world cutting edge development. There is also considerable experience in educational technology such as on-line education. I could fill the whole magazine explaining just how talented this group of volunteers is. I congratulate them on being willing to help with this educational development role and join with all readers in saying "Thank you!"

"It Is Not That Easy"

In June AR I mentioned that I would discuss what is considered the most accurate learning and assessment system. Anecdotal evidence as to the most accurate method has existed for a very long time, centuries. However, formal research was mixed about the quality of the method until about forty years ago. Then the situation became clearer. This method is not accurate all the time. It is the most accurate only when certain conditions are met. It is the special conditions that make the difference.

I also mentioned last month that aspects of society find this method unacceptable.

The method is the individual, highly qualified, and highly experienced, teacher, trainer, mentor, tutor, elmer, or whatever. This is the master/apprentice scheme of old.

Why is this so accurate? Well, as mentioned, it is only accurate if certain conditions are met. It is important that the teacher be well qualified and also well experienced. However, this is not enough. The various teachers have to also share ideas and agree on standards. There is no need for the standards to be officially specified, but there must be good agreement as to what the standards should be.

Also crucial to the process is that there is good feed back to the students during the learning period. The students are guided to success over a period of time. The learning is flexible and is modified to suit students' needs. Assessment is ongoing. Assessment is not a single event.

This method is not without its problems. The main one is that the educator has to be a very special person. These can be rare. In addition the system can be costly in either money or human resources. When the number of students becomes large, it is difficult to reach agreement on the standards, particularly over a wide geographical area.

While there is no doubt as to the accuracy of this method, there is concern in society about the security of such a system. It potentially is open to alleged dishonest practices.

Over the past months, I have looked at the more traditional education and assessment methods. What about the more modern scene? Well, that is for the future columns.

As a completely different matter readers would be aware that the structure of the Amateur Radio Service in Australia is being looked at with the aim to seriously restructure it for the twenty-first century. Proving worth, that is education and assessment, will be very significant in this process. Modern education practices have many facets. As a consequence I am developing a list of possible "targets' for amateur radio education. I am sure there are many more to add to the list but I share with you the list so far. Please feel free to contact me to add more.

- Students in schools who are in engineering, electronics, or physics courses.
- Cadets
- Scouts/Guides' Badge scheme.
- TAFE students in electronics courses.
- TAFE students in AR specific courses.
- University students in electronic engineering.
- University students in physics.
- University and TAFE students in Information Technology.
- Radio Club based weekend courses.
- Radio Club based longer courses.
- Students in remote areas, including those on-line.
- Disadvantaged students.
- Prospective amateurs claiming other study and experience, ie RPL-RCC.
- Volunteer emergency services communication officers.
- Professional emergency services communication operators.
- CB clubs and similar.
- Wireless LAN computer linking clubs.
- Vacation schools for school students, commonly run by universities, the engineering profession, or teacher groups.
- ARCS (Our certificate scheme)
- Duke of Edinburgh Awards.
- Electronics technicians in many walks of life.
- Spouses/family members of current operators.
- Retirement villages/homes, including the possibility of Club Stations.

In addition any restructure should also consider the age ranges of future operators, ranging from teenagers to senior citizens.

With changes to education, there will also be a considerable range of educational style experiences over the range of ages to consider.

We also have to look after our special, and very valuable, volunteers and give them the knowledge, skills, and resources for whatever education system is developed. Linked with this is the education and accreditation of institutional educators.

The task is not a simple one. I have a group of well qualified people to assist in this task. Who are they? Well, read a future issue.

ar

Contests

Ian Godsil VK3VP, Contest Manager

Calendar July - September, 2003

Aug	2	Waitakere Sprint (CW)	
Aug	9/10	Worked All Europe DX Contest (CW)	
Aug	16/17	RD Contest (CW/SSB/FM)	(Jul 03)
Aug	16/17	Keymen's Club of Japan Contest (CW)	
Aug	23/24	TOEC WW Grid Contest (CW)	
Aug	30/31	SCC RTTY Championship	
Aug	30/31	YO DX HF Contest (CW/SSB)	
Sep	6/7	All Asian DX Contest (SSB)	
Sep	13/14	Worked All Europe DX Contest (SSB)	
Sep	27/28	CQ/RJ WW RTTY Contest	

2003 VK/trans-Tasman Contest Results

VK/ trans-Tasman Trophy (highest overall score):
VK4SN Alan Shannon 2639 pts

Category 1 (Phone):

1st.	VK4SN	2639	Alan Shannon	Glenore Grove
2nd.	ZL4DX	2586	Charles Brasell	Invercargill
3rd	VK2CZ	2563	David Burger	St Leonards
	ZL3RE	2519	Reg Bott	
	VK3IO	2398	Ron Tremayne	
	VK2AKB	2121	Karen Boskos	
	ZL4AD	2064	Brian Cook	
	VK7VH	1945	Vince Henderson	
	ZL4IQ	1846	Don Knowles	
	ZL2RX	1797	Roger Wincer	

Category 2 (QRP/Phone):

1st.	VK7NDO	1686	David O'Brien	West Moonah
	VK7HL	548	Lionel Hillard	
	VK2AVQ	344	Bob McKew	
	VK2JDD	223	Dave Dickford	
	VK2QQ	172	Brad Granger	

Category 3 (CW):

1st.	ZL2RX	1155	Roger Wincer	Nelson
2nd	VK2UQ	826	Ken Michell	Glen Innes
3rd	ZL2TW/Q	622	Stuart Watchman	Blenheim
	VK3MV	599	Peter Young	
	VK3BBT	523	Des Taylor	

Category 4 (QRP/CW):

1st.	ZL2TW	622	Stuart Watchman	Blenheim
	VK5BLS	290	Barry Samuel	
	VK2AVQ	344	Bob McKew	
1st VK.	VK4SN	2639	Alan Shannon	
1st ZL.	ZL4DX	2586	Charles Brasell	

Category 5 (SWL):

1st	VK3XRX	1984	Robert Troisi	Macleod (only entry)

Prizes

Night-Owl's (Bucket-mouth) Award - Highest Phone score in last hour:

VK4SN 454 Alan Shannon

Night-Owl's (Paddle-pumper) Award - Highest CW score in last hour:

VK2UQ 53 Ken Michell

Wooden Spoon Award (lowest scoring log):

VK7VH 3 Vince Henderson

The Final Complete Results have been published on the Contest web-site: ttp://home.iprimus.com.au/vktasman

73s, Bruce Renn (VK3JWZ - Contest Manager)

Oceania DX Contest Results

Congratulations to all the winners in the 2002 Oceania DX Contest. Activity has again increased in 2002 compared to 2001 however there was a decrease in SSB logs of some 3 % and an increase in CW logs by 22%. Whilst the conditions seemed to be poorer than the previous year, as may well be expected as we head down the declining slope of cycle 23, scores were quite high with some strong activity and competition from Europe.

The complete results for the contest are contained in the attached tables. For the first time we have included the top ten score for each continent and also a top ten box for non-Oceania participants. A summary of the best scores for each Mode, Band and Continent is detailed on the next page.

2002 SSB Continent Leaders

Contest Category	ASIA	EUROPE	NORTH AMERICA	OCEANIA	SOUTH AMERICA	NON-OCEANIA
SWL	UA0-107-181	UA3-155-75				UA0-107-181
Single-Op All	JH4UYB	ER4DX	K3ZO	VK4EMM	PY2NA	JH4UYB
Single-Op 80m	JG1IGX			ZL2AMA		JG1IGX
Single-Op 40m		PA3EPN	K3TW	VK1MJ		PA3EPN
Single-Op 20m	JA7DOT	DL7CX		VK2APK	LU9JX	JA7DOT
Single-Op 15m	JR9NVB	UA3DEE		VK8DK	L44DX	JR9NVB
Single-Op 10m	JA6EFT	UA6ADC	NA2X	VK4NEF		JA6EFT
Multi-One	RW9C	RW2F		VK8DA	R1ANC	RW9C
Multi-Multi				ZL6QH		

The rural station of VK4EMM took out the phone contest with a sterling effort. Plenty of skill as well as dedication is required to rack up a score like John's. As well as the top scores we were graced with a little more activity from other than the usual VKs and ZLs with activity from 4W, 3D2, YB, DU, 9M6, KH2 and others.

As might be expected most of the Non-Oceania top scores were from Asia. With propagation declining the North/South path is likely to yield the best overall conditions. Congratulations to PA3EPN a keen contester, present in many of the big ones, who managed to achieve a top score from Europe on the very tough 40m band.

2002 CW Continent Leaders

Contest Category	ASIA	EUROPE	NORTH AMERICA	OCEANIA	SOUTH AMERICA	NON-OCEANIA
SWL	UA0-107-181	YZ1KVA-SWL				
Single-Op All	IJA0LCZ	UT7QF	N6RO	KH6ND	LU1EWL	N6RO
Single-Op 80m				VK3TZ		
Single-Op 40m	JA3HBF	OK2BVG	K3TW			JA3HBF
Single-Op 20m	JA7DOT	SP5CJQ	W7KPL	VK2APK		SP5CJQ
Single-Op 15m	JA1BBA	DJ5GG	K9ALP	VK2KM	PY7OJ	JA1BBA
Single-Op 10m	JA1PS	UA6ADC	W1END	VK4TT		JA1PS
Multi-One	RW9C	UT7L				UT7L
Multi-Multi				ZL6QH	R1ANC	R1ANC

KH6ND took out the top score this year, just edging out John, VK4EMM who nearly took out the double! Only, the points awarded for band contacts really separated the two fine CW ops, with John having more mults and more QSOs but less points. The competition in the CW contest was hot! With around 287 logs submitted, and over half from Europe, CW is certainly alive and well.

In the CW section again, the Non-Oceania scores were mainly by Asian stations with the JAs well in front on 10 and 15m. Special mention to Dick, N6RO another one of those die-hard contesters who managed to top out the rest with the top all-band Non-Oceania score. A tough ask with not too many beams pointed his way.

Awards and Plaque Winners

The Awards for the 2002 contest are unchanged and the worthy recipients are listed in the following table. John, VK4EMM takes out both the SSB and CW trophies with some very high scores. It would however be remiss not to mention that the top CW score from Oceania was by KH6ND, and the crew at ZL6QH once again produced some amazing results as the only Multi-Multi from Oceania. Is there a gang out there in VK who are willing to give those Kiwis a "spot of competition"?

2002 Trophy And Plaque Winners

AWARD	DESCRIPTION	RECIPIENT
ZL2TT Trophy	Top entrant from Oceania in Single Operator All Band Phone category - in memory of Ron Wills ZL2TT, sponsored by ZL2GI, ZL2ZL, Wellington Amateur Radio Club and NZART	VK4EMM
VK5/VK8 SOAB Phone Plaque	Top entrant from VK5 or VK8 Call areas in Single Operator All Band Phone category, sponsored by WIA South Australian Division	VK5GN

AWARD	DESCRIPTION	RECIPIENT
VK7 SOAB Phone Plaque	Top entrant from VK7 Call area in Single Operator All Band Phone category, sponsored by WIA Tasmania Division	Not Awarded
VK2QL Trophy	Top entrant from Australia in Single Operator All Band CW category - in memory of Frank Hine VK2QL, sponsored by WIA Federal.	VK4EMM
VK5/VK8 SOAB CW Plaque	Top entrant from VK5 or VK8 Call areas in Single Operator All Band CW category, sponsored by WIA South Australian Division	VK5GN
N6RO Plaque	Top entrant from North America in Single Operator All Band Phone category, sponsored by N6RO	K3ZO
ASIA SOAB Phone Plaque	Top entrant from Asia in Single Operator All Band Phone category, sponsored by the Eastern and Mountain Districts Radio Club, VK3.	JH4UYB
ASIA SOAB CW Plaque	Top entrant from Asia in Single Operator All Band CW category, sponsored by the Eastern and Mountain Districts Radio Club, VK3.	UA0LCZ

SSB RESULTS

Single Operator

OCEANIA

Australia

Call	Band	Power	Score	QSOs	Points	Mults
VK4EMM	ALL	HIGH	2,813,776	1461	3626	776
VK5GN	ALL	HIGH	2,551,020	1599	3111	820
VK2FHN	ALL	HIGH	985,566	990	1779	554
VK2CZ	ALL	HIGH	711,018	666	1701	418
VK4UC	ALL	HIGH	471,472	583	1264	373
VK4DX	ALL	LOW	419,482	677	1162	361
VK8DK	15M	LOW	393,790	743	1486	265
VK3TZ	ALL	HIGH	267,220	431	862	310
VK6NU	ALL	LOW	263,937	408	907	291
VK4NEF	10M	LOW	205,590	385	1155	178
VK2XT	15M	HIGH	198,268	511	1022	194
VK2APK	20M	HIGH	101,680	410	410	248
VK2VZQ	15M	LOW	96,570	333	666	145
VK4ADC	20M	HIGH	93,252	409	409	228
VK4BAY	ALL	HIGH	84,108	221	516	163
VK3VP	ALL	LOW	67,932	164	999	68
VK3BGH	ALL	LOW	54,932	188	443	124
VK2AYD	20M	LOW	41,912	248	248	169
VK5KCX	ALL	HIGH	8,370	68	155	54
VK1MJ	40M	HIGH	5,950	35	175	34
VKK3PRA	15M	HIGH	5,166	63	126	41
VK4FJ	ALL	LOW	3,780	45	90	42

CW RESULTS

Single Operator

OCEANIA

Australia

Call	Band	Power	Score	QSOs	Points	Mults
VK4EMM	ALL	HIGH	4,205,320	1740	4571	920
VK2AYD	ALL	LOW	2,168,947	1228	2959	733
VK4DX	ALL	LOW	1,469,320	1197	2180	674
VK5GN	ALL	HIGH	1,250,044	839	2372	527
VK4UC	ALL	LOW	416,480	432	1370	304
VK4TT	10M	LOW	413,991	513	1539	269
VK2QF	ALL	HIGH	352,625	494	1085	325
VK2KM	15M	HIGH	331,676	566	1132	293
VK2APK	20M	HIGH	273,504	777	777	352
VK8AV	ALL	LOW	264,702	436	843	314
VK3JS	ALL	QRP	171,550	237	1175	146
VK4XY	ALL	LOW	159,222	291	714	223
VK2PS	ALL	HIGH	79,304	236	431	184
VK3TZ	80M	HIGH	10,800	36	360	30

Please also note that we have a new website, www.oceaniadxcontest.com 73 de Geoff ZL3GA

5th IARU Region 3 ARDF Championships

The IARU Region 3 Amateur Radio Direction Finding Championships are to be held this year in Australia at Ballarat, a large provincial city in the state of Victoria, Australia. The event runs from Friday 28 November 2003 to Wednesday 3 December 2003.

The Victorian ARDF Group, which is organising the event, is expecting up to 100 participants from member societies in IARU Region 3 including Japan, Korea, China, New Zealand, and Australia. Guest competitors from other IARU Regions are also invited to attend in the world-wide Friendship categories. The championships are hosted by the Wireless Institute of Australia (WIA), with the WIA Victorian Division sponsoring this important event.

Full details of the event including competitor and volunteer registrations can be found at: http://www.ardf.org.au

Please register early as alternative accommodation will be limited due to another large national sporting event to be held at this time.

The proposed program in 2003 is:

Friday 28th November: *Arrival Day*

Saturday 29th November: *Equipment Check & Opening Ceremony*

Sunday 30th November: *2m ARDF Competition*

Monday 1st December: *Tour Day*

Tuesday 2nd December: *80m ARDF Competition*

Award Presentations & Closing Banquet

Wednesday 3rd December: *Departure Day*

Historic Ballarat

Ballarat is a historic gold mining town in North Western Victoria, but is only about 1.5 hours travelling time from Melbourne Airport. Transport will be provided from Melbourne Airport to the Mt. Helen Victoria University Campus which is the event centre and accommodation.

A special event amateur radio station will be available for use by our visitors.

Competitors may enter the official Region 3 competition or the world-wide Friendship categories. Team results will only apply for Region 3 competitors. A and B teams (2 teams of up to 3) will be allowed in any age/sex category (over and above this further Region 3 competitors may be allowed in the friendship only category if there are vacancies).

Related links -

Official WEB site:

http://www.ardf.org.au

Ballarat and district information:

http://www.ballarat.com

Mt. Helen Victoria University:

http://www.ballarat.edu.au

Further enquires can be directed to:

Mr. Jack Bramham, VK3WWW,
Federal ARDF coordinator,
Wireless Institute of Australia
mailto:vk3www@alphalink.com.au

ar

Ross Christie, VK3WAC
19 Browns Road
Montrose 3765, Vic
E-mail vk3wac@dodo.com

4W operations under a cloud

As mentioned in last month's DX Notes it seems that the past couple of years' operations from 4W, Timor Leste (East Timor) are definitely under a cloud. The ruling has been made that any QSOs with 4W6 stations between the 20th of May 2002 and early May 2003 will not count for DXCC.

This is unfortunate, as a considerable number of operators have put 4W in their logs since this new DXCC entity appeared on air. Only QSOs made after mid May 2003 (exact date not clear) will count, as this is when the authorities began to issue 4W3 callsigns. Thor, 4W3DX, (who operated during the disputed period as 4W6MM) has been working the bands diligently these past few weeks prior to returning home to Iceland with his officially issued 4W3 callsign. He was due to leave Timor in late June so presumably he will now have departed, however, there should be some activity from 4W soon as he left behind antennas and some equipment for following amateur operators. I have just learned that there are at least two currently active operators, they are Peter, 4W3CW, and 4W3JEG (see below).

WRC 2003 has concluded and as expected the wording of article 25 (the necessity of Morse code as a prerequisite for a HF licence) has been modified to allow national licencing authorities to drop Morse code as a compulsory requirement. The new wording basically reads "Administrations shall determine whether or not a person seeking a licence to operate an amateur station shall prove the ability to send and receive texts in Morse code signals." It is my personal opinion that the elimination of Morse code as a prerequisite for a HF licence is a mistake. In every hobby field there are equipment set-ups that range from the absolute minimum required to participate in the hobby to the most sophisticated that the hobbyist can reasonably afford (and, sometimes, then some). AR is no different. If you have entered the hobby for the buzz that 'effectively communicating over long distances' provides then the art of CW cannot be beaten for its sheer and simple efficiency. However, those who entered the hobby because of the ease of use and glamour a modern HF SSB station can provide will not understand the art and 'tradition' of CW. It is the melding of a mental skill and the minimum of hardware that produces an effective method of communication, requiring a measure of commitment and application to attain and maintain. My preference for CW is no secret, and I have always been pro CW, but I sometimes wonder what will be discarded next to satisfy those who want everything handed to them. Let the letters flow to 'Over to You'!

WRC 2003 also endorsed amateur participation in times of emergency and disaster. Governments were encouraged to make fuller and more effective use of the amateur service to provide emergency communications and allow international third party traffic to be carried in times of crisis. Many countries already regard the amateur service as a valuable source of secondary communications with a knowledgeable pool of experienced operators to draw on. This is one way in which we can earn, and keep, our precious spectrum.

The international alignment of the 40 metre amateur band has come a considerable step closer now that WRC 2003 has agreed that broadcasters in regions 1 and 3 should migrate from the 7100 – 7200 kHz segment beginning in 2009 to make room for the amateur service. This will provide a 200kHz wide segment available to amateurs all over the world. I may be called a cynic for this, but I must ask, "what will we need to give away in return?" It is interesting to note that among the dissenting countries against international alignment of the band were; most of the Arab countries, a number of South Eastern Asian nations and .....Australia. As a developed nation, and a supposedly leading power in the region, we should be setting an example of how to be flexible and forward thinking, not ultra conservative.

The 40 metre band is a great DX band, admittedly it can be noisy, but DX is reasonably easy to work with simple antennas and relatively low powers, especially if CW is employed.

The DX

4W3JEG, TIMOR LESTE (EAST TIMOR). Have a listen on 21340 kHz after 0800Z for 4W3JEG who is usually on most days of the week. [TNX 4W3JEG and The Daily DX]

9H, MALTA. Thomas, DL1ASA, say that he will be operating as 9H3TM from Gozo Island, Malta (EU-023) over the 1st until the 15th of August. His plans are to spend at least some time on all HF bands using CW, SSB and RTTY. Thomas also plans on entering the WAE contest held over the weekend of the 9th and 10th of August. QSL via bureau to DL1ASA. [TNX DL1ASA and 425 DX News]

I, ITALY. Giovanni, IK8LIU; Enzo, IK8YTG; Fabio, IZ1EGT; Marco, IZ7DOK; Oreste, IZ8EDJ and Francesco, IZ8EQF will operate as either IC8M or IC8/IK8LIU from Licosa Island (EU-031). The group hopes to get on all HF bands and 6 metres using SSB and CW over the weekend of the 2nd and 3rd of August. QSL via IZ8EDJ. [TNX IZ8EDJ and 425 DX News]

IS0, SARDINIA. Stefano, IK5XCT will be active as IS0/IK5XCT running QRP

NOTE: I have changed my ISP and email address so if you want to contact me or have any DX news to send please forward it to ***vk3wac@dodo.com.au***

from Sardinia (EU-024) between the 24th of July and the 7th of August. Listen out for him on 14060 kHz +/- around 1300Z and 2100Z. QSL via bureau or direct to Stefano Macerini Papini, Via Sarzanese Valdera 64/M, 56032 Cascine di Buti - PI, Italy. Stefano also says that e-mail requests for bureau cards will be welcome at ik5xct@amsat.org. [TNX IK5XCT and 425 DX News]

PJ, NETHERLAND ANTILLES. Carlo, I4ALU will operate as PJ6/I4ALU from the island of Saba (NA-145) in the Netherlands Antilles from the 12th until the 23rd of August. He requests that you have a listen for him on the 10 – 40 metre bands inclusive, but CW only. QSL via I4ALU [TNX I4ALU and 425 DX News]

SM, SWEDEN. Eric, SM1TDE is travelling to Gotland Island (EU-020) and will be there from the 30th June until the 15th of August. Plans are to be active on all bands from 160 – 2 metres mainly using CW. Eric will also participate in the IOTA contest as SM1T. QSL to SM1TDE via bureau. [TNX SM1TDE and 425 DX News]

T32, EAST KIRIBATI. Hiro, JA0SC says he will be active as T32SC from Christmas Island (OC-024) in East Kiribati in the first weeks of August. He will arrive on the island on the 3rd and leave on the 11th. Hiro plans on operating on 20 -10 metres mainly using RTTY and SSTV. QSL direct to JA0SC. [TNX JA0SC]

VP5, TURKS and CAICOS ISLANDS. Paolo, VP5/IK2QPR will be on air from the Turks & Caicos islands from the 16th until the 23rd of August. He will be staying at the QTH of VP5VAC on Providenciales (NA-002). Paolo will operate using SSB and CW mainly on WARC bands. QSL via IK2QPR. [TNX IK2QPR and The Daily DX]

VQ9LA, DIEGO GARCIA. Larry is a regular on the 30 metre band and can usually be found on air around 0130Z and 0200Z. [TNX VQ9LA and The Daily DX]

XU, CAMBODIA. Danny, M0GMT and Oliver, DJ9AO (both are members of the World Wide Young Contesters Club, see http://www.wwyc.net) will be on air on 160 - 6 metres using CW and SSB from the 4th until the 18th of August. Callsigns will be XU7ACT and XU7ACU respectively. QSL to G3SWH via the bureau. [TNX G3SWH and 425 DX News]

YA, AFGHANISTAN. Dan, JA1PBV (YA1BV) will be in Afghanistan until March 2004. The digital modes are Dan's specialty so have a listen for him on the usual RTTY and PSK frequencies. [TNX JA1PBV and 425 DX News]

YI, IRAQ. Dane, S57CQ works for the UN World Food Program. He is currently in northern Iraq where he will remain for the next few months. He mainly gets on air at the weekends and runs a modest 100 watts to a multiband dipole. QSL via the bureau or direct to Slavko Celarc, Ob Igriscu 8, 1360 Vrhnika, Slovenia. [TNX S57CQ and The Daily DX]

Special Events

A note from Mike, GM4SUC, regarding this years **International Lighthouse and Lightship Weekend.** "Well it doesn't seem like a year has passed since the last International Lighthouse/Lightship Weekend when over 385 stations were active at lighthouses and lightships throughout the world. This year the event will be from **0001 UTC** on Saturday 16 August **until 2359 UTC** on **Sunday 17 August 2003.** Full details of the rules and an entry form can be found at http://lighthouses.net.au/illw/index.html A list of stations that have already confirmed their participation can be found at http://lighthouses.net.au/illw/2003.htm So come and join us in the fun of the weekend, listen out for the QRP stations, newly licensed and other lighthouses and lightships and give them all a call." This is a great weekend of AR fun and activity. The event is not a contest and no numbers are exchanged, it is simply a chance to get out into the great outdoors and have a bit of fun with your friends and amateur radio, hope to hear you on the bands!

Round up

In 1969 the Japan Amateur Radio League issued the callsign **JD1YAB** to celebrate the return of the Ogasawara Islands to Japanese control after the ending of the enforced 1945-68 U.S. Trusteeship. JD1YAB is now being resurrected for use from a club station to celebrate the 35th anniversary of the return of the islands. Activity began on the 10th of June and will continue until the 31st of August. JD1YAB will be on all bands from 80 - 2 metres using SSB, CW, RTTY, SSTV, AO-10 and UO-14 satellites. All QSOs will be automatically confirmed via the JARL bureau. If you QSL direct then cards should be to JA1MRM, Saburo Asano, 3-26-8, Toyotama-Kita, Nerima, Tokyo, 176-0012 Japan. [TNX JA1ELY]

Fred Matos, W3ICM is in Iraq helping to set up a new Iraqi postal and telecommunications authority. This new authority will be responsible for the issuing of all transmitting licences and callsigns (including amateur). Fred has got in nice and early and claimed YI3DX for himself on his very first day on the job. [TNX W3ICM and The Daily DX]

A group from **Porto Alegre, Brazil** is testing out a new beacon on 28230 kHz. The beacon callsign is **PY3UEB** and runs 1 watt into a vertical antenna. Reports are eagerly sought and can be sent to py3ueb@baependi.com.br or py3mhz@cteparobe.com.br [TNX PY3CQ]

Mike, OM2DX, should already be back **Baghdad, Iraq** where he will operate from the club station **YI1BGD.** The Slovak embassy was totally destroyed during the fighting between the American and Iraqi forces and all his equipment and antennas went up in smoke along with it. He has applied for a personal YI callsign and is eagerly awaiting its arrival. Mike also says that he will be searching for the YI1BGD licence documentation issued in 1978 and if successful will forward it to the ARRL / DXCC. More info is available re Mike's activities at www.qsl.net/om2dx. QSL via OM3JW. [TNX OM2DX and The Daily DX]

This month our thanks go to the following amateurs and organisations. OM2DX, 4W3JEG, DL1ASA, IZ8EDJ, IK5XCT, I4ALU, SM1TDE, JA0SC, IK2QPR, VQ9LA, G3SWH, JA1PBV, S57CQ, GM4SUC, JA1ELY, W3ICM, PY3CQ, The Daily DX, 425 DX News, OPDX (BARF 80) and The RSGB.

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VHF/UHF - An Expanding World

David Smith VK3HZ - vk3hz@wia.org.au
Leigh Rainbird VK2KRR - vk2krr@telstra.com

Weak Signal operators will catered for at GippsTech

Things have really quietened down lately. A number of the more active stations have either taken holidays in warmer climes or pulled their towers down to work on antennas in preparation for next summer. Also the dark depths of the cold shack is less attractive than sitting bythe warm fire/ central heating wasting brain cells on TV.

Some diversion has been offered in the form of the GippsTech conference held at Churchill, Victoria in the first weekend in July. About 85 amateurs from around VK and ZL attended. As well as the many excellent technical presentations given, the conference provided the opportunity to catch up with people you may have spoken to many times but have never actually met. The mental picture of the person you have formed is usually quite wrong. The highlight of the conference for me was the attendance of Joe Taylor W1JT, author of the WSJT program. All presentations were of a very high standard and very interesting for the weak signal VHF/UHF/Microwave operator. Congratulations to all the organisers from the WIA Eastern Zone Amateur Radio Club for organising such a good event. The next conference is scheduled for July 3 & 4, 2004 so mark that in your diaries now.

Robbie VK3EK and his "150" net continues to attract a crowd. On 11/6, the net attracted 11 stations including VK3RS, VK3HV, VK3AUU, VK3ZUX, VK3AXH, VK3HZ, VK3AJN, VK2KRR, VK3KAI and VK3YDK. It was the 162nd running of the weekly net which now operates on any or all of 144.150, 432.150, 1296.150, 2403.150 and 50.130 as requested by participants. The net commences on 144.150 each Wednesday evening at 2030 AEST.

2 m & 70 cm FM DX

As we move into winter, only one significant ducting period occured for the southeastern states in June, plus a few periods of slight enhancement, and no other reported activity in Australia.

The June event in the southeastern states began on Tuesday the 17th, peaked on the 18th and 19th and had finished in the evening of the 20th.

On the 17th there were much-improved signals from 70 cm repeaters VK3RMU, Mt. St. Leonard (Melbourne) on 438.075, with a massive 60dB+ signal here (290 km); VK3RMG, on 439.950 in Yea, at S7 (253 km); VK3RWU at the Grampians on 438.675 at S9 (471 km); and Melbourne's Kinglake 439.450 noted at S7. The usual 2 m devices at Ararat, Ballarat, Otway Ranges and Bendigo also made the grade.

On the 18th things got interesting. As well as most of the 70 cm repeaters above, several others, including VK3RMM, Mt Macedon on 439.275, which was S9+10dB (324 km) and VK3RUG at Eildon on 438.175 at S9+20dB (241 km) were active.

On 2 m, the duct dug out some interesting signal paths. Warrnambool, VK3RWL on 147.050 made the grade with an S5 signal from over 500 km away. VK3RGL at Geelong on 147.000 was In at S5. The Otway Ranges, VK3ROW on 147.275 was a good S6 (486 km).

VK2JDC, Dave from Parkes was heard making the trip into the Canberra repeater 146.950, in QSO with Rob VK1ZQR. Dave then followed up with a call to the Shepparton Club net on 146.650 VK3RGV, which took them by surprise. A 440 km trip for Dave!

Later VK2TLH, Lindsay, located just south of Bathurst, could call into the Shepparton Net, a 503 km journey and good to hear a few stations in central VK2 jumping into VK3.

Ken, VK3HKR in Melbourne was interestingly quite audible into Wagga repeater VK2RWG on 146.750 while talking to VK3HAO Larry via the Ballarat repeater on the same frequency.

Later in the night maximum distances were achieved - these being signals on 146.900 from the Mt. Gambier repeater VK5RMG (630 km). Stations worked were VK5DJ John, VK5DK Colin, who was also received on reverse, and VK5WCC Bill. The signal from Mt Gambler was only S4. Flexing its DX muscle, from 11.30 pm to 12 midnight, was VK5RMB Murray Bridge on 146.875 (733km), but quite low up to about S4. Stations worked were VK5ZMB Brian at Gawler and VK5HS Ivan in Renmark.

On the 19th signals were much lower. Early a.m. it was good to hear Phillipa VK2XPH, 50 km NE of Bathurst, making it easily into Canberra repeater 146.950, speaking with VK2HBJ Keith in Wagga.

On Friday 20th the duct was still active, but very weak and limited. One unusual contact was simplex on 2 m with VK3LO Colin in Essendon.

A new website has been set up called the VK VHF FM DX Group. This is designed to complement the email group's activities. The site is available at www.users.bigpond.com/vkvhffmdx/.

This site has been produced to cater for the interests of Australian Amateur Radio Operators who are interested in 'long haul' FM DX work, and to give others an insight into just what is possible using 'only' FM.

Join the group and let others know you are listening! A number of interesting competitions have been set up for the group.

On the site you will find the '2 & 70 FM DX 2003 / 2004 Season Tally Table'. The Season Tally is basically a log of achievement on 2 & 70 FM for a single season only. A season is a 12-month period from July 1 each year.

The idea of the long time period is to take in all seasons, starting in the cold winter months when signals don't travel too far, to the warmer air inversion summer months, with great distances, and then back into winter again.

You are able to submit your station's logs for the season table at the start of each month.

Categories in the table are:

Number of 2 m Repeaters worked,
Number of 70 cm repeaters worked,
Total repeaters worked,
Maximum distance to 2 m repeater,
Maximum distance to 70 cm repeater,
Maximum distance simplex on 2 m and
Maximum distance simplex on 70 cm.

You can find more information by visiting the website. The amount of interest in the table will determine its future.

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HF Predictions

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

August 2003
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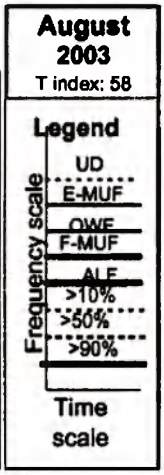
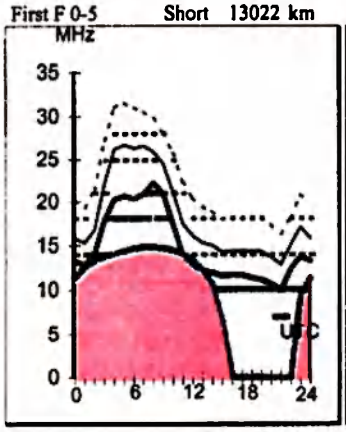
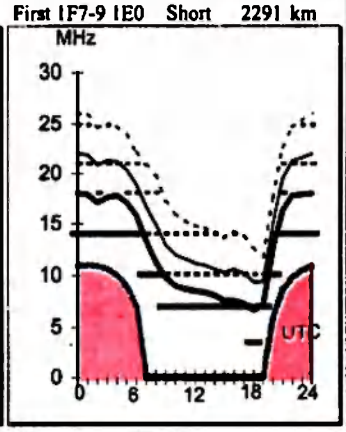


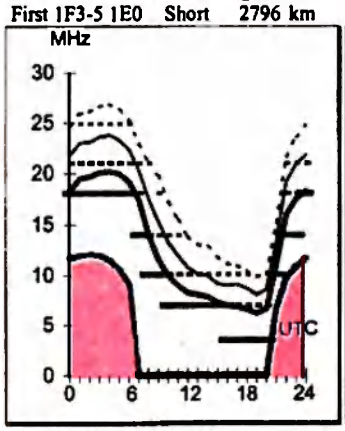
Adelaide-Amman 292
First F 0-5 Short 13022 km



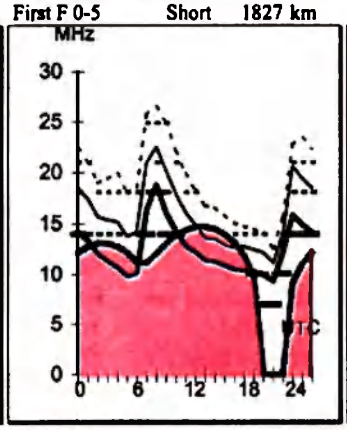
Brisbane-Auckland 123
First 1F7-9 1E0 Short 2291 km



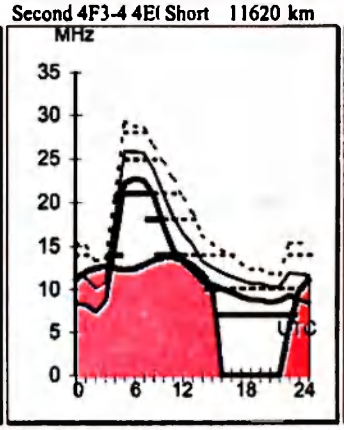
Adelaide-Invercargil 126
First 1F3-5 1E0 Short 2796 km



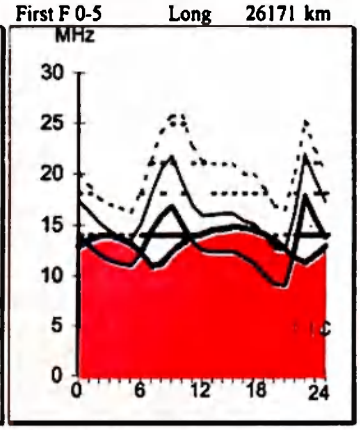
Brisbane-Dakar 217
First F 0-5 Short 1827 km



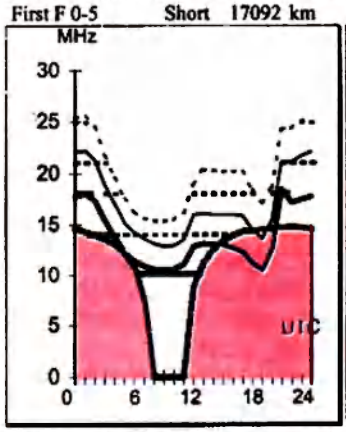
Canberra-Auckland 239
Second 4F3-4 4E(Short 11620 km



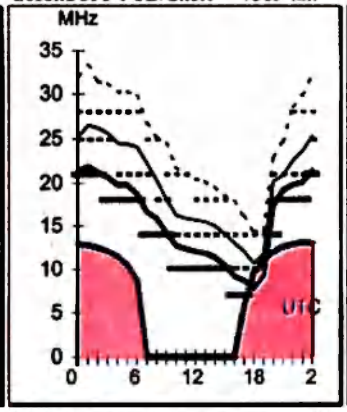
Darwin-London 145
First F 0-5 Long 26171 km



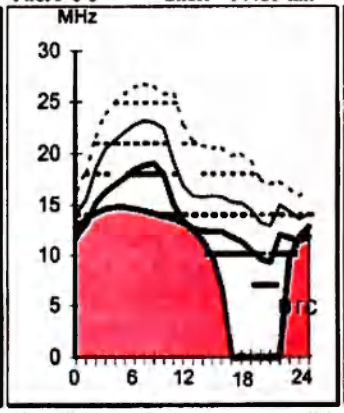
Adelaide-New York 67
First F 0-5 Short 17092 km



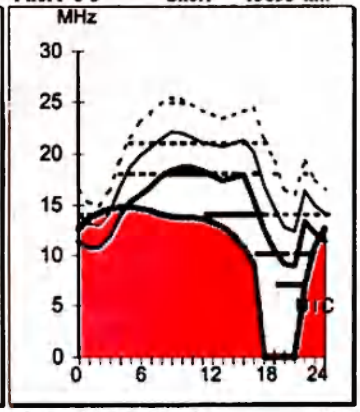
Brisbane-Honolulu 49
Second 3F5-9 3E(Short 7569 km



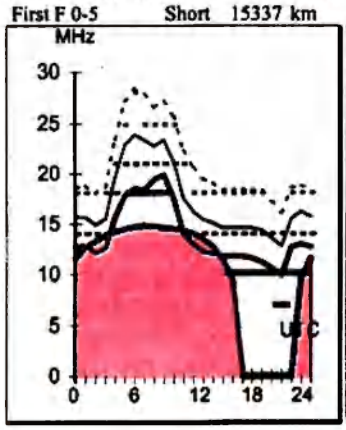
Canberra-Moscow 317
First F 0-5 Short 14481 km



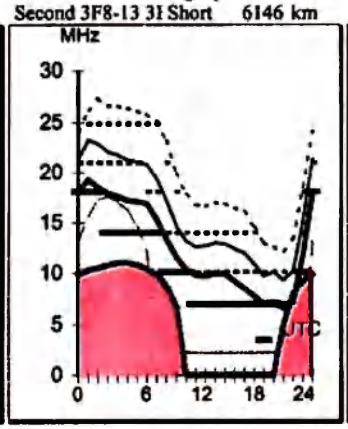
Darwin-London 325
First F 0-5 Short 13853 km



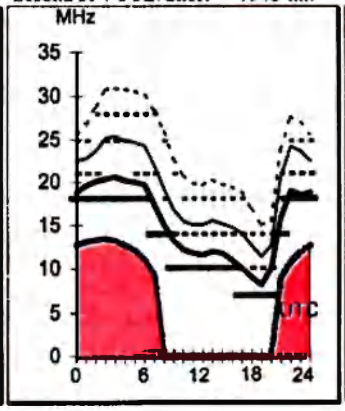
Adelaide-Rome 296
First F 0-5 Short 15337 km



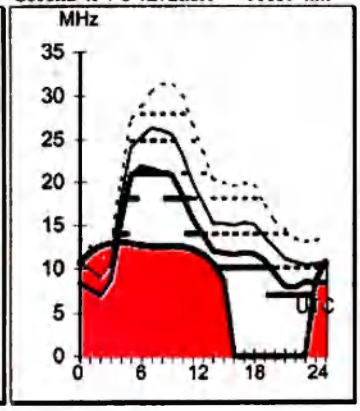
Brisbane-Singapore 293
Second 3F8-13 3I Short 6146 km



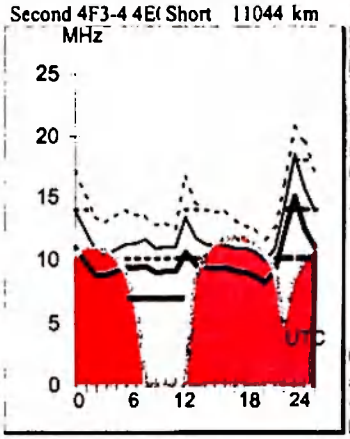
Canberra-Tokyo 352
Second 3F4-8 3E(Short 7948 km



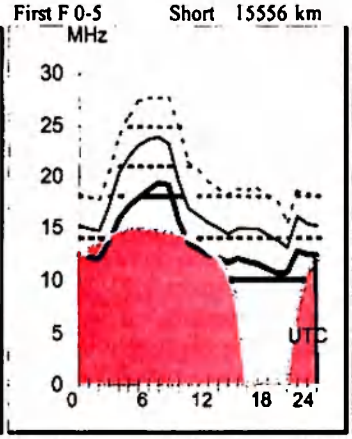
Darwin-Pretoria 242
Second 4F4-6 4E(Short 10639 km



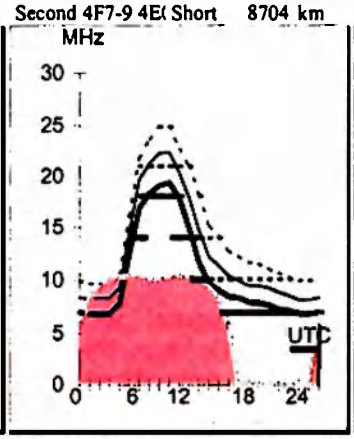
Hobart-Montevideo 161
Second 4F3-4 4E(Short 11044 km



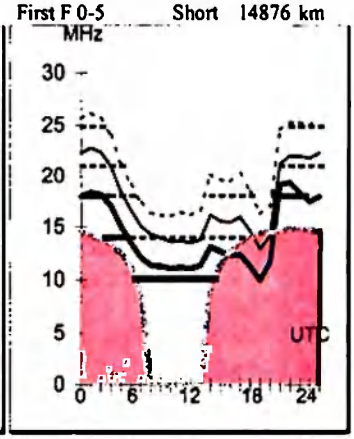
Melbourne-Budapest 312
First F 0-5 Short 15556 km



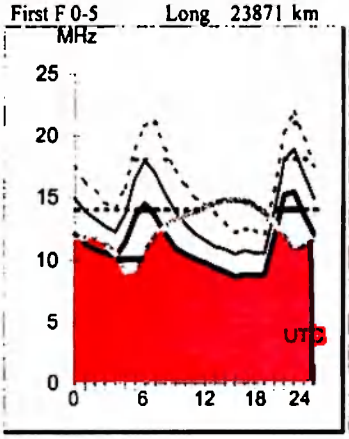
Perth-Harare 237
Second 4F7-9 4E(Short 8704 km



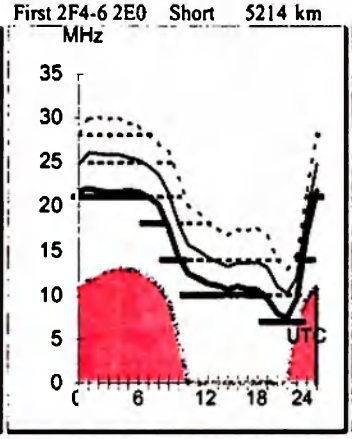
Sydney-Chicago 62
First F 0-5 Short 14876 km



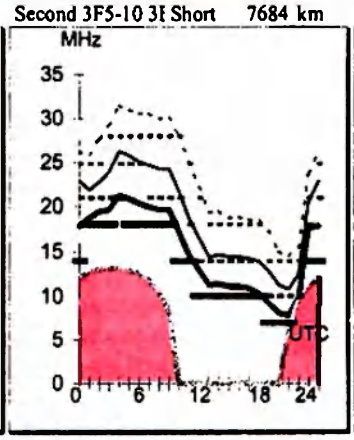
Hobart-Stockholm 136
First F 0-5 Long 23871 km



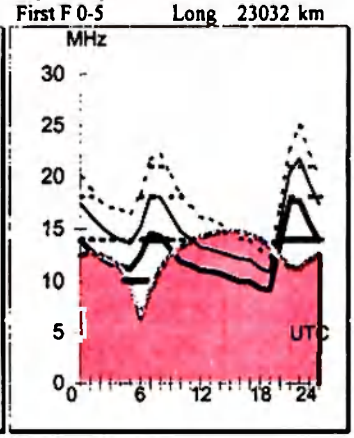
Melbourne-Jakarta 303
First 2F4-6 2E0 Short 5214 km



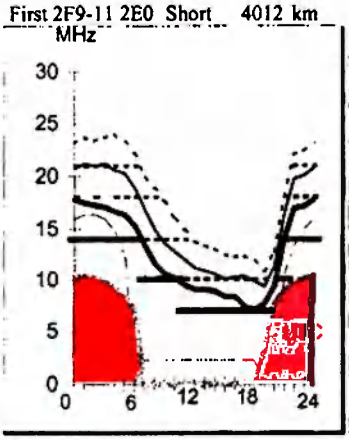
Perth-Osaka 17
Second 3F5-10 3E Short 7684 km



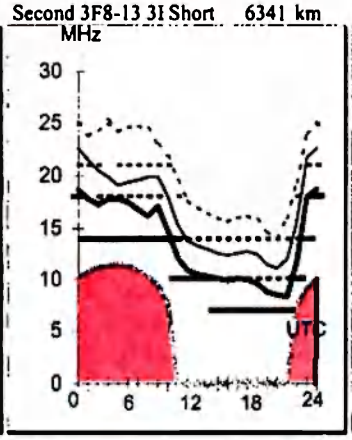
Sydney-London 139
First F 0-5 Long 23032 km



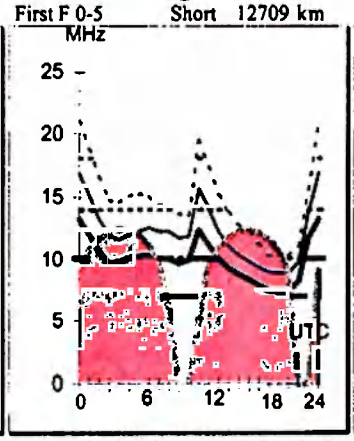
Hobart-Suva 56
First 2F9-11 2E0 Short 4012 km



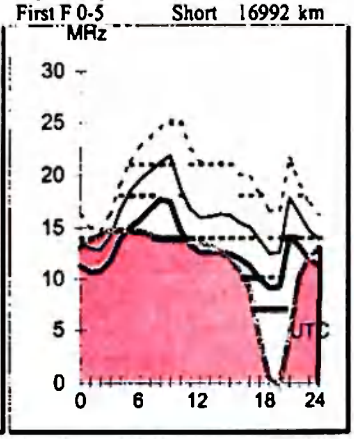
Melbourne-Manila 332
Second 3F8-13 3E Short 6341 km



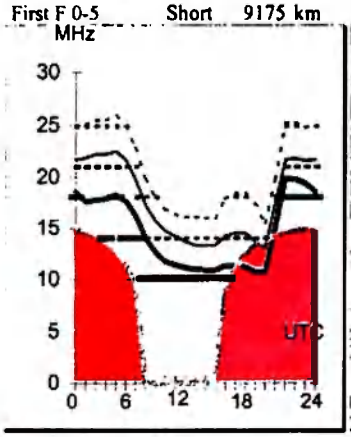
Perth-Santiago 174
First F 0-5 Short 12709 km



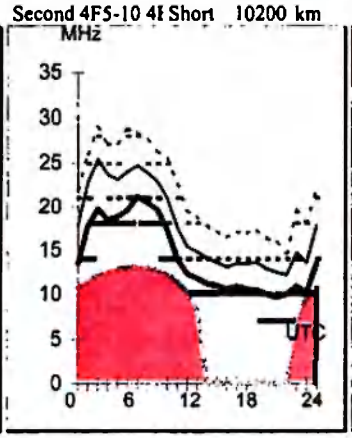
Sydney-London 319
First F 0-5 Short 16992 km



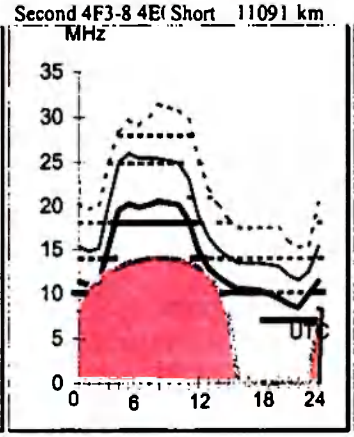
Hobart-Vancouver 49
First F 0-5 Short 9175 km



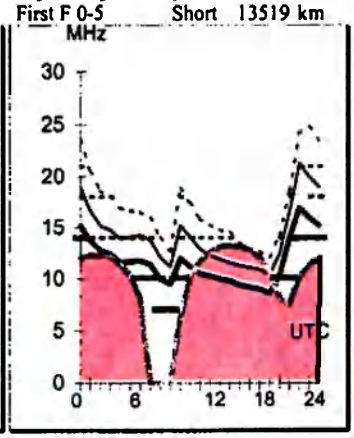
Melbourne-New Delhi 306
Second 4F5-10 4E Short 10200 km



Perth-Tel Aviv 302
Second 4F3-8 4E(Short 11091 km



Sydney-Tokyo 164
First F 0-5 Short 13519 km



Over to You

The New Licence

In December AR there was a segment on another class of licence to bring more people into Amateur Radio and more recently discussion has opened up on the Entry level Licence.

If CW is dropped I would like to see a licence like a 3rd class operator licence. This licence to cover Regulations, Q codes, and parts A, B, C and D of a basic First Aid Certificate. Then practical covering setting up and operation of a basic station, use of a dipole aerial and using an SWR meter,

General conditions of licence

1. No age limit
2. The top 25kHz of each band to 30MHz for SSB. CW on 17850-17875, 3675-3700, 7275-7300, 14325-14350, 21425-21450, 28475-28500 and FM 29500.

52000-54000 SSB, FM, CW, 144250 - 144500 SSB, above 146.000 MHz FM.

3. Power 100 W PEP SSB, 50 W FM.
4. Commercial equipment.
5. 7 SSB channels and or FM channels 3kHz wide. Top 4kHz for CW
6. Equipment channelised. If Amateur transceiver, channels to be locked in memory.
7. Below 10 MHz two channels USB on each band.
8. Each licensee sponsored by a higher-class licensee to support and encourage them.
9. Must be a member of a Radio Club affiliated with the WIA. The licence is only valid as log as the club membership is current.

WICEN could provide training in basic operating at exercises. This might be the best classroom.

In "1" the licensee could be wife, son or daughter of a licenced amateur.

In "2" Limiting power too much does not help much. There is sufficient HF crystal lock equipment still available to support this idea. 7 channels with 3kHz separation on each band should be sufficient.

In "3" 100 W covers a large range of equipment including commercial second hand HF transceivers.

In "4" As they are not full amateurs they cannot build and put into service transmitting radio equipment. However they can build other support equipment such as tuners, filters and power supplies. They should not be allowed to modify their transceiver.

In "5" 7 SSB and 3 CW channels in each band should be enough. Full calls and Novice calls can VFO onto their frequencies

In "7", as there is USB equipment on the surplus market and amateur equipment for the most part can go on both USB and LSB two channels could be allowed for USB.

In "8" I believe this is the most important point. The Amateur sponsoring has a responsibility to see that the station operator abides by the regulations, particularly if they are under 18 years. If there are interference problems the mentor will help rectify the problem and check that all is well before the station is put back on the air. However it is the licence holder who carries all the legal responsibility for the station's operation.

In "9" The local Radio club is required to encourage the new licencee in the hobby. If no local club the State Division of the WIA should arrange further support.

The local Radio Club or a group of clubs could from time to time arrange workshop weekends at which a course for the licence is presented and practical instruction is given in operating an amateur station. Topics covered could include power supplies and batteries, aerial matching and SWR measurements etc. The course will cover radio theory and regulations relevant to the licence. The regulations could cover the existing full call regulation syllabus.

I present this as a discussion paper

David Downie VK2EZD,
4 Blackwood Way, Albion Park Rail 2527

Two topical matters

There are two topical matters that I would like to comment on – changes to Article 25 of the ITU's Radio Regulations and the proposed foundation licence.

Firstly, congratulations to all involved in producing a positive outcome for the amateur radio community at the recently concluded World Radio Conference 2003 in Geneva. We have gained major future dated concessions in the 40 metre band in regions 1 and 3 and, as reasonably expected, individual administrations will now determine if morse code testing shall form a prerequisite skill prior to the issue of a particular amateur radio licence. This leads me to the proposed foundation licence.

I have held an amateur radio licence since my last year of high school in 1969. It seems I fit the perception that a substantial number of radio hams have two defining characteristics – being male and over 50 years of age. I certainly do not enjoy this image of belonging to an old man's club. Much has been said for the (desperate) need to change the face of amateur radio, and I do mean more than "less wrinkles and more females".

Push for change seems to be coming from two directions, with different agendas, but ultimately which I believe will give a beneficial outcome. Perhaps it is not terribly important that as some

The views expressed in the *Over to you* columns are not necessarily those of the Wireless Institute of Australia.

We welcome your thoughts and opinions on any aspect of Amateur Radio. Please keep letters short. If space is short a long letter may be edited or held over.

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Elizabeth East SA 5112
email: edarmag@chariot.net.au

would suggest, major change is driven by the ACA's overt, or as I suspect, covert push for reformation by simplification and devolvement of its administrative role in amateur radio licensing. What matters most is that collectively we have been presented with an opportunity to reinvigorate our hobby to ensure its long term survival.

I fully support the concept of a relatively easy entry level licence as part of a marketing strategy to entice a more representative cross-section of society to experience and enjoy our unique hobby. While we may argue long and hard about the form of, and privileges associated with this foundation licence concept, as well as whether a two or three tier structure is the desirable way to provide the best upgrade path, the bottom line is that all of us must be proactive in promoting and building for the future, not dwelling on the past.

As a high school teacher (maths/physics), I am aware of that ever-present percentage of young minds that really do get a buzz from being involved in hands-on technologies. I believe this is where the proposed foundation licence will have a major beneficial effect for the continued survival of our wonderful hobby.

Chris Bourke VK4YE

WANTED: More operators on the new digital modes!

Like most radio amateurs, I am keen to experiment and learn new operating modes as new technology comes along. Being predominantly an SSB man, I didn't have much desire to get into packet, but felt I should at least attempt setting up a station so I could find out what I have been missing out on. While knowing a little bit about computers helped, by talking to friends and surfing the Internet, within no time I was up and running. While I marveled at the technology, it wasn't long till I was bored and looking for a challenge and some more personal one on one QSOing. I kept hearing about this **PSK31** stuff, but what was it? Once again after a little research on the Internet, it wasn't long till I had enough information to build an interface to go between the PC sound card and my transceiver and some free software to get started.

The interface was very simple to build from readily available parts and setting the levels was a breeze also. I was on air in no time and astounded at how well this mode works with such a narrow bandwidth (31Hz). But immediately I discovered this mode's downfall—phase distortion. Without any forward error correction it suffers badly and can produce many errors (and usually does). Also having so many stations crowded into one voice channel has its problems with AGC pumping in the receiver. A narrow CW filter can work wonders to reduce this effect. These errors were driving me mad and I had to find a better mode soon before I lost interest all together.

Back onto the Internet and I uncovered a few more **new digital modes** to try. They were **MFSK16**, **Hell Schreiber**, **TROB** and **MT63**. I also found **MMSSTV** & **MMTTY**, free software for operating SSTV & RTTY from your computers sound card. Both work fantastic and you can test you SSTV setup by bouncing pictures off the VK3DNH repeater on 14.236MHz.

Getting back to the digital modes, free software is available for all of these modes to download and these four new modes have to be tried to believe how well they work. Perfect text can be decoded right down to the noise floor (due to FER, forward error correction), much better than CW in my experience. Most **MFSK16**, **HELL** and **THROB** activity takes place on 14.080MHz and 14.109.5MHz for **MT63**.

MFSK16, **HELL** and **THROB** are a bit slow, but still faster than I can type, but **MT63** is the big gun in digital modes, very fast with all the bells and whistles and even able to send binary files as well. Setting the levels and tuning in stations is very easy with a little practice on all these modes, and with **MT63** you can leave the PC running all day and night and actually see where and what time the DX activity was.

Now the only problem is **WE NEED MORE OPERATORS** to use these modes. Most digital operators haven't progressed from **PSK31** for whatever reason, but once having tried these other modes, (in my opinion) you won't want to go back. I have even tried these modes on 40 & 80 metres with great success.

So come on, don't be shy. Build yourself a soundcard interface, load the free software and have a go, you might surprise yourself and become addicted like I did two years ago.

To get started, the best Web sites are:

Soundcard interfaces: http://www.packetradio.com/psk31.htm

PSK31: http://www.psk31.com/

MFSK16: http://www.qsl.net/zl1bpu/MFSK/

Hell Schreiber: http://iz8bly.sysonline.it/Hell/index.htm

THROB: http://www.lsear.freeserve.co.uk/page3.html

MT63: http://iz8bly.sysonline.it/MT63/index.htm

Good luck and 73s

From Craig VK6JJJ
craig.hayhow@woodside.com.au

Editors Note. I have to apologise to Craig I have had this for a year . I do feel it is still relevant. VK5UE

OTU Re Foundation Licence VK5GX

I have followed the development of the introduction of the foundation licence for some time. Yet, I cannot see the sense and the benefit to the hobby with the introduction of this grade of licence, nor do I agree with the "grand fathering" of current novice licencees to the full call level.

The reason for the introduction of the novice licence was to provide an "entry level" into the hobby of amateur radio. This level has been successful in allowing people to experience the joys of amateur radio, whilst providing an enticement for further study towards the AOCP. Only a few years ago the WIA petitioned to further reduce the entry level with the introduction of the NLAOCP, a no code variant of the novice grade, obviously with the hope that this would further entice those who are interested in the hobby to the amateur ranks and to the membership of the WIA.

Over to you

Naturally, this has been an absolute success as the VHF/UHF bands are full of these members....aren't they?

Now, the WIA further proposes to introduce nothing more than a CB class of amateur licence, for the reason I believe of the hope of increased membership numbers of the WIA. I cannot see any benefit to the hobby in general within Australia.

The WIA claims that the foundation licence will increase the numbers on the bands....Wake up people. The bands are already occupied, and the introduction of the limited licence grade did not provide a catalyst for increased licencees or membership. I am yet to speak to some one who is a supporter of this foundation licence, and as far as I can tell from the letters published, a majority of your membership does not support this introduction either.

Perhaps the WIA should look toward the reduction in the cost of examinations. When I sat and passed my full call in 1986, at the age of 16 years, the exams were then $5. Has anyone considered that the exams should be free, or at least a token amount? Is it possible that this will encourage interested people to attempt the exams more than once? I am lead to believe that the current cost is some where in the region of $70 per exam.

Face it. The hobby will only attract people who are interested in amateur radio. When the ACA made CB licences free did this provide a catalyst of increased purchases of this equipment? I do not believe so. Are we approaching a time when all the prospective amateur has to do is collect 6 tokens from AR to receive a foundation licence?

If people are interested in the hobby they will pass the exam requirements. If anything the requirements should be left as is. The novice should be left a novice, with limited entitlements and privileges. If these licensees wish to be granted more privileges, let them work for them as many have, or is the WIA trying to buy these members off with the grandfathering proposal?

In a previous issue of AR it was stated that the ARRL reported that amateur licence take up was increasing in the US. Interesting, as they do not have a foundation licence. Perhaps, as Australian culture is more closely aligned to American than English, the WIA should consider adopting a similar licence structure to that proposed?

In closing, I do not support the introduction of the Foundation Licence. Should the WIA pursue this avenue I will cease to be a member of the WIA. After all, the WIA only represents 25% of all licence holders. Is the ACA aware of this fact?

If the WIA is truly interested in the protection of our hobby maybe it should consider retaining the standards and perhaps increasing them rather than demolishing them. If increased membership is the hidden agenda then what about canvassing the CB market. After all it is the WIRELESS INSTITUTE isn't it?

Paul M. Spinks VK5GX

Cocky Problems

I was interested to read how Bernie, VK4EJ, Cocky-proofed his antenna, (AR July 2003). I too have this problem both with my 3 element beam and also my LF dipoles that are supported by two 10m masts. Last week the cockies actually cut through the nylon halyard on one of the masts that then necessitated dropping the mast to re-thread another halyard line through the pulley. This time, at the end of the halyard line, I tied a CD-ROM and since then not one cocky has sat on the halyard. In practice I drilled a small hole near the edge of the CD-ROM, connected a small fishing line swivel to it and tied on with fishing line. Simple and it works - so far! There is one adverse effect - when the sun is low the mirror reflection may cause flashes of brilliance you never expected!

73, David Pilley VK2AYD

Review of equipment

It was a sentiment that I concurred with, reading the over to you from Alan VK3VD.

What a month to include a salient review by Doug 3UM on the ICOM IC910. Doug's exhaustive analysis of a muti-mode rig was journalistic excellence. The thorough attention to detail, actual noise figures, meaningful results and abstaining from the irrelevant was greatly appreciated.

Doug's capacity as a reviewer, certainly based on his reputation as a practising RF engineer, has the capacity to put our AR magazine back in the realms of the best international journals. I only hope that Doug doesn't discover that often quoted quip, "upon retirement I wondered how I ever found time to go to work!"

Well done, the best read I have had for years!

73 de Christopher VK1DO/VK2DO

DX spots via SMS or email

I am one of the promoters of SMSCLUSTER service.

SMSCLUSTER service provides you an unique, exclusive and innovative way of receiving DX spots from the world packet HAM cluster directly to cellular phones or pagers, via SMS or e-mail, wherever you are, without the radio network or Internet!

With a complete set of DXCC/IOTA filters and settings you will receive only the desired spot, with very small probability of faults!

ALL MODES (SSB, CW, RTTY, PSK, SSTV, SAT, EME, FSK441, JT44, JT6M, HELL, SITOR, AMTOR, AM, FM) AND BANDS (136 kHz / 1.8 / 3.5 / 7 / 10 / 14 / 18 / 21 / 24 / 28 / 50 / 70 / 144 / 220 / 430 / 900 / 1200 MHz / GHz up 1200 MHz) ARE SUPPORTED BY THE SMSCLUSTER SYSTEM !

Please visit the pages at http://www.smscluster.org to discover more about this free service, to register yourself and to use the SMSCLUSTER, the new frontier of DXing!

SMSCLUSTER is an experimental service. Please report any problem or comments to info@smscluster.org. Thanks for your cooperation!

And please do not forget to leave a message into the guestbook. Thanks!

IZ5ENH (KC9AJF) Stefano, one of the SMSCLUSTER Crew

Joseph Nelson VK2KJN

Joe Nelson passed away on May 16th, 2003 in hospital after a long illness. He was 76.

He loved radio and in his boyhood days he built crystal and valve sets as a hobby. In his retirement, he qualified as an Amateur in 1996, after doing courses with the Hornsby Club, HADARC, of which he was a member.

He operated on HF and was a revered participant in Col's Net, talking each weekday to other amateurs living in different parts of Australia. He met each month with the Amateur "Vets" at WIA House, Parramatta, enjoying the company of other "hams" over lunch.

For many years, Joe worked as shift foreman electrician at Lysaghts Wire Plant at Fivedock in Sydney, but did his training and apprenticeship in Melbourne

Joe helped at the Volunteer Coastal Patrol Radio Centre at Terry Hills, doing his weekly early morning shift. A highlight of his retirement was his participation as a volunteer at the Sydney Olympic Games. He worked in the "Communications Centre" in an organising role and continued in the same way during the following Para-Olympics.

He loved fishing and swimming, and doing laps at the Ryde-Eastwood Gym, Pool, sometimes three times a week. He was an avid follower of AFL Football. He was a gentle and kind man, always ready to help others. He leaves a fine family, his wife Joyce, daughter Sue, and three sons, Jim, Peter and Bill.

Joe will be missed by his many friends and we extend our sympathy to his family.

Submitted by John Stacy VK2JJS

VK4FB Ian C. Fisher

Ian Campbell Fisher/VK4FB passed away, aged 86, on 4th June after a lengthy illness. He had a lifetime of radio communications experience

It commenced in the 1930s when he obtained his Commercial Operators Certificate of Proficiency through the Marconi School of Wireless.

Until the end of WW2 he served as a Radio Officer on numerous ships throughout the world. At the end of WW2 Ian was recruited to Rabaul/TPNG to assist in establishing a communications system to service the then Territory of Papua New Guinea. He remained in charge of communications in the Rabaul/New Britain area until shortly before his retirement in 1973. For his outstanding service to Papua New Guinea communications he was awarded the Imperial Service Medal. As an expert professional radio telegraphist Ian was active from Rabaul as VK9VM and in retirement in Queensland as VK4FB until ill health curtailed his amateur radio activities.

Forwarded by Deane Laws/VK4ALN.

Hamads

FOR SALE NSW

• **Kenwood TS-430S** with mobile bracket manual, all filters and vox $600. **Ksnwood TS-700A** 2 m all mode tcvr with manual $350 ono. **Yaesu comm receiver FRG-7700** with FRT-7700 tuner and manual $350 ono. All exc. condition. Cliff VK2CJL. Phone 02 6972 3788. email sealord@optusnet.com.au

• Shack closure: **FT-101E** S/N310361. **YC-601. FC-700 ATU. FC-707 ATU. DSE Oscilloscope lab. type Q1280. Two RF Filters 30 MHz. Two Morse keys. Two coax switches.** Two transistor testers home brew. Set coax links 50 ohm. One little used VCR. **Spares for FT-101E**. $1500 ono. VK2BUE QTHR. Phone 02 6736 1388 any time. Collect only.

• **Power supply Nemic Lambda 10-16v, 43A**, current-limit, over-voltage protection. Instructions, circuit available. $75. Bob VK2CAN. Phone 02 9416 3727.

• **Transceiver Yaesu FT-901D**-inbuilt keyer and DC/DC converter. Cables and manual $680 S/N 94081386. Desk mike $50. 6 el 10 m antenna, partially assembled $350. VK2VZB QTHR. Phone 02 9449 7548

• **Kenwood mobile mounting cradle for TS-120**, EC $40; **Mobile mount for TS-430**, new, $30; **Kenwood external VFO-120**, $40; **BC-221** US Frequency Meter SCR-211-AL with all charts, manual, AC power pack, spare new valves, EC, $60 (heavy, buyer collect!); **Roller inductor**, rotor 7 in long, 2 in. diam., 100 turns, with counter dial, ex-WW2 Tx, $50, Keith VK2AXN QTHR Sydney. Phone 02 9489 0304.

• **Emtron DX-2 HF linear amp**. mint condition with manual and carton S/N 10124. Change of QTH forces sale. $2000 ono. Carl VK2OK. Phone 02 9327 2688 evenings, email chall1@bigpond.net.au

• **Deceased Estate** from the estate of **Peter Mulligan VK2ABH. Daiwa SWR power meter** SW-410A 140 MHz, 450 MHz, $50. **Trio 9R-59DS** receiver $80. **Kenwood TM-241A/E FM/Tx** 144 MHz, needs attention S/N 30402083 $120. **Oscilloscope Stn/monitor SM-220** S/N 750317 $250. **Kantronics Terminal unit FSK** S/N 442211, needs attention $70. **Realistic communication receiver DX-180** with speaker S/N 416891 $130. **Swan 700CX T/X P/S** SWR power meter S/N 19372 $300. **Yaesu FL-2** 2m linear S/N 11030048 $80. **Signal generator LSG-16,** S/N 9102189, 300 MHz, needs attention $50. Transmitter Lic'd Amateurs only. All prices ono plus pack and postage. Ring Phillip Phone 02 9709 6060.

• **3m Sat. Dish, Chaparral MC115 Rx**, 3' Actuator, C-Band Feed and LNB, $300; 1' Actuators, $70 ea. Various Feeds and LNBs, $Ask. **NTSC-PAL Converter**, $50. Various decoders, $Ask. Several **analogue Sat. Rx's**, $Ask. **FM828 A**, $80. **HP7550 Plotter**, $150. **NEC 3D Monitor**, $50. 2xVideo Blasters, $25 ea. **Grandtec VGA-Video Converter**, $50. Roger Woodward VK2DNX, Rogerwoodward10@hotmail.com, Phone 02 9547 2546

About hamads....

- Hamads may be submitted by ***email*** or on the ***form on the reverse of your current Amateur Radio address flysheet.*** Please print carefully and clearly, use upper AND lower case.
- Separate forms for For Sale and Wanted items. Please include name, address STD telephone number and WIA membership number if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), Forty word maximum, minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy typed or printed clearly please, and received by the deadlines shown on page 1 of each issue of Amateur Radio.

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

TRADE PRACTICES ACT
It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

WANTED NSW

• **Universal Avometer Model 8 circuit diagram wanted.** Mark VK2EMG QTHR

• Set of **extender boards for Yaesu FT-107 repair**. Will buy, borrow, beg, steal or swap. I am desperate. Please help. Ray VK2AWQ QTHR Phone 02 6494 1347

FOR SALE VIC

• **Trio CS-1560A dual trace 15 MHz CRO**. As new. $130 orig. boxing, 2 probes, manual incl. inspect at QTH. Reg VK3KK, Phone 03 9469 4200.

• **Drake TR-7 solid state 250 W transceiver**, with PS-7 power supply, RV-7 remote VFO, SP-75 speech processor, WH-7 watt meter, all bands including WARC, $1200. VK3JM QTHR, Phone 03 9801 4972

• **Deceased Estate: Tiltover Windmill tower**, self-supporting. Approx 55 feet high. Rotatable beam with motor, includes antenna **TH3-JNR 3el tri-band beam** $800. Contact - Phone 03 5821 6314.

• **Kenwood TS-130S HF Transceiver** S/N 1091549, **MC-50 desk mike**, mobile mount bracket, instruction manual $400. **Daiwa CNW-418, 500 W** PEP cross needle antenna tuner $150. All EC. Mike VK3MSA QTHR. Phone 03 9808 9039, email mickd@alphalink.co.au.

• **ARRL 2001 Periodicals CD**. Original with jewel case and instructions.$20 plus postage if applicable. Lou, VK3AQZ QTHR Cranbourne South, Phone 03 5998 1188 or destef@net2000.com.au

• WANTED VIC

• **Yaesu desk mic**. in good nick. Max VK3GMM Phone/fax 03 5985 2671

• **Vanguard AM/CW transmitter** by KW Electronics. Any condition. Can swap AM/CW transmitters; Globe, Heathkit, AWA etc or I will buy your gear. Other KW equipment wanted. Paul VK3KXG QTHR. Phone 03 5662 5422, email stampton@dcsi.net.au.

FOR SALE QLD

• **PC board for UHF amp DSE ZA1508** designed in 1986 in perfect condition. All replies to Phone 07 928 5537. If not, please leave message. Merv. Deakin VK4DV

WANTED QLD

• **Counter unit board number X54-1560-00 for Kenwood TS-130 transceiver**. All replies to phone 07 928 5537. If not, please leave message. Merv. Deakin VK4DV

FOR SALE SA

• **12 to 28 volt DC Converter PCB**. See construction article AR July 2003. Double Sided, PTH, silk screened. Limited number available. $5 ea posted Keith VK5OQ QTHR. Phone (H) 08 8280 7430 (W) 08 8259 5363 keithg@senet.com.au

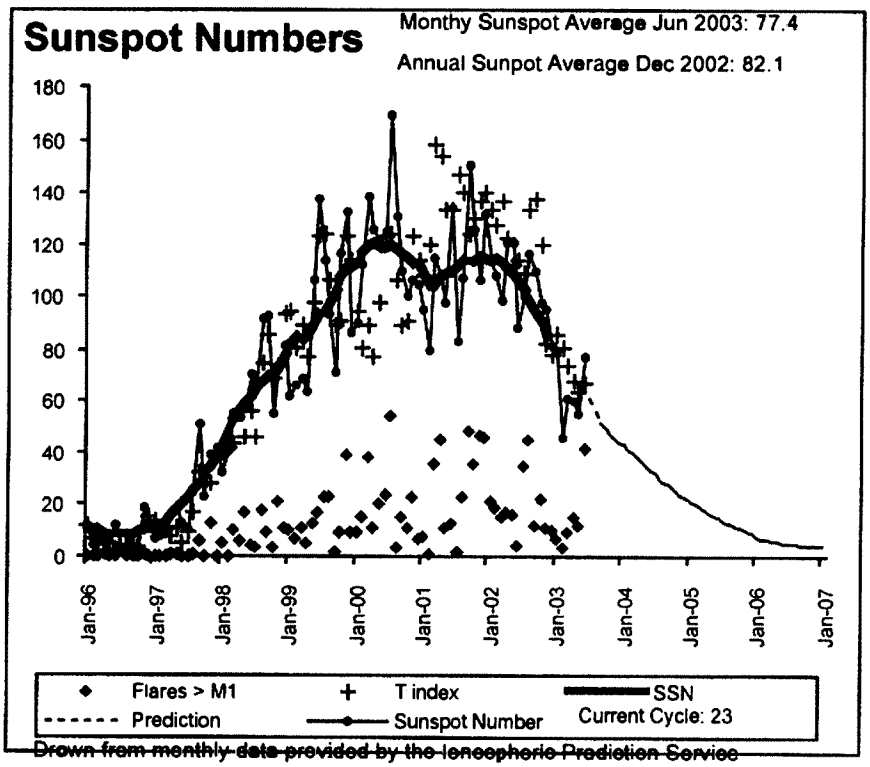
Hamads

WANTED WA

• **9 MHz crystal** prefer HC49/U and **power transformer for Yaesu YO-901 multiscope** or a complete unit with good transformer. Bob VK6ABS QTHR, Phone 08 9075 4136.

TRADE ADS

PSK-31, SSTV, RTTY SOUNDBOARD
Interfaces Fully isolated, ready to plug in. http://www.G3LIV.CO.UK, johnny@melvin.com, G3LIV QTHR.



International Amateur Radio Union. Region 3

Extracts from MONITORING SYSTEMS NEWSLETTER. APRIL 2003. (Check the web site for more information. VK5UE)

The first happy news of the year is that HARTS has sent its first exhaustive report for the Monitoring Systems Bulletin of Region 3. OM Kieran VR2XBM, has done lots of painstaking work and motivated a few very hard working amateurs like VR2GI OM David, in getting lot of information in a technical way, with spectrograms.

This month, due to his illness, OM Henry VK8HA the Federal Coordinator from Australia, could not report.

All the information from the other Regions is on their web sites.

http://iarums.com/

http://www.echelon.ca/iarumsr2/contact.html

Best 73s,

de B.L.Manohar "Arasu" VU2UR.

Regional Monitoring Systems Coordinator

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Alan Hawes	VK1WX
Secretary	Deane Walkington	VK1DW
Treasurer	Linden Orr	VK1LSO

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga. VK1 Home Page *http://www.vk1.wia.ampr.org*
Annual Membership Fees. Full $80.00 Family $38.75 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@wiansw.org.au*
Fax 02 9633 1525

President	Brian Kelly	VK2WBK
Secretary	Owen Holmwood	VK2AEJ
Treasurer	Noel May	VK2YXM

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.
Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Jim Baxter	VK3DBO

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.
Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

VK4 Division Queensland
PO Box 199, Wavell Heights, Old. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Ewan McLeod	VK4ERM
Secretary	Bob Cumming	VK4YBN
Treasurer	Bill McDermott	VK4AZM

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 in both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au
Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.
Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

President	Neil Penfold	VK6NE
Secretary	Roy Watkins	VK6XV
Treasurer	Bruce Hedland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website
Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.wia.org.au/vk7*
email: *vk7dg@useoz..com*

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VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

Roll Call

of Australian Amateurs who became *Silent Keys* as a result of contact with the enemy during WW2

Sgt J.A. Burrage 459 Sqdn (VK3UW). Died during a flying battle over Sumatra.

Fl Lt J.E. Goddard (VK6JG) 582 Sqdn RAF over France after a flying battle.

Radio Officer N. Gunter (VK3NG). Killed when the SS "Kowarra" was torpedoed off Sandy Cape Q. with the loss of 35 lives.

Cpl V.J. Jarvis (VK2VJ) 3 Squadron RAAF, Died in a Middle East ground battle".

Gunner S.W Jones (VK3SF) Killed in action, Dutch New Guinea.

Lieutenant D. A Laws (VK4DR) "M" Special unit, murdered by pro-Japanese natives near Saidor New Guinea.

Leading Teleg. J.E. Mann (VK3IE) one of 137 crew members of HMAS "Parramatta" who died when the ship was torpedoed in the Mediterranean.

Sgt J. McCandlish (VK3HN) 'M' Special Unit, Dutch New Guinea. Executed by the Japanese.

F/ Lt P.P. Paterson (VK6PP) 24 Sqdn RAAF. Died after a flying battle near Rabaul.

Telegraphist A.H. Rippon (VK6GR) Presumed Killed In Action when all aboard HMAS "Sydney" were lost.

J.E. Snaddon (VK3VE) 459 Squadron RAAF. Died after a flying battle over the Mediterrean.

Radio Officer R. P. Veal (VK3PV). Killed when MV "Neptunia" was bombed and sunk in Darwin Harbour.

F/0 BR James (VK5BL) 76 Sqdn RAF. Died during a Halifax raid on Magdeburgh Germany.

Signaller C.D. Roberts (VK2JV) Died while a POW working on the Thai-Bunna railway.

Lest We Forget

Reflections...

by Col Harvey VK I AU

An Australian Amateur on the Burma/Siam railway

CHARLES DARCY ROBERTS was bom in Sydney in March 1909. In July 1940, by then 31, an unmarried solicitor and a Radio Amateur Operator with the call sign VK2JV, he enlisted in the 2nd AIF at Paddington Engineering Depot. By August he was at Ingleburn 8th Division Signals as a Special Operator Group 2. He was embarked on H.M.S "Queen Mary" on 2 February 1941, disembarking in Singapore 17 days later. Posted to HQ AIF Malaya, he was detached for duty with HQ 8 Division Signals.

Charles was wounded in the left shoulder by a Japanese bomb fragment on 26 January 1942 and transferred through a Casualty Clearing Station to 10 Aust. General Field Hospital at Changi. Japanese troops entered Singapore Island on 8 February 1942. Singapore was surrendered on 15 February 1942. Charles rejoined his unit on 22 February and became a P.O.W.

In April 1943 he was sent to "F" Force", one of 9 mixed nationality groups of POWs, This party of 3662 Australian POWs (many already unfit) was sent from Changi to work for the Japanese at primitive camps along the Burma Railway. After a five day rail journey to the rail-head at Bam Pon in Siam, packed 30 to a steel rice truck, unable to lie down and with very limited food and water, they were marched by night 300 km up a jungle track, to Songkuri near the Burma/Siam border. The appalling conditions in their 14 "camps", coupled with inadequate food and hard labour meant that 1061 of the contingent died. Those that survived became mere skeletons, most weighing less than 45 kg.

Of the total of 13000 Australians (mostly 8 Div, and 7 Div AIF with some Navy and RAAF POWs) sent to work from 70 "camps" in Burma and Thailand, 2815 did not return. Charles Roberts VK 2JV was one of them. He died of cerebral malaria on 3 July 1943 and was buried in grave 39 at Kami Sonkrai. Later his remains were moved to a collective grave (14, A8) at the War Cemetery at Thanbyuzayat near Moulmein in Myanmar. (then Burma). Signalman Charles Roberts appears to be the only Australian Amateur Radio Operator who died a prisoner of war.

Vale- Charles VK2JV

CITATION- SX 2395 Cpl J.G. PHILLIPS, B.E.M. Sigs 1, Australia Corps

For "Exemplary conduct & devotion during SYRIAN Campaign"

Although very sick and attending hospital three times daily for treatment, this NCO continued at his post throughout the Syrian Campaign, often working twenty hours a day under exceptionally difficult conditions.

As NCO in charge of all wireless communications of 21 Australian Infantry Brigade, Corporal Phillips had to maintain contact with attached units, with the Navy and with Cavalry units over a wide range of frequencies and at the same time remain in constant communication with the Battalions in the Brigade.

On account of the heavy toll taken by sickness among the Brigade signals personnel and the extreme difficulty faced in the maintenance of WT communications in the rugged and mountainous country, Corporal Phillips felt it imperative that he should stay at his post and would not go to hospital when ordered. His control of WT communications was exemplary and his devotion to duty meant that it (was) recommended he be granted the British Empire Medal.

The award was promulgated in the London Gazette in December 194 1. The insignia was received from London in April 1941 and was presented to his widow Mrs N.M. Phillips (of Glenelg S.A.) in August 1944 at Government House, Adelaide, by the Lieutenant Governor of South Australia,

Authority File AMF 14/P-Q

Postscript.

The late Sgt: Phillips (W5BW), an Adelaide radio engineer was 30 when he enlisted as a Private in the 7th Division AIR. On 18/10/40 he left for the Middle East aboard the "Queen Mary", returning as an A/ Sgt. on 19/4/42 aboard the "Dorset".

He was killed on-duty driving an army vehicle when it overturned near Bethanga N.S.W. on 1/1/43. A Court of Enquiry found that he was not responsible for the accident.

He is buried in Grave F A 13 in the Albury War Cemetery

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September 2003
Volume 71 No 9

Amateur Radio

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Drew Diamond VK3XU

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Darryl Smith VK2TDS

for the 2003 ARDF championships

— Update of popular 1997 article by Ian Stirling VK3MZ

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Our Cover this month

In December 1997, an 80 metre receiver for ARDF Radio Sport was published by Ian Stirling VK3MZ. This unit, based on the now superseded MC3362 receiver chip, was very popular in Australia and also used overseas. An updated version of this receiver begins on page 4.

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

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Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies
When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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Editorial Comment

Colwyn Low VK5UE

Welcome to another edition of AR. Another Remembrance Day Contest completed and its reputation as "The Friendly Contest" continues. I appreciated being able to have a few words with VK7GN and VK2AYD without feeling I was holding them back or slowing my own climb to 61 contacts. I operated in several sessions and enjoyed the time spent. This year AR has devoted more space to the RD than usual and this month we publish the Opening Address and some other material relevant to the RD Contest. Last month I suggested we should consider extending the significance of the Contest and recognise all those who have served their country since 1935 or further back in history. I leave this to your net and club discussions. How about an OTU on the subject?

The Publications Committee has been considering Equipment Reviews and has decided that there is a place for reviews that are just the operators comments on how a particular piece of equipment worked, without any detailed laboratory measurements. Almost all modern rigs do meet their manufacturer's specifications. I have had one offer of a review of this type.

The Club Notes comment on the VK5 WICEN support of the Rally SA. Operations covered safety and scoring. Voice and Packet used the Amateur 2 m band. The SkyNet system using 70 cm LIPD frequencies was also operated by WICEN. This system used an airborne relay back to the Rally HQ to provide Start and Finish times and also had Safety on Stage points recording the cars automatically as they passed the Check Point receiving aerial. Each car carried an electronic tag. The only problem I was aware of was when the aircraft had to descend due to icing and some of the paths from valley floors became marginal. Triple redundancy paid off with me because my packet system did everything except be recognised by the HQ station. Everything I checked seemed to be set up correctly. It just reminded me that you can never assume every thing is correct until you have an actually test under operational conditions. After all the system was the same as last year in the Classic Adelaide Rally. So !!!!!!!!

Discussions on the Entry Licence Australian licence continue. I hope that when all is over we get a revised licence system that encourages people, with an experimental urge, to enter Amateur Radio because it is a challenge they wish to take up. Let us hope the licence structure encourages them to learn as they operate and that those of us who meet them on this journey show the true Amateur spirit and help them develop their skills.

There will be no DX Column in this issue due to unforeseen circumstance.

Well keep up the operating and spreading the word. JOTA in October is the next big chance to influence possible recruits. The GASS did a good job in that area. Are we exploiting all possible events?

73 Colwyn VK5UE

Amateur Radio in the Solomons and Somalia East Africa

Sam Voron VK2BVS, H44A, 6O0A has devoted considerable time and effort to improving radio communications throughout the Solomon Islands and Somalia. He works as a volunteer telecommunications technician. Particular attention has been made in both countries to promoting Amateur Radio. Amateur radio is accepted in both countries as a community resource. Sam has been instrumental in establishing Amateur Radio Schools. The work has involved developing courses for licences and Amateur support for relief operations. Both countries are looking for donations of amateur equipment to assist with this work.

For further information about Somalia contact Sam at svoron@hotmail.com and or visit www.radiogalkayo.com

For donations of equipment to the Solomon Islands contact the Director of the Solomon Islands National Disaster Council, NDC, Mr Loti Yates who can organise duty free all items being donated. His E-mail is-lotiyates@yahoo.com

WIA Comment

Ernie Hocking VK1LK
Email: president@wia.org.au
Or via PO Box 691 Dickson ACT 2602

Things have remained surprisingly busy for the Federal WIA over the last month. The activity has centred around a number of areas including:

- Finalising the administrative arrangements with the ACA for the WIA management of examinations
- Lobbying the ACA in respect of the removal of the Morse requirements from the Australian Licence Conditions.
- Preparation for the ACA amateur radio discussion paper, and
- The lead up to WRC 2007, and the ever present need to recruit more volunteers to help administer the hobby.

More on the Post WRC Morse removal

The WIA application to the ACA seeking the early removal of the testing requirements for Morse code from Australian licences for access below 30 MHz has to date not been successful. The ACA have informed us that they feel unable to make the required changes without consulting the amateur radio community. As such they have proposed to conduct the proposed Review of the Amateur Radio Service and based on the responses to try and implement any required change as soon as practical after that, but still before the full range of changes to the Amateur Radio Service that are scheduled for 2005. The WIA has not given up on this matter and will continue to liaise with the ACA to seek the earliest possible adoption in line with WIA member's views.

The ACA Discussion paper on the Reform of the Amateur Radio Service in Australia

The discussion paper has been now been issued. For those with access to the web the paper can be downloaded from the ACA web site. Jim Linton VK3PC has summarised the paper and made this summary available on the Victoria web site and also recorded the summary on QNEWs. I hope that you will be able to access either the original or the summary in order to form your own opinion on the proposals. The ACA have given us some 2 months to formulate our responses (these are due by 31 October 2003).

Because of the 2 month time frame it is important that you obtain the discussion paper as soon as possible and provide comments to your clubs and divisions for inclusion in the Federal WIA response. It is extremely important to the future of amateur radio in Australia that the WIA response to the ACA discussion paper accurately reflects both current opinion as well as the future needs of the hobby. We will not get a second chance to have such a wide ranging impact on the legislative framework of our hobby and I for one want to be able to be part of a active and thriving amateur radio community that will celebrate 100 years of the WIA in 2010.

Call for volunteers

The time has come once again to make a call for volunteers to help in the running of the Federal part of the WIA. I know that a number of you are actively involved in the administration of the local clubs as well as the State and Territory based Divisions. There are though a number of additional positions that we need to fill nationally. These include, the position of AR Editor, The Federal Contest Manager, The Federal Historian as well as a number of others. You might well ask what sort of skills and experience you need to fill these positions. For most of them you will need basic IT skills along with ready access to the Internet. The ability to organise and get things moving is also useful. Apart from that the main requirement is enthusiasm. I'd even go as far as to say that some of the positions that we have open don't even require that you are a licensed amateur radio operator (for example that of the Federal Historian). If you are interested, or know a non amateur who is looking for a challenge then please make contact with me and we can talk about these opportunities.

Looking forward to WRC 2007

WRC 2007! Yes it does seem like a long way off. However for some of us work has already started. The draft agenda has already been published and the whole radio community in Australia has started the task of analysing the agenda items to determine what the technical impact of the item would be on the Australian use of the radiofrequency spectrum. If you are interested in becoming involved in the preparatory meetings for the next WRC then I'd love to hear from you. If you believe that you have the necessary technical skills then this can be a chance to meet with some of the leading experts across Australia and work with them to establish the Australian position for the next round of ITU/WRC.

The IARU Region 3 Conference

Your will remember that the IARU Region 3 Conference this year was postponed due to the SARS outbreak. Although we do not yet have a final date it does look like the conference will now take place in February 2004. These IARU conferences are an important part of establishing common positions in respect of amateur radio across the Asia Pacific region. This year, as always, we are looking for papers on matters of interest to amateur radio that we should submit. The sort of subject material can be very diverse as long it relates to amateur radio. This year papers related to Public Protection issue such as the WICEN involvement in Australian bushfires earlier this year would be of relevance. Others, on topics of a more technical nature, such as for example IRLP or other Internet linking activities along with papers on the educational aspects of amateur radio would be welcome. So if you have a burning issue, that you think others would like to hear about in the wider amateur radio community, then break out your keyboard and start typing. In the first instance you can send submissions directly to me or via your local Division.

Anyway I'd better bring this to a close since I am already late for the deadline for submissions (so if AR turns up late this month you should blame me). 73s to you all and I look forward to hearing you comments, either directly or via the divisions. All the best in amateur radio

An 80 metre Receiver for ARDF Radio Sport

In December 1997, *An 80 metre receiver for ARDF Radio Sport* was published by Ian Stirling VK3MZ. This unit, based on the now superseded MC3362 receiver chip, was very popular in Australia and also used overseas. An updated version of this receiver is presented here.

What is ARDF?

ARDF is a pedestrian style of fox or transmitter hunting which requires the competitor to find, depending on age class, up to 5 hidden transmitters in a bush or parkland area. It is bound by a set of international rules of the IARU and it is not uncommon to see up to 30 countries represented at a world championships. Australia will be hosting the next Region 3 championships starting on 28 November 2003 and we will be looking for competitors to fill each age class.

A standard orienteering map is used with only the start and finish locations marked. The competitor is required to determine the position of each transmitter, navigate to each one and then back to the finish in the shortest possible time. Each transmitter transmits in turn on the same frequency with morse code identification (MOE, MOI, MOS, MOH and MO5) for 1 minute out of five and then switches off for four minutes until its turn comes around again. Courses depending on age class are typically between 4 and 10km and there is normally a homing beacon at the finish on a different frequency.

Another form of radio sport popular in some European countries is called fox-oring. Ten or more circles of typically 100 metre radius are drawn on an orienteering map. Located somewhere in each circle is a rapidly pulsed very low power transmitter

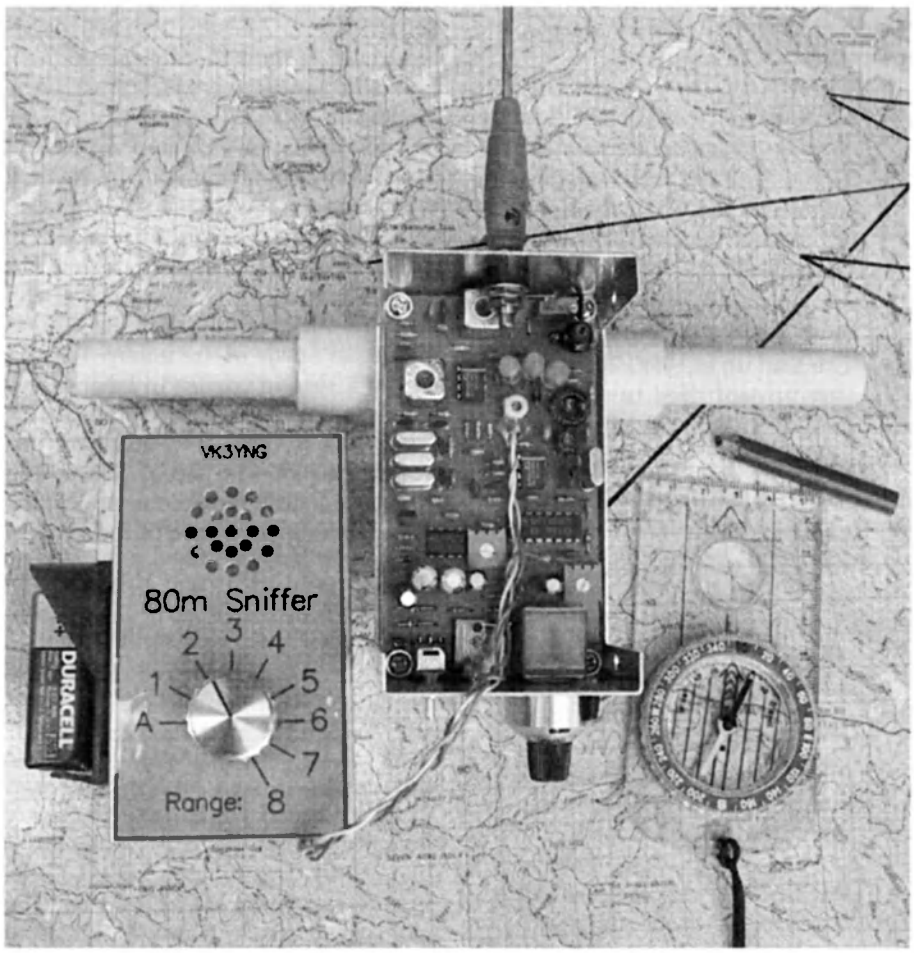

Figure 1: the 80m sniffer

usually marked with an orienteering control. The transmitter should only be able to be heard within the circle. The idea is to visit as many controls as possible and get back to the finish within a specified time limit. In orienteering terms this is known as a "score" course.

A Redesigned Receiver

Since the discontinuation of the MC3362 used in the original VK3MZ design, a more discrete design based on the more available Philips SA612 is presented here. Whilst this part has some shortcomings compared to the original Motorola part, performance has actually increased in some areas, particularly sensitivity.

There were several key requirements to this new design:

1) To duplicate the functionality of the original VK3MZ design.
2) To reduce overall size and weight.
3) The home constructor should be able to build the project using basic tools

The first objective is of primary importance. The original design has proved itself through several years of field use. It provided a good compromise between cost and complexity. It has enough performance to make it suitable for serious competition use while keeping the cost and operational complexity low enough to make it suitable for the beginner.

The second objective has been achieved through eliminating a number of larger parts from the original design and the use of 1/8 watt or vertically

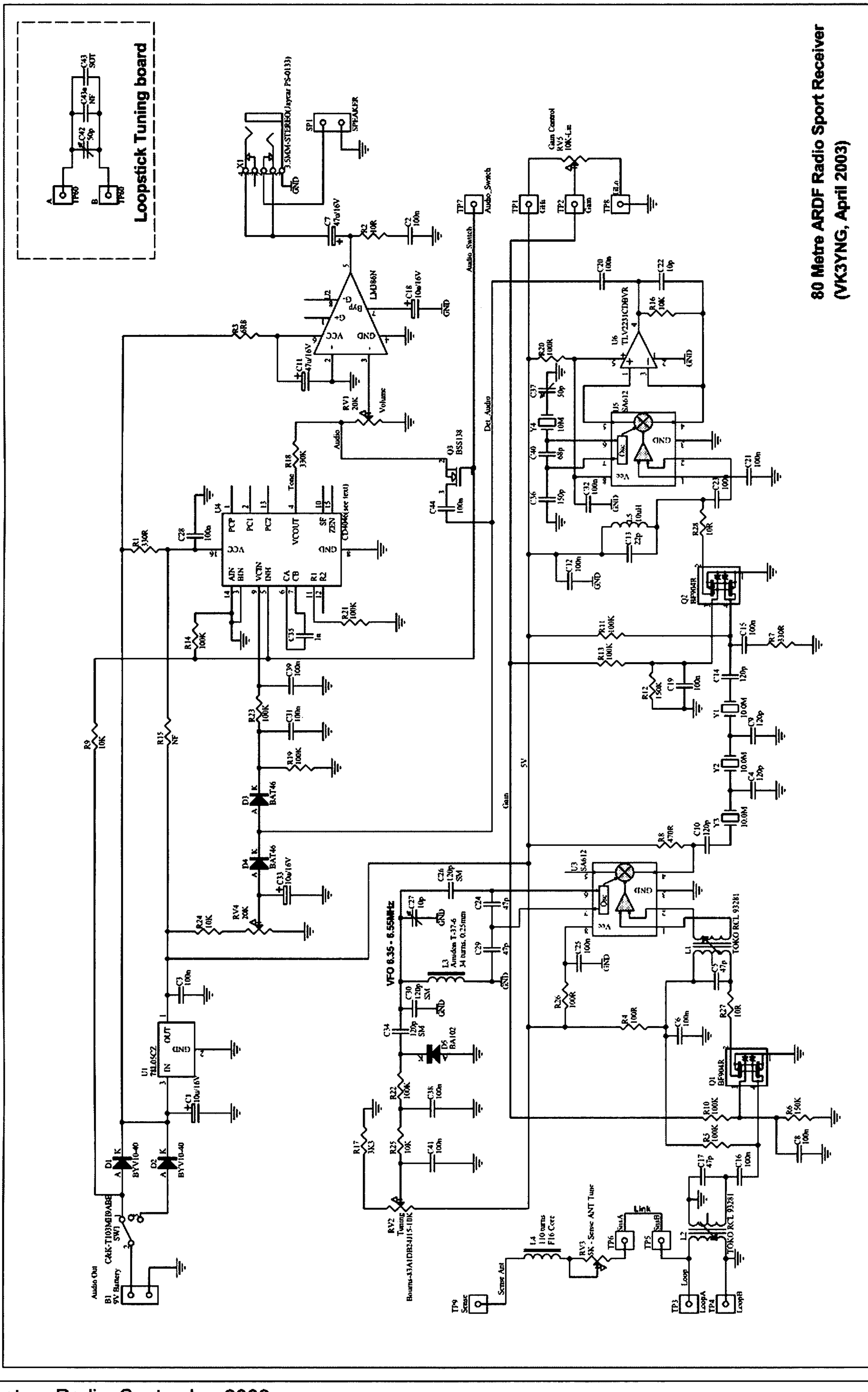
80 Metre ARDF Radio Sport Receiver
(VK3YNG, April 2003)
Loopstick Tuning board
LM386N
TLV2231CDBVR
SA612
BF904R
BSS138
BAT46
BYV10-40
78L05C2
BA102
TOKO RCL 93281
VFO 6.35 - 6.55MHz
Volume
Tuning
Gain Control
Link
Audio Out
9V Battery

Figure 2

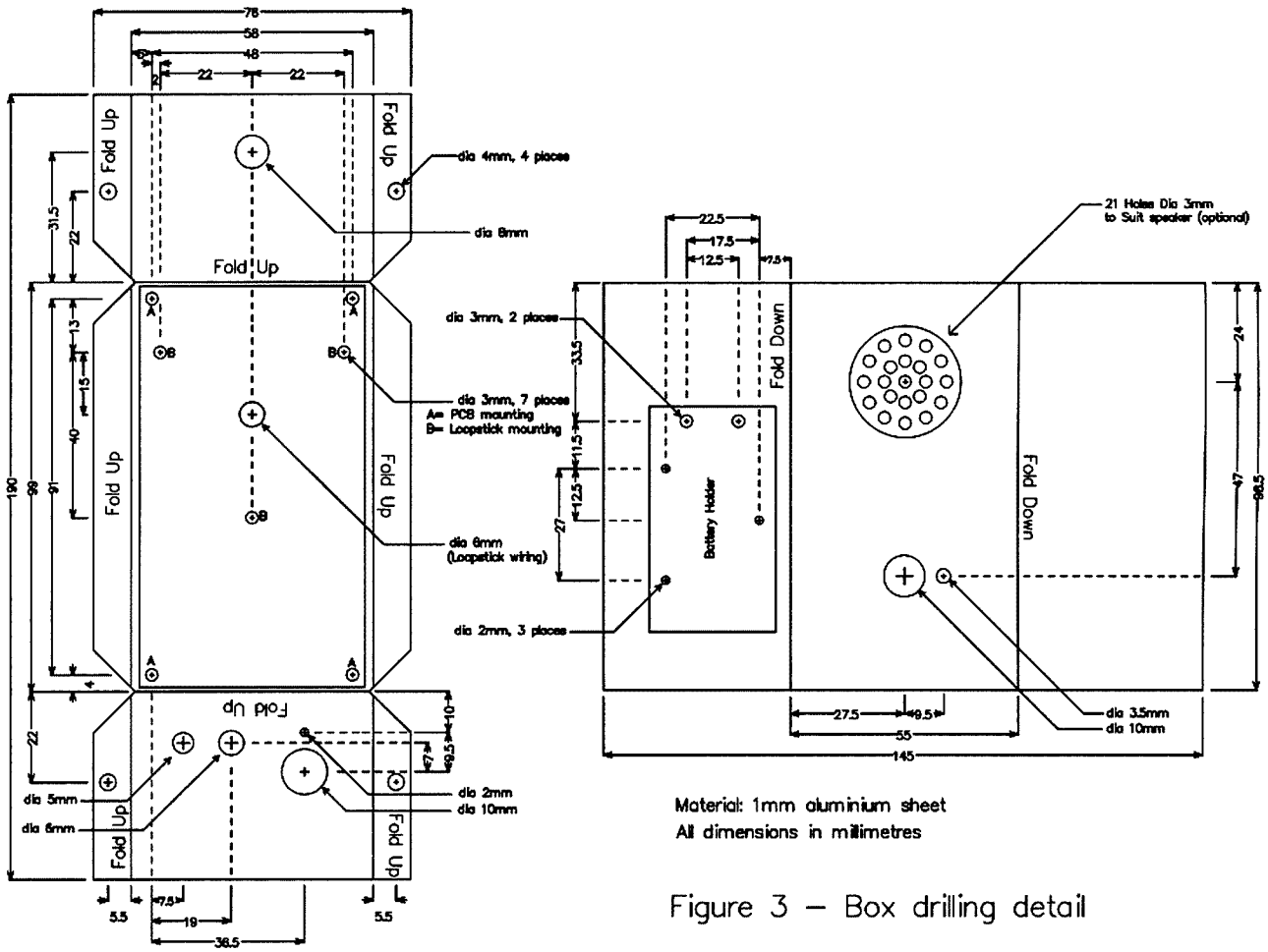

Figure 3 – Box drilling detail

mounted 1/4 watt resistors. (A good kit containing lots of these 1/8 watt size parts is available from Jaycar: Cat RR-2000) This was done partly because the original size case had become difficult to source, and also because there is a preference for ARDF equipment to be as small and light as possible.

The third objective dictated that the design should use through hole components where possible. However, as is becoming increasingly common, many newer components are being offered only in surface mount. There is a small number of surface mount components used in this project that are not available as a leaded variant. A good pair of tweezers, a soldering iron with a relatively small tip, a steady hand and an adjustment of mindset (some of us have successfully been using this technology as hobbyists for more than a decade now) are all that is required to work with these components. For those who still claim to possess surface mount phobia the author can provide boards with these parts already loaded.

There have also been some other improvements over the original design. One of these is that wiring has been simplified since both the power and mode switch, tuning control and earphone socket mount directly on the circuit board. This minimises external wiring immensely. The sense antenna switch has also been removed, but may be included if the operator prefers it. It has generally been found, particularly when hunting in tone or "whoopee" mode, that once the sense antenna has been correctly adjusted, there should rarely be a need to switch it out. It also makes for one less control to get wrong!

Circuit Operation

A ferrite rod or "loopstick" antenna is used as the main receiving element. Two capacitors are used to resonate this antenna at approximately 3.55MHz. A few coupling turns are used to couple some of the energy from the loopstick into the receiver input. The sense antenna is used to pick up the electric field signal and mix it with the magnetic field signal picked up by the ferrite rod coil. In one direction this causes the signal level to increase slightly as the signals effectively add in phase. In the opposite direction the two signals arrive out of phase and effectively cancel. For this to work the sense antenna needs to be resonant. L4 adds enough inductance to achieve this. The level from the sense antenna, which effectively determines the depth of the null is controlled by RV3. A link from RV3 to L2 allows insertion of a sense antenna switch should the operator require one.

L2 provides impedance transformation between the low impedance presented by the antenna network to the high impedance required by the MOSFET input. C17 resonates the coil secondary at 3.55MHz. Q1 is a dual gate MOSFET that is a little unusual in its design. It is in fact two dual gate MOSFETS in one. The arrangement is supposed to give a lot better cross modulation handling under gain control. For more information on this device, download the Philips datasheet. R5, R6

and R10 form biasing for Q2. R27 damps any possible oscillation in the microwave region. L1 forms the RF amp output tank resonated at 3.55MHz by C5. The output of L1 couples directly into the first mixer U3 as a differential signal on pins 1 and 2.

Tuning is accomplished by varying the voltage on RV2. Since this is an up-conversion receiver, the local oscillator frequency needs to decrease for increasing received frequency. This translates to the tuning voltage decreasing for increasing receiver frequency. R17 limits the voltage swing available and ensures the varactor does not get too close to zero volts. C41, C38 and R25 provide some filtering of the tuning voltage while R22 provides a high impedance path to couple this voltage into varactor diode D5. C34 provides DC blocking and L3 forms the main resonant element. The core MUST be made of Iron powder. Ferrite, apart from being temperature sensitive, is also susceptible to the earth's magnetic field and caused shifts of several hundred hertz as the receiver was rotated. If you don't believe this – try it!

C30 places a limit on the varactor tuning range while C26 couples the VFO into the oscillator input. C30, C34 and C26 should all be silver mica or polystyrene types as they are very sensitive to self heating and temperature drift. DO NOT use NPO ceramics for these parts. Polystyrene has a slight negative temperature coefficient which helps to cancel out the positive temperature coefficient of the varactor and inductor. C29 and C24 provide oscillator feedback ensuring that the input resistance looks negative. C27 provides adjustment for band edge tolerances.

The output of the mixer feeds a crystal ladder filter. This filter uses inexpensive microprocessor grade crystals to provide a lower sideband filter approximately 2kHz wide. R8 provides input termination and R7 provides output termination. C15 serves as a DC block for the termination.

The ladder filter is fed into an IF amplifier Q2. This is a similar circuit to that of the front end amp. L5 and C13 resonate the drain at 10MHz while R28 ensures stability. There is more than 80dB of gain control range available split between the RF amplifier and the IF amplifier.

The output of the IF amp is provided to second mixer U5 pin 2. A beat frequency oscillator is provided by Y4 and feedback capacitors C36 and C40. C37 provides tuning of the crystal frequency. The output of the second mixer is amplified by CMOS Op-Amp U6. C22 ensures stability and filters out any 10MHz. R16 sets the amplifiers gain. The output audio is DC blocked by C20.

Gain controlled Detector audios are supplied to diode detector D3 and D4. RV4 provides a bias voltage to the diodes to provide some forward bias current so that weaker signals can be detected. A filter network comprising R19, C31, R23 and C39 filter out the remaining audio component to provide a DC voltage which is linearly dependant on signal strength. This signal is provided to pin 9 of U4 which is configured as an audio frequency VCO. C35 and R21 control the oscillator centre frequency. R1 provides a filtered supply to U4. R15 can be substituted if a regulated supply is preferred.

The output of the Audio VCO is attenuated by R18 and provided to a preset volume control RV1. Audio is amplified to a level suitable for driving headphones or a small speaker by U2. R10 and C20 decouple the amplifier from the supply. R2 and C2 provide an idler load for stability of the audio amplifier. C7 provides output DC blocking.

SW1 doubles as a power switch and Tone/Audio mode control. In the Audio position the supply is provided to U4 pin 5 and Q3 via R9. This inhibits the output of the tone VCO and supplies detected audio directly to RV1. Hence Q3 is used as a MOSFET audio switch. C44 provides DC blocking for the audio path. In the Tone position R14 ensures that pin 5 of U4 and Q3's gate are at zero volts.

D1 and D2 provide reverse polarity protection for the battery. U1 provides a regulated 5 volt supply to most of the receiver circuits. Typically the receiver drains around 35mA depending on volume setting.

Construction

Before beginning any construction or handling any active components ensure you are well earthed.

The first components to be mounted are surface mount parts Q1, Q2, L5 and U6. These devices are mounted on the underside of the PCB. Q1 and Q2 have four pins, one of which is slightly wider than the rest. Tin the wider pad on the PCB with a small tipped soldering iron and a small amount of solder. Hold the component in place with a good pair of

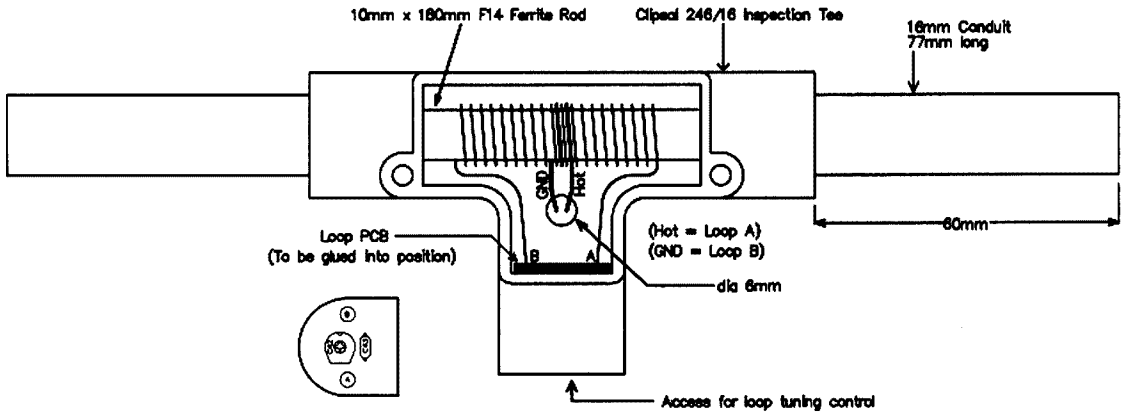

Figure 4 – Loopstick Assembly

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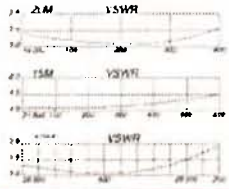

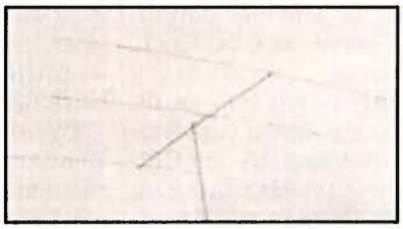

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TX : 50, 144, 430 MHz Amateur Bands
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TH-F7E Kenwood

Amateur VHF/UHF Transceiver

Freq: TX: 144-146 /430-440 MHz
RX: 0.1-1300 MHz
Mode:
TX: FM
RX: AM/FM/SSB/CW
RF Power output:
Hi: 5/5 W
Lo: 0.5/0.5 W El: 50/50 mW
Voltage: Internal: 5-7.5 VDC
External: 12-16
Weight: 250 gr (with lithium-Ion battery pack)

IC-208 Icom

IC-208 Amateur VHF/ UHF Transceiver

Freq: TX: 144-146 / 430-440 MHz
RX: 118-1000 MHz
Mode: TX: FM RX: AM/FM
RF Power output:
Hi: 50 / 50 W, Mid: 15 / 15 W, Low: 5 / 5 W
Voltage: 13.8 VDC Weight: 1.2 Kg

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World's 1st multimode high-power base/mobile transceiver

Frequency Coverage: RX: 100 kHz-56 MHz, 76 MHz-108 MHz (WFM only) 118 MHz-164 MHz 420-470 MHz TX: 160 - 6 m, 2m, 70 cm Amateur Bands; SSB/CW/AM/FM/FM-W/Digital Modes
100 Watts Power Output (HF/6 m); 50 W (2 m); 20 W (70 cm)
Optional Internal Batteries: 4800 mAh x 2 (Power Output: 20 W)
Built-In — Digital Signal Processing — 3-Message Memory Keyer— VOX —AF Speech Processor.
• Automatic Beacon for Expedition Use • IF Shift • IF Noise Blanker • Spectrum Scope Clarifier ("R.I.T.") • AM and FM Broadcast Reception • AM Aircraft Reception • Transverter Interface Jack • AGC Fast/ Slow/Auto/Off Selection • 200 Memories plus HOME and Band- Limit Memories • Alpha-Numeric Memories • Multi-Color Display • Compatible with ATAS-Series Auto-Tune Antennas • Built-in CTCSS and DCS Encoder/Decoders • ARTS™ Auto-Range Transponder • Smart Search™ Automatic Memory Loading System • CW Training • Computer Interface • Cloning Capability • Strong Carrying Handle

IC-910H Icom

Amateur VHF/UHF Transceiver

Freq: 144-148 / 430-440 MHz 1240-1300MHz
Mode: FM/FM-N/SSB/CW
RF Power output: 5-100 / 5-75 W
Volt: 13.8 VDC Imp: 50 ohms, SO-239 / N
Dimensions (W*H*D): 241*94*239 mm

TM-D700A

Kenwood dual bander has APRS, GPS and SSTV technologies. Built-in TNC gives many data options including simple packet using AX.25 protocol. Send and receive SSTV images using Kenwood's optional VC-H1. The TM-D700A makes the most of APRS - Automatic Packet/Position Reporting System. Wideband receive 118 MHz to 1.3 GHz (cellular blocked). Includes the MC-53DM DTMF backlit hand mic.

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place with the soldering iron. Solder the other three pins and then resolder the wider pin. L5 is not polarity sensitive and U6 orientation should be obvious. Solder these parts using a similar technique.

Next mount all the through hole passive components. All fixed resistors have a 6mm lead spacing. If 1/4 watt resistors are used, these can be mounted on end or parallel to the board with the leads bent slightly inwards. It is highly recommended to use the 1/8W package style if possible. Most capacitors have 5mm lead spacing. Take note of the polarity on the electrolytic capacitors. Solder the crystals and inductors L1 and L2 in next. L3 and L4 are to be placed later. Don't forget the wire link between the TP5 and TP6 pads.

Solder the diodes, transistors and integrated circuits. For U4, a CD4046 is specified. A 74HC4046 can be used, but with some types the setting of RV4 can be considerably touchy and the values of R21 and C35 may need adjustment. The upside of this device is that it can be effectively run from a regulated supply. Use R15 if the 74HC4046 is used instead of R1. Never fit both R1 and R15 at the same time. This can be done with the standard CD4046 but the audio pitch range will suffer.

Power switch SW1, headphone socket X1 and tuning control RV2 should be mounted next. Make sure they are sitting parallel to the board before soldering them into place. If you are using 2-pin headers for SP1 and B1, solder them in now.

For L3, wind 32 turns of 0.25mm enamelled copper wire onto an Amidon T-37-6 core. The turns need to be evenly distributed around the core. Start and finish positions and winding direction are not important. Tin the ends and solder the coil into place. Fasten the core in place with a 3mm nylon screw and nut.

For L4, wind 110 turns of 0.25mm enamelled copper wire in a multi layer format on a 5mm former. Keep the turns to the bottom 10mm of the former. Tin the leads and solder them onto the two posts on the coil former. Screw an F16 ferrite core half way into the former and solder the core into place.

Drill out the box as per the detail shown in figure 3.

Wire up the gain control, battery and

Parts List

Resistors:

R1, R7 – 330R 1/8W Resistor (2)
R2 - 10R 1/8W Resistor (1)
R3 - 6R8 1/8W Resistor (1)
R4, R20, R26 – 100R 1/8W Resistor (3)
R5, R10, R11, R13, R14, R19, R21, R22, R23 – 100K 1/8W Resistor (9)
R6, R12 – 150K 1/8W Resistor (2)
R8 – 470R 1/8W Resistor (1)
R9, R16, R24, R25 – 10K 1/8W Resistor (4)
R15 – not normally fitted (see text)
R17 – 3K3 1/8W Resistor (1)
R18 – 330K 1/8W Resistor (1)
R27, R28 – 10R surface mount 0805 resistor. (2)
RV1, RV4 – 20K PCB Mount Horizontal Trimpot (2)
RV2 - Bourns-83A1DB24J15-10K PCB mount 10-turn rotary potentiometer
(with model 16 multidial for better tuning accuracy) (1)
RV3 - BOURNS-3296 5K linear PCB rnultiturn Vertical Trimpot (1)
RV5 – 10K Linear panel mount potentiometer (1)

Capacitors:

C1, C18, C33 - 10u/16V Polarised RB Electrolytic capacitor, 5x11mm (3)
C2, C3, C6, C8, C12, C15, C16, C19, C20, C21, C23, C25, C28, C31, C32, C38, C39, C41, C44 -100n, 25V X7R Monolithic capacitor (19)
C4, C9, C10, C14 – 120p NPO ceramic capacitor (4)
C5, C17, C24, C29 – 47p NPO ceramic capacitor (4)
C7, C11 - 47u/16V Polarised RB Electrolytic capacitor, 5x11mm (2)
C13 – 22p NPO ceramic capacitor (1)
C22 - 10p NPO ceramic capacitor (1)
C26, C30, C34 – 120p Polyester or Silver Mica ** do not substitute ceramic** (3)
C27 –Variable Capacitor Murata 2-10p (white) (1)
C35 – 1n, 50V X7R Monolithic or ceramic capacitor (1)
C36 - 150p NPO ceramic capacitor (1)
C37, C42 – Variable Capacitor Murata 9.8-50p (brown) (2)
C40 – 68p NPO ceramic capacitor (1)
C43 – 33p NPO ceramic capacitor (1)

Crystals/Inductors:

Y1, Y2, Y3, Y4 – 10MHz, HC49/4H microprocessor crystal, parallel resonant 16pf load (4)
L1, L2 - Toko RCL 93281 coils (available from author) (2)
L3 – 32 turns 0.25mm enamelled copper wire on Amidon T-37-6 (yellow) core (from Truscott Electronics, Bayswater) (1)
L4 - 110 turns 0.25mm enamelled copper wire on 2 pin 16mm vertical former (available from author) with 4mm F16 tuning slug (DSE R-5025) (1)
L5 – 10µH surface mount inductor. Coilcraft 1008LS-103XJ or equiv. (1)
Semiconductors:
D1, D2 – BYV10-40, 1A Axial Shottky Power Diode (2)
D5 - BA102, Varactor Diode (1)
D3, D4 – BAT46 Shottky diode or OA95 Germanium diode (2)
Q1, Q2 - BF904R, Philips N-Channel Dual Gate Mosfet (2)
Q3 - BSS138 SOT-23 surface mount low voltage N-channel MOSFET (1)
U1 - 78L05CZ, 3-terminal 100mA TQ92 Regulator (1)
U2 - LM386N, 8-pin DIP Audio Power Amplifier (1)
U3, U5 – Philips SA612N Mixer/Amplifier (1)
U4 – CD4046N, CMOS low power VCO/PLL (1)
U6 - TLV2231CDBVR Rail to rail, Low power surface mount Op-Amp (1)
Mechanical/Misc:
SW1 - C&K T103MH9ABE, SPST centre off toggle switch-R/A PCB mounting (1)
X1 – Stereo 3.5mm PCB mounting socket, Jaycar PS-0133 or equiv. (1)
SP1 – 8 ohm 27mm speaker (optional) (1)
Quick release 9V battery holder (Jaycar PH-9235) (1)
4mm plug, Jaycar PP-0391 or equiv. (1)
4mm socket. Jaycar PS-0408 or equiv. (1)
F14, 200 x 10mm Ferrite Rod antenna (Truscott Electronics, Bayswater) (1)
Aluminium case, 100 x 60 x 45mm (DSE H-2305) or 1mm aluminium sheet (1)
Single sided PCB (available from Author)
Knobs (2)
16mm Inspection tee - Clipsal 246/16 (1)
16mm Conduit, 67mm long (2)
8mm M3 threaded standoffs (4)
M3x5 screws (8)
3mm nylon screw and nut (1)
15mm heatshrink tubing
9V 216 type alkaline Battery (1)
For more information:
The Victorian ARDF group web page: http://www.ardf.org.au
Joe Moell's (USA) foxhunting web page: http://www.homingin.com
The Author's web page: http://www.users.bigpond.net.au/vk3yng/foxhunt
The Author's email address: backerly@bigpond.net.au

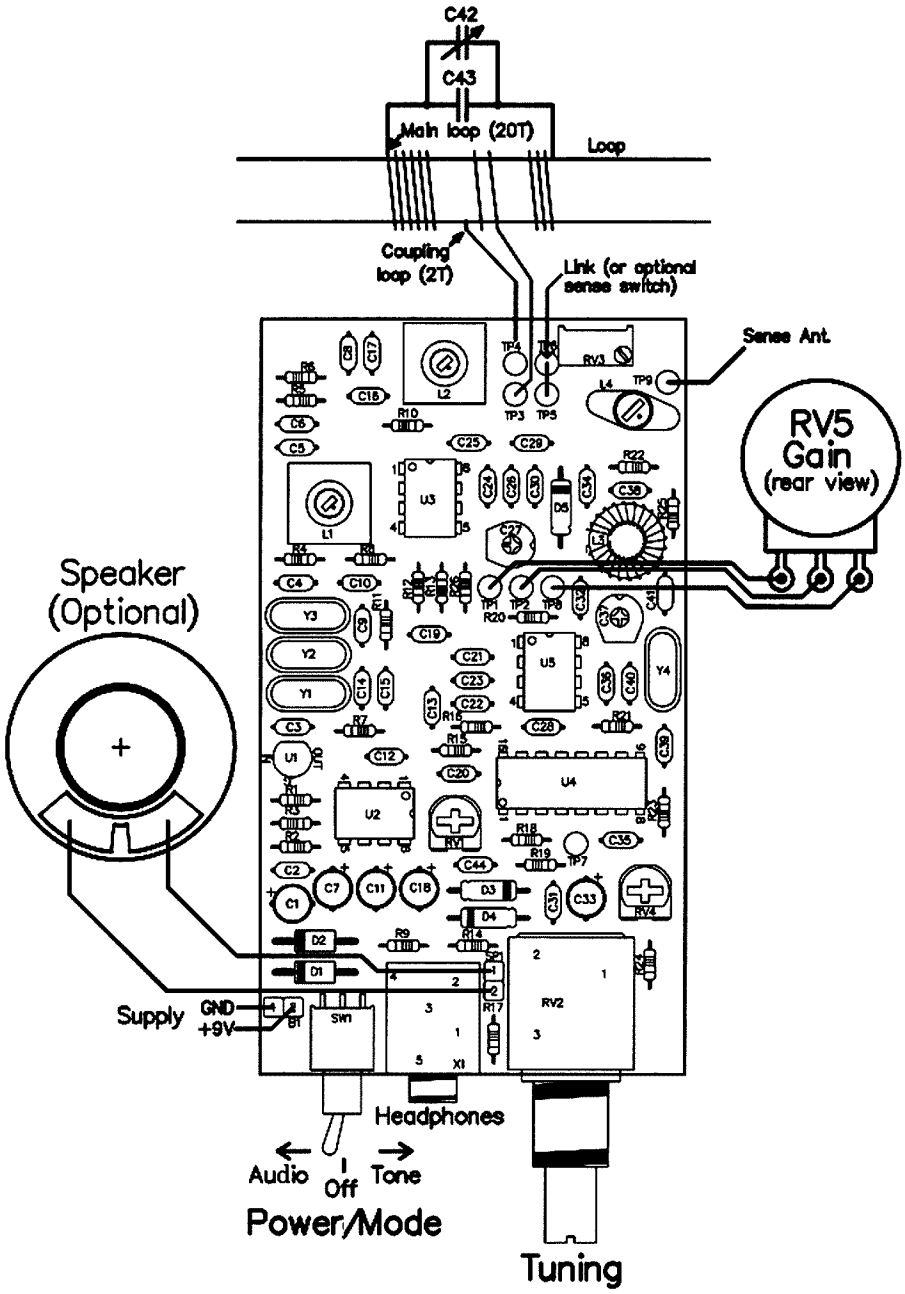


Figure 5 – Board loading and external connections

speaker connections to the PCB using flexible hookup wire.

Note that for ARDF Radio Sport use it is a requirement that the receiver does not emit sound. Headphones are therefore compulsory. It is also common practice to mount a compass to the receiver. The constructor may therefore wish to omit the speaker altogether if the receiver is intended only for ARDF competition use. Also, the Ferrite Rod distorts the earth's magnetic field, so if a compass is used it should not be mounted close to the Ferrite Rod.

Cover the mid section of the ferrite rod with a 60mm long section of 15mm heatshrink tubing and shrink to fit. Wind 20 turns of 0.5mm enamelled copper wire over the mid section of the ferrite rod with tails 40mm long. Wind two coupling turns of 0.5mm enamelled copper wire over the mid section of the ferrite rod with tails 80mm long. Strip and tin the ends. Mount the rod inside PVC electrical conduit as shown in figure 4. Note that the recommended ferrite rod is obtained from Truscott Electronics World. Cheaper equivalents are available from Jaycar and DSE, but have been found to contribute more than 7dB of additional loss due to Q reduction which limits receiver sensitivity.

Mount the PCB into the box using 6mm long M3 spacers. Mount the sense antenna socket and controls and wire up as shown in figure 5.

A sense antenna is needed. This can be made of brass rod or even coat hanger wire. A 450mm length of wire is needed and this should be soldered into a 4mm plug. Cover the top end of the antenna with a dozen or so layers of electrical tape to reduce possibility of eye damage with the end of the antenna.

Alignment

Alignment requires a low level signal source and an attenuator or an RF signal generator. If you don't have a signal generator, a special board that can be used as a 3.58MHz alignment source is included in the board set. It is recommended that you build it first. This board also doubles as a fox-or mini-transmitter!

Set RV1 to mid position. Provide power to the receiver, switch the power switch to "Audio" and set the gain to maximum. Depending on how close the initial tuning is, a small amount of "hiss" should be heard in the speaker.

Adjust C37 (BFO adjustment) for a peak in the noise level in the speaker. At this stage there is no need to be precise with this adjustment.

Connect the signal generator to the receiver input (use the loop terminals) and set the input level to about –80dBm at 3.58MHz. Adjust the tuning until a tone is heard in the speaker. If the tone is too loud, reduce the signal level into the receiver or turn down the receiver gain slightly. Adjust L2 for maximum level. Reduce the gain and adjust L1 for maximum level. Set the signal generator to –120dBm and ensure the signal can still be heard when the gain control is set to maximum.

Set the signal level to –80dBm and reduce the gain to a comfortable level. Tune past the signal with the tuning control and check that the tone has an even spread and is not too "peaky". If it is, adjust C37 to try to even the response out. Be careful not to set it so that the overall audio level drops or so that the receiver responds to part of the wrong sideband. The receiver should only respond to one side of zero beat and the received tone should increase as the tuning control is increased.

Remove the signal source and set the mode switch to "Tone". Adjust RV4 until a slow "ticking" is heard in the speaker (approximately 1-10Hz). Adjust RV1 (volume) to a comfortable level. Apply a signal to the input of about –80dBm. The tone should change to a high pitch. You may need to switch back to "audio" temporarily to ensure the receiver is still correctly tuned. Reduce the gain so that the pitch is at a "mid way" level. Carefully adjust L2 and L1 for the highest pitch.

Set the signal source to 3.5MHz. Wind the tuning control down to ensure the tuning will cover this frequency. Adjust C27 so that there is a few kHz of overlap below 3.5MHz. Set the signal source to 3.6MHz. Wind the tuning control up to ensure the tuning will also cover this frequency. The tuning is designed to cover around 200kHz so there should be plenty of overlap on each end. If the range is not covered, it may be necessary to add or remove a turn off L3. Remove a turn if 3.5MHz is not covered, and add a turn if 3.6MHz is not covered.

Connect the ferrite rod antenna to the receiver input. Set up a signal around 3.58MHz, into an antenna nearby. Tune the receiver to the signal frequency and adjust C42 for maximum signal level.

The next step is to verify loop tuning and align the sense antenna. This should be done during the day to avoid skywave effects.

Set up a continuous vertically polarised transmitter on about 3.58MHz in an open field. Set up the receiver at least 250m away in an area free of reflecting objects with a clear view of the transmitter location. Orient the receiver so that the ferrite rod is at right angles to the direction of the transmitter. Tune the receiver to the transmitter's frequency in "audio" mode then set the mode to "tone" and adjust C42 for the highest received level. Do not readjust L1 or L2.

Attach the sense antenna. Orient the receiver so that it faces exactly 180 degrees from the transmitter. (i.e. away from the signal source.) Set RV3 for maximum resistance. Tune L4 and then RV3 for minimum signal level. There may be some interaction between the two adjustments which may require both RV3 and L4 to be readjusted. The sensitivity will also need to be increased to ensure the greatest null is achieved. Once the sense antenna has been aligned, face the receiver towards the transmitter to ensure there is a large difference between the forward and reverse directions.

Assemble the case cover and make sure that the reverse direction null is still deep. Take care to keep any wiring away from the VCO components (L3 and associated capacitors and pins 1 and 2 of U3)

Operation

Operation of the receiver is fairly simple. In most cases, the receiver will be tuned to a known frequency between 3.5 and 3.6MHz using the audio mode with the sensitivity set to maximum. It is possible to tune to the wrong sideband with much reduced sensitivity. The audible pitch of the received signal should increase as the tuning frequency is increased. If this is not the case, keep tuning in the upward direction past the signal currently being heard. Be careful as the signal level of the proper sideband will be many times greater in level and may be much higher than you may expect. Be ready to turn down the gain!

Once the signal is tuned to a received pitch of between about 400 and 1000Hz, change the mode to "tone" and adjust the attenuation so that the direction of the signal can easily be determined. The direction of the transmitter is indicated by maximum audio pitch. For very weak signals, the Audio mode may need to be used until there is enough signal to allow the signal to be received in tone mode.

As you move closer to the transmitter, the maximum pitch will increase. Increase the attenuation to avoid the receiver saturating so that the direction can be determined. There should be enough attenuation to allow you to get within a metre of a conventional vertically polarised 2 watt transmitter. You may even wish to put calibration marks for say 50, 100 and 200 metres away from the transmitter. This can be useful to allow you to gauge whether it is possible to get to a transmitter within its one minute cycle. In international ARDF competitions there is usually a typical transmitter set up on the training day before the competition for this purpose.

With a little practice, the operation of the receiver will become second nature. It is also useful to make sure that there is no easy way to "bump" the receiver tuning control while navigating through the bush. **ar**

An Oscilloscope in the Shack

Drew Diamond, VK3XU
45 Gatters Road, Wonga Park, 3115.

It is difficult to imagine an instrument with greater versatility than the cathode-ray oscilloscope. A CRO gives us the ability to observe and quantify electrical events, or indeed any other phenomenon, which can be converted (or transduced) into an electrical signal.

Considering that radio amateurs are the masters of appliances, which are the very quintessence of electrical signal generators and processors, it is perhaps surprising that the oscilloscope (CRO or 'scope from hereon) is regarded by some of our fraternity to be an unnecessarily complex instrument for the efficient conduct of radio work. Yet in the hands of a competent user, the CRO is an extremely powerful tool. Reasonably priced second-hand BWD, HP and Tektronix 'scopes often show up at hamfest sales. 20 MHz service type 'scopes may be purchased new for about $400, and 50 MHz models for about $900.

Very basically, a CRO works like this; a focused electron beam is projected down the length of an evacuated cathode-ray tube onto a light emitting phosphor, which is coated upon the inside of the tube's glass screen, hence causing a visible spot to appear at the point of impact. Electrostatic deflection plates within the tube permit the beam to be very rapidly positioned at any point upon the tube's screen viewing area. Signals applied to the Y, or vertical plates deflection plates deflect the beam vertically, and signals upon the X, or horizontal deflection plates deflect the beam horizontally. Thus we have a graphical X-Y display with an extremely fast response.

The most common application for radio and electronics work is where signals are applied to the vertical input (or inputs- most new instruments now have at least two vertical input channels) of the 'scope. The screen area is fitted with a graticule of intersecting lines forming a grid of squares perhaps X10 x Y8 'divisions'. The position of the spot upon the horizontal axis is usually under the control of the 'sweep' or 'time-base' circuitry, where the spot is made to trace a sweep from left to right of the display area at various known rates, or speeds. A popular range is from perhaps 1 second/division (1 s/div.) to about 0.1 ms/div. in a 1-2-5 sequence. A detailed description of the workings of 'scopes is not necessary for what follows. However, the curious are pointed to References 1 (ch 3), 2, 3 (p16.7), 4 (ch 26, 27) and 5. The essays listed under Further Reading are also recommended.

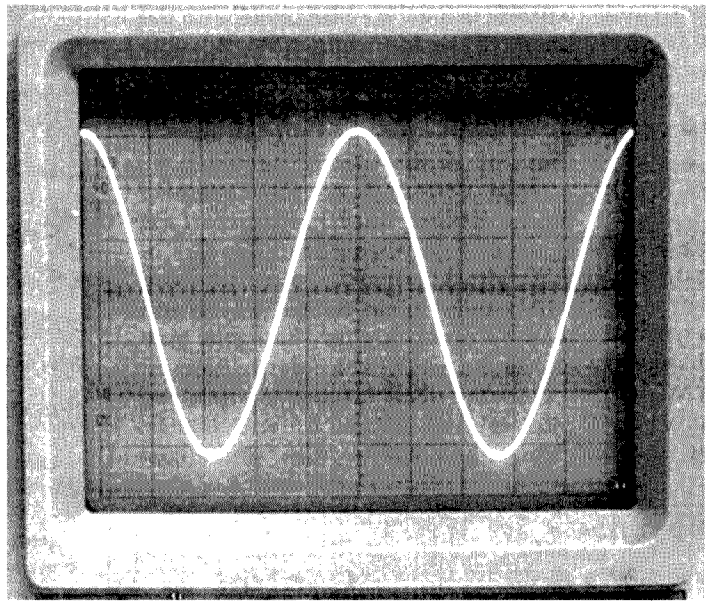


Photo 1. "Clean" sine wave

Conventional input impedance at the connector(s) where signals are applied is 1 MΩ shunted by (typically) 25 pF. This capacitance is the minimised, but unavoidable, parasitic capacitance of the input attenuator and vertical amplifier. The attenuator circuitry is cunningly arranged so that input capacitance is the same for every setting of the attenuator. Vertical sensitivity is determined by the position of the attenuator, which is calibrated in terms of volts or mV/div. usually in 1-2-5 sequence. For example, a signal is said to have a peak-to-peak (p-p) value of 6 V p-p if we observe that there are six divisions between the positive and negative crests of the wave when the attenuator is set for 1 V/div. as shown in Photo 1.

Probe Measurements

A simple shielded cable with a prod and earth clip lead connected to the 1 MΩ input of the 'scope will, in most instances, cause too much loading upon the circuit under test. For general testing and fault-tracing applications, the more usual approach is to use a high impedance "x10" probe. An older style Tek x10 and a newer switchable x1/x10 probe are shown in Photo 2. A x10 probe divides the input signal by exactly 10 (so a 10 V p-p signal will display as 1 Vp-p), but the circuit loading will be greatly reduced to typically 10 MΩ shunted by 7 pF. To preserve accurate high-frequency response, it is important that the probe is correctly "compensated"; apply the probe tip to a square-wave signal (often provided as a 'cal.' signal output on the front panel) and adjust the comp. capacitor inside the probe housing for minimum displayed overshoot/undershoot.

A general rule for probe measurements is to use "x10" for signals containing high frequencies and all other instances where circuit loading must be kept to a

minimum. A typical example would be in examining the waveform across an oscillator coil. The simple shielded cable and prod (or select x1 on the probe) will find application in checking for noise and ripple on low impedance devices, such as power supplies. When only the ac component of a signal is of interest (most usual), select "ac" coupling for the input, and where the dc level of the signal is required, then select "dc" coupling.

Signal Sampler

For transmitter tests, it is rather inconvenient to have to hook a probe onto our 50 ohm line (and the voltage there may exceed the probe's rating- usually about 300 Vrms). A better approach is to employ a signal sampler (actually a 40 dB attenuator) of the sort illustrated in Fig. 1 and Photo 3. Scraps of double-sided printed circuit board- soldered together, form the ends and two sides of a simple box. Main signal input and output connectors are the usual SO-239 (f), and the signal sample connector is a BNC (f). The sample signal is 40 dB below the main signal (or 1/100th the voltage). Being an attenuator in a 50 ohm system, the measurement is practically "flat", limited only by the vertical bandwidth of the 'scope. A 50 ohm terminating resistor (Fig. 2 and Photo 3) MUST be connected right at the INPUT of the CRO, as shown in Fig. 3, which shows the measuring set-up for the following transmission tests.

Measuring Mean Power- CW

Use the set-up of Fig. 3. On CW mode, and into a suitably rated dummy load; key the transmitter on. Set sweep speed at or near the fastest speed (e.g. 0.1 ms/div.). Set trigger to "auto" and vary the (+) (-) trig control to acquire an on-screen steady (i.e. correctly "triggered") waveform.

When sampled as a -40 dB signal, a transmitter output voltage of (say) 200 Vp-p applied to the 50 load will be attenuated by a factor of 100, giving 2 Vp-p across the through termination at the 'scope input. The 'scope input attenuator should therefore be set to (say) 0.5 V/div. which in this example will provide a 4-division display.

A typical "barefoot" transceiver will deliver about 100 W on CW. At that

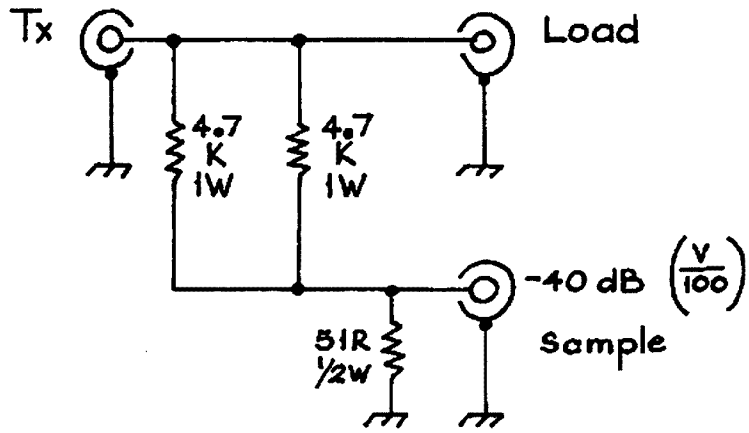


Fig. 1

power level in 50 ohms the RMS voltage will be

$V = \sqrt{P} \times R$ [Ref 3, p1.12]

Substituting:

$V = \sqrt{100} \times 50 = 70.7$ Vrms.

In 'scope measurements we observe the p-p voltage, which may be calculated;

Vp-p = Vrms x 2.818 [Ref 3, p1.12]

Substituting:

Vp-p = 70.7 x 2.818 = 199.23 Vp-p.

Conversely: $Vrms = \frac{Vp\text{-}p}{2.818}$

To calculate mean power:

$P = \frac{Vrms^2}{R}$ [Ref 3, p1.12].

or, when Vp-p in known:

$P = \frac{Vp\text{-}p^2}{R \times 7.94}$

[(R x 7.94) is usually 'rounded' to 8R- see PEP below].

Example: 1 Vp-p obtained, which is really 100 x 1 = 100 Vp-p at the load.

Substituting: $P = \frac{100^2}{8 \times 50} = 25$ W

Measuring PEP and Checking Linearity

According to Ref. 3, p16.35; peak envelope power (PEP) is "the average power supplied to the load by a transmitter during one radio-frequency cycle at the crest of the modulation envelope taken under normal operating conditions"- which is probably as good a definition as will be found anywhere, and an 'scope is the ideal tool for the job.

The set-up of Fig. 3 applies. Photo 4

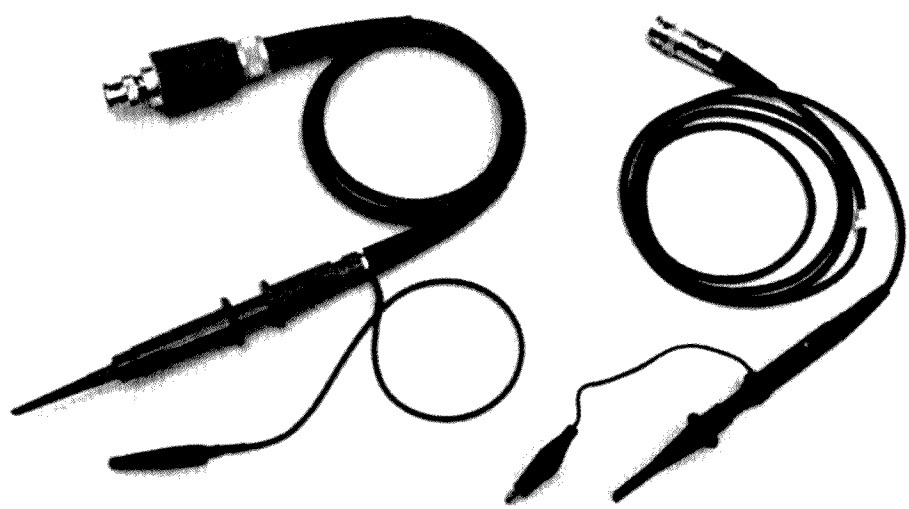


Photo 2. "Tek" X10 probe and X1/X10 probe

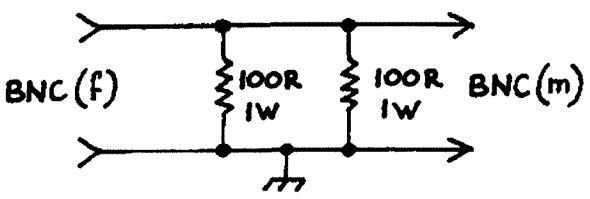


Fig. 2

shows a typical un-processed SSB output signal waveform delivered to the load by an amplifier operating linearly. Note the bullet-shaped peaks and sharp zero crossings.

Let's say the measured Vp-p (as previously described) is 200 Vp-p. Our load resistance is 50 ohms. PEP may be calculated;

$$PEP = \frac{Vp\text{-}p^2}{8 \times R} \quad \text{[Ref. 3, p16.36]}$$

$$\text{Substituting: } PEP = \frac{40000}{400} = 100 \text{ W}$$

Photo 5 shows an SSB output waveform where the amplifier is being pushed beyond its linear capacity. Note the flattened peaks and poorly defined zero crossings. Such a signal, if put to air, will cause substantial splatter interference to fellow spectrum users. The signal sampler may remain in-line during on-air operation of course, with no significant loss of power.

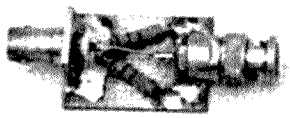
Checking CW Keying Wave-shape

The set-up of Fig. 3 applies, or the sampler may remain in line when on-air. Photo 6 depicts a nicely keyed CW wave-shape. Note the gradual fall at the end of the dash, then base line zero RF output indicating no "back-wave", and the gradual rise of the following dot. In this example the fall-time is about 10 ms (one division at 10 ms/div sweep), and the rise-time is about 5 ms, which is about right for good "crisp" click-free CW keying.

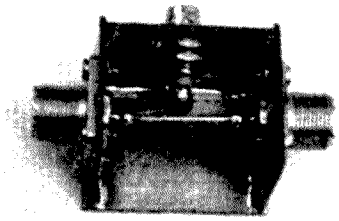
Checking Amplitude Modulation

The set-up of Fig. 3 applies, or the sampler may remain in line when on-air. Photo 7 shows the classic near 100 % AM envelope for a sine-wave audio signal. Any deviation from this pattern indicates lack of linearity, or distortion somewhere in the modulator or modulated stage. The presence of squiggles or glitches would indicate possible instability, which needs looking into. Check also for any hum or ripple on the signal by selecting LINE as the trigger source.

Because of the constantly varying amplitude of an AM envelope, it can be difficult to trigger to, and obtain a steady pattern on the 'scope screen. If possible, use a x10 probe to acquire an audio sample from an appropriate point in the modulator and apply this signal to the EXT TRIG connector of the 'scope, then select EXT TRIG.



50Ω Thru Termination



Signal Sampler

Photo 3. Sampler and 50 ohm termination

Checking Spectral Purity

A spectrum analyser is the ideal instrument for checking spectral purity. However, a CRO, which has a vertical bandwidth of at least twice the transmitter's frequency, may be used to obtain a pretty good idea as the purity of the output signal.

A "clean" transmit CW waveform is depicted in Photo 1, which shows the output of a 120 W push-pull 1.8 MHz linear amplifier. Sweep speed is 0.1 ms/div. The pure sine shape tells us that any harmonics may be presumed sufficiently low (in excess of -50 dB in this case), and it is likely safe to put such a signal to air. Photo 8 shows a waveform with considerable harmonic content. This signal obviously needs some serious clean-up work. In practice, if the signal appears to have a pure sine shape, then harmonics are probably -20 dB or more down on the main signal.

Another test for spurious output signals is to drop the sweep speed down in steps, and check (CW mode-key down) that the display is a plain band with even illumination throughout (actually a tightly bunched sine-wave at carrier frequency, like Photo 6 but without the keying). Any bright(er) lines, or squiggles upon the top or bottom of the display indicate possible spurs or parasitics, which need further investigation. Caution: at sweep speeds down near 10 ms/div. you may observe some 100 Hz ripple upon the carrier, particularly with valve amplifiers (select "LINE" trigger to observe mains-related events). A level of 5 or 10 % is probably not excessive, and is unlikely to give rise to "T8" reports.

Generally, the frequency of the signal being observed should be within the vertical bandwidth of the CRO. However, that need not prevent (say) a 28 MHz SSB signal from being observed on a 20 MHz CRO, because the roll-off is very gradual, and although the displayed signal level may be down a bit, any modulation or keying wave-shape will still be a good representation of what is actually happening. Furthermore, having successfully checked for transmission characteristics (SSB waveform, PEP, or CW keying for example) at some frequency that is well within the CRO's bandwidth, then, relying on ordinary meter readings, the

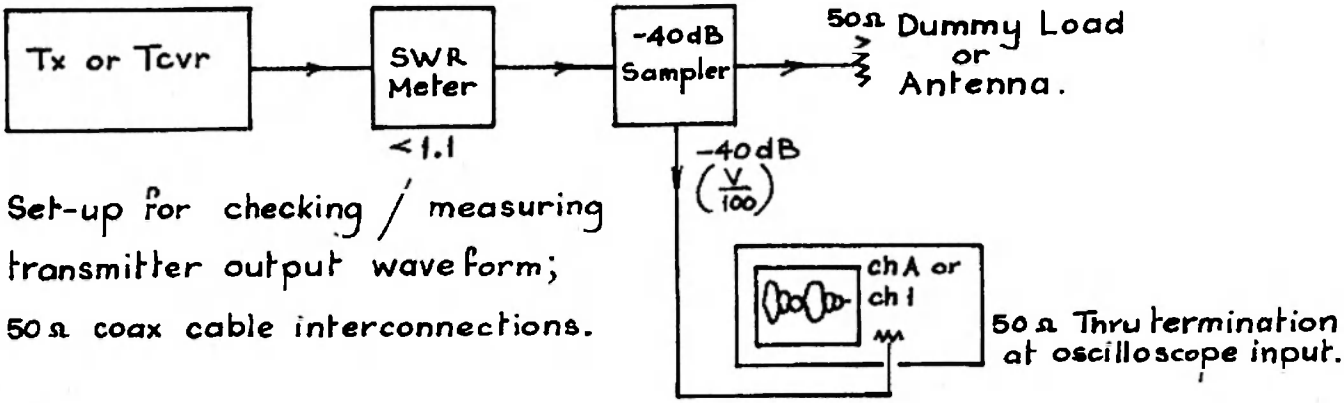


Fig. 3

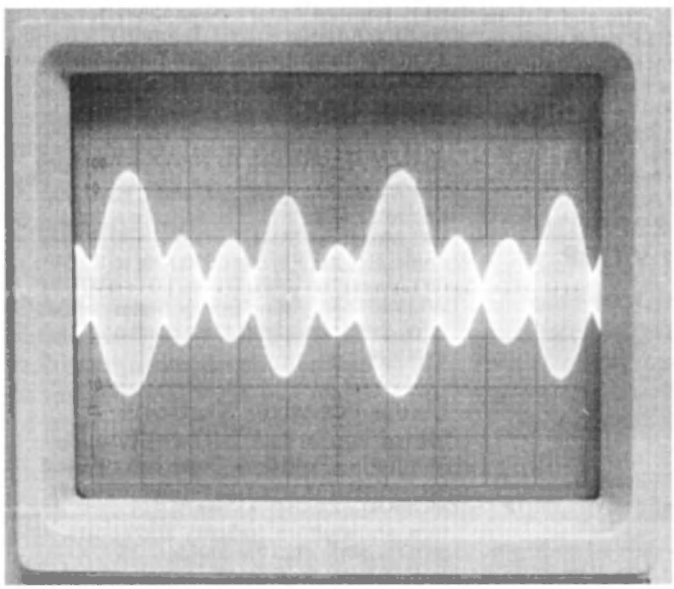


Photo 4. "Linear" SSB signal

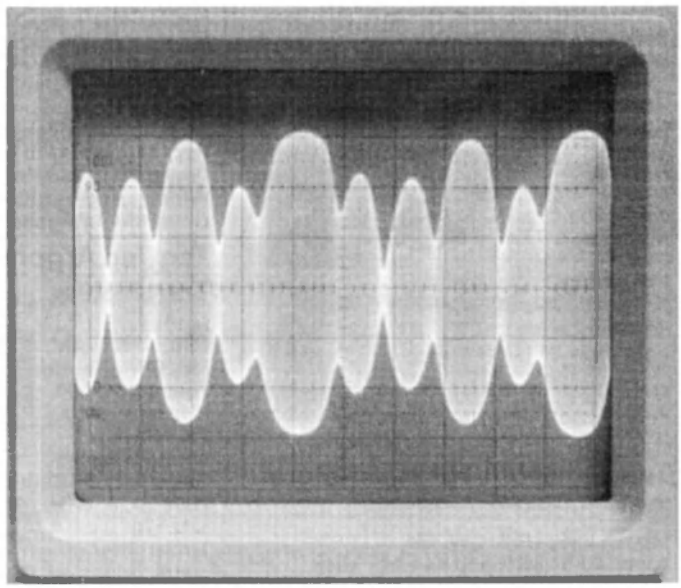


Photo 5. SSB Signal with distortion

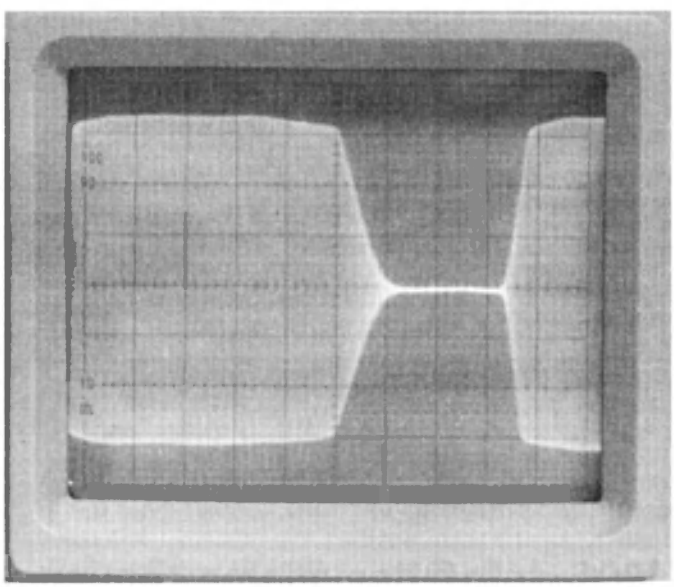


Photo 6. Keyed CW waveshape

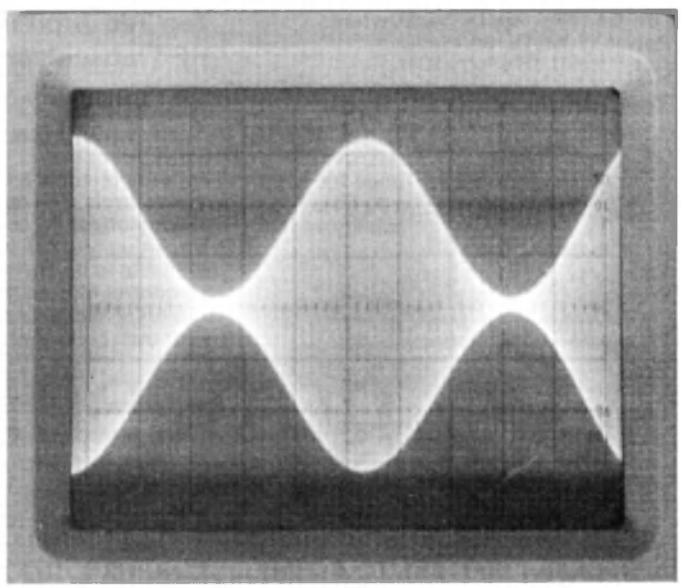


Photo 7. 100% AM waveform

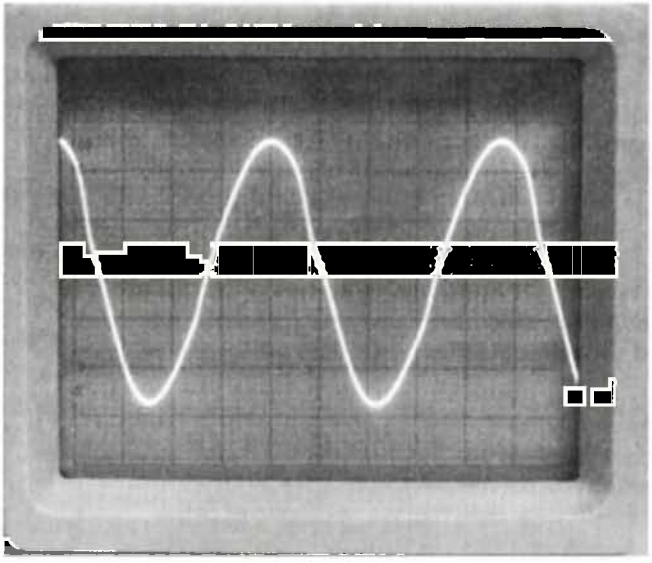


Photo 8. Significant harmonic distortion

transmitter may reasonably be expected to deliver very similar signal quality and quantity on the higher bands.

Summary

For the amateur with a keen interest in the quality of his or her transmitted signals, and who likes to repair or build radio equipment, the oscilloscope, in the hands of a competent user remains one of the most powerful electronic measuring and diagnostic instruments yet devised.

A typical practical set-up for measuring transmission quality using an oscilloscope has been outlined, together with tested workable formulas for calculating mean (CW) power and peak envelope power (PEP). Samples of typical oscillographic waveforms, applicable to signal checks on radio transmitters are depicted. Some hints are offered on probe measurements – important in radio-electronics fault finding and development work.

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2. Fast Servicing with Oscilloscopes; M. Sharma, BPB Publications (from Jaycar).
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4. Radio Amateur's Handbook; any recent edition, ARRL.
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Further Reading

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2. "Oscilloscope Monitoring"; I. White, G3SEK, RadCom (RSGB), Dec. '94, pp38, 39 (applications of CRO to transmission monitoring).
3. "Instrument series- Oscilloscopes"; D. Bramwell, K7OWJ, Ham Radio (USA) Apr. '90, pp49-57 (general essay on use of CROs).
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802.11 Protocol and Ham Radio

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The price of 802.11b equipment is continuing to fall. Once retailing for hundreds of dollars, PCMCIA 802.11b cards are now retailing for under $50. These cards contain sophisticated hardware and software that rivals most of the digital technology used in the Ham Radio world today.

A hobby has grown out of this technology in computing circles – building antennas and whole networks, operating at high speeds – with little knowledge of sound engineering principles. Antennas that do not resonate and N Connectors crimped with a pair of pliers are just a couple of the examples of the state of the hobby outside the ham radio world.

If Ham Radio is to survive, areas such as 802.11b can be used not only to attract those interested in digital communications, but also as a building block for our own networks.

In this paper I will describe some of the technology, and some of the areas that Ham Radio operators can investigate in order to extend the state of the art.

Frequency of Operation

802.11b is based on Direct Sequence Spread Spectrum utilizing 22 MHz channels centred from 2.412 GHz to 2.462 GHz. There are only three orthogonal channels available. Another two channels can be used, subject to acceptance of some interference. These devices are licensed under FCC Part 15.

In contrast, Ham Radio in the USA has an allocation from 2.390 to 2.450 MHz, allowing channels centered on 2.412 to 2.437 (Channels 1-6) to be used under FCC Part 97 (Ham Radio) rules.

Whilst Part 15 allows commercial use, it does this with limitations on the effective transmitted power. The power limit is increased under Part 97, but with the requirement for power control under certain circumstances, and for non-commercial use.

In essence, existing 802.11b hardware can be used either under the Part 15 rules, or under Part 97 rules, allowing this technology to be used as a building block for commercial and non-commercial applications.

Experimentation

802.11b equipment lends itself to experimentation. Several avenues for experimentation exist

- Antennas
- Protocols/Routing
- Hardware Modifications (Frequency/Power)
- Ethernet/USB up the antenna
- Applications (Digital Voice)

Antennas

One of the great areas of experimentation with 802.11 technology is the design and manufacture of antennas to increase the range of the units whilst still operating within the license conditions. Three types of antenna are popular in the 802.11 experimenters' world.

- Pringles Can
- MDS Antennas
- Vertical Antennas

Some of the antennas being used have distinct problems, such as not being able to resonate efficiently. Combined with 30 feet more RG-213 than is needed, poor results are experienced. However due to the error controls and link margins in the system, the link might actually work.

Pringles Cans

The best example of experimentation with 802.11b is the Pringles can antenna, where a Pringles can is fed with a short stub, and a number of washers are placed on a piece of steel inside the can. Simple analysis shows that this antenna will not resonate correctly at the low end of the band. This is partially offset by the use of washers inside the can creating an antenna that could be best described as an inverse cavity antenna.

MDS Antennas

MDS or Microwave Distribution System antennas are popular in areas where the cable for Cable TV is not present. It reduces the economic investment for an operator wanting to get into Cable TV significantly.

In Australia the major MDS company went bankrupt a few years ago, leading to a large number of the Conifer antennas turning up on the 2nd hand market.

Operating at about 18 dBi, these antennas are actually quite effective, and little can be done to these antennas to cause them not to work.

Vertical Antennas

Several collinear antenna designs are available on the internet, although many of them have problems which lead to less than desirable results. With some effort these designs could be optimized to allow construction to broader tolerances.

Protocols and Routing

One area that hams should be able to work well on is designing intelligent protocols for 802.11 networks and systems. Routing protocols exist for fully or mostly wireless 802.11 networks, but none have a large following in the field.

Combining some of the ideas contained in the Radio Shortest Path First protocol with traditional wired protocols could yield some promising results. The dynamics of mesh networks do not tend to be as well understood as wired networks.

Hardware Modifications

One of the problems when attempting to build high speed radio-communications equipment is the RF side. Using 802.11b units as a building block simplifies building equipment.

Several options exist for modifying 802.11b units, provided that they are to be used under Part 97. As discussed earlier Part 97 allows higher power outputs, alternate frequencies and higher antenna gains.

Increased Power Output

Under Part 97, 802.11b equipment can operate at higher powers. Amplifying the signal is a challenge, since half duplex communications are used on a single frequency. Due to the symmetrical nature of the system it is also no use just amplifying one end of a link. Both ends will need to be amplified.

How do we increase power? The first option is to find a unit that can be programmed in software to use a higher power, such as the LinkSys WAP-11, which can transmit up to 100 mwatt.

Another option is to place an amplifier external to the 802.11b unit. For the amplifier to work, it needs to sense transmit power on the input to the amplifier, and only amplify the signal when power is present and bypassing the amplifier in receive mode.

Whilst this sounds easy, the amplifier must have VERY fast switching times, which may be difficult to realise in practice. One group has reportedly produced a design for this.

One more option involves more research. Many 802.11b units have circuit diagrams available on the FCC web site. Examining these circuit diagrams will show where the power amplifier is inside the unit, allowing a larger device to be installed.

Alternately the transmit/receive switch line could be identified from the circuit diagram, and used to drive an external amplifier.

Frequency Change

Many 802.11b devices use chipsets that use a couple of frequencies internally. The chipset used on one device from D-LINK uses a reference oscillator, and a separate local oscillator. Changing the frequency of operation is almost as simple as changing the frequency of the local oscillator.

Of course that will only move the frequency within a relatively small range. In order to change the frequency more than that, more drastic changes are needed. The same unit from D-Link has a separate mixer device – combined for transmit and receive.

With some effort the mixer can be changed for an external unit operating at almost any frequency.

Another option is to use a transverter, operating in a similar manner to the carrier sense amplifier mentioned above. In this case 2.4 GHz is used as an intermediate frequency. Since a transverter contains a power amplifier, problems inherent in power amplifiers added to 802.11 also exist in transverters.

Ethernet up the Antenna

Ethernet up the Antenna is the Holy Grail of almost every computer-literate ham. Cat-5 Ethernet cable is much cheaper than Belden 9913, with significantly less loss.

Putting active devices up the antenna allow the distance between the 802.11b device and the antenna to be so small that even RG-58 could be used without serious losses.

The main point to watch is surge protectors for lightning on the incoming Ethernet cable. To a certain extent 802.11b equipment is disposable, but that does not apply to computer systems.

Unfortunately the cheap devices tend to be not Ethernet, but USB. This is not a problem, since USB cables can be connected up to 25m from the computer. In order to get this far away, Hubs or extension cables are needed.

Applications

We have now seen how 802.11b can be used, or modified for use, by hams to give us bandwidth. The question then becomes 'How can we use this bandwidth?'

Some answers to this could be

- Digital Video (ATV)
- Digital Audio for repeater linking
- Digital Audio

Digital ATV

Most parts of the world are using high definition signals with complex modulation schemes for Digital TV. These are currently far too expensive to experiment with, except for those in the television industry, receivers being rare.

This does not lend itself to experimentation. What does, is an MPEG encoded video stream transmitted on an 802.11 transmitter. The cost of equipment is small, particularly compared to the average ATV setup. All that would be required is a cheap WebCam, computer and 802.11 unit with a good antenna. The 802.11 unit could be removed from the equation if the repeater site has a high speed data connection.

Some work is required to implement this since multi-cast protocols would need to be used, but this is an area that could see some experimentation.

Digital Voice

802.11 is appearing in consumer handheld equipment such as Palm Pilots. A cute application would be to turn one of these units into a HT. Voice signals connect to the local access point, and get forwarded to an IRLP repeater.

Proximity APRS

In association with Digital Voice is another mode, which I call "Proximity APRS". This is almost identical to normal APRS, but is based on the access point being used by the equipment, rather than GPS position. As a person moves, so does the access point being used, allowing interesting applications. Combining this data with the APRS data stream would not be too difficult.

Digital Audio Repeater Linking

Many countries have complex repeater linking systems. New Zealand has a system that spans the whole country. With IRLP, a world wide repeater system is becoming a possibility.

Many repeater sites do not have Internet access, or the owners have decided not to join IRLP, but want to connect their repeaters together anyway.

802.11 provides a possible solution. The bandwidth available makes it possible for many channels of high quality audio and signaling information to be transmitted on the same frequency.

Imagine a repeater voting system that contains a multitude of receivers and transmitters along a highway. A system could be designed where the received signals from all the sites are combined in a DSP chip to obtain the best signal, regardless of fading. The DSP would have access to all the audio signals so could 'cut and paste' at will.

Conclusion

I have shown in this paper that there are non-traditional sources for equipment that the modern Ham Radio operator can use as part of their hobby. I have outlined some areas for experimentation, and some of the applications that are used with the technology.

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Radio as it used to be

Roger Graham VK2AIV

Big shack cleanup. Found a floppy disk with an article written six years ago, for our local radio club magazine. Wondered whether other radio operators might share the same sense of wonder that I found at my first glimpse into radio as it used to be.

Been reading a reprint of "Home of the Blizzard", Douglas Mawson's account of the Australian Antarctic Expedition of 1911-1914. A moving insight into radio as it used to be, when radio was "wireless". The expedition involved two parties, one on Macquarie Island half way to Antarctica, the other at Adelie Land on the main Antarctic landmass. Both parties attempted to set up wireless installations, this in the days of spark transmitters running kilowatts of power, long wave, into antennas on gigantic masts. Not a lot of detail is given about the installations, but it seems that radio was not an undertaking for the faint-hearted 90 years ago. There are two accounts actually... one written by George Ainsworth, in command on Macquarie Island, the other by Mawson himself, from Adelie Land. I've been back through the book and picked out the few sentences that actually relate to their "wireless" activities. Thought you might be interested.

We pick up the Macquarie Island story in December 1911. The ship Aurora has just set down Ainsworth's party on the island.

December 13th: All gear for the wireless station was taken to a spot at the foot of Wireless Hill. Several tons of radio gear...masts, engine, cables etc.to be hauled to the top of the hill along an 800-foot flying fox.

December 26th: Mast constructed. Pulled it up.

New Year's Day 1912: Carried timber from a wreck on the shore, up Wireless Hill to construct the engine hut.

Late January: "Daily expected communication with Australia"

Night of Feb 2nd: Sawyer reported he had heard the Wellington wireless operator calling Suva station.

Feb 5th: Aerial halyard broken (it was a 3 inch rope). Someone has to climb the 90 foot mast and pass a rope through the block. They retrieve deck spikes from the wreck and drive them into the mast to make a kind of ladder.

Feb 13th: First contact, with a ship the "Ulimaroa". Great excitement... no longer isolated.

March 10th: "Our station communicated with Suva at a distance of two thousand four hundred miles, a remarkable performance for a one-and-a-half kilowatt set".

May 3rd: "Hobart wireless station was by this time in working order, a fact which greatly facilitated wireless business"

"From May 12th onwards a daily weather report was sent nightly to Wellington, a distance of eleven hundred miles"

June: Big winds... nothing at the wireless station damaged... "work went on as usual. The wind used to make a terrific noise in the aerial wires. Did not affect transmission but interfered with receiving... making it extremely difficult to hear signals".

Mawson and Ainsworth wrote up their diaries nearly 90 years ago. Months of struggle just to get the aerial up. Kilowatts of power and great rasping sparks. Striving to read faint dots and dashes while the blizzard howled in the wires. Think about it when you press the button on your little black box, and talk to the world.

Communication was almost entirely at night, though experiments were going on elsewhere.

July: "The operator was requested by the Pennant Hills high-power wireless station at Sydney to listen for signals tapped out during the daytime... these tests attended with some success"

September 25th: "We heard sounds from Adelie Land wireless station for the first time on September 25, 1912, but the signals were very faint and all that we could receive was 'Please inform Pennant Hills'. Sawyer called them repeatedly for several hours but heard no acknowledgement. Every effort from this time forward... Sawyer remaining at the instrument until daylight every morning"

September 29th: Again heard Adelie land. All we got was "Having a hell of a time waiting for calm weather to put up our masts".

It wasn't until the following February that Macquarie Island was able to make two-way contact with Adelie Land, for reasons that become apparent now as we pick up Douglas Mawson's account. Erecting masts had been difficult enough at Macquarie Island in the wind, but nearly impossible in the unceasing blizzards further South.

Adelie Land, Feb 10th, 1912: Hut constructed. Heavy foundations laid for the petrol engine and generator of the wireless installation.

April 4: "Erection of the wireless masts began in earnest and continued for some months... establish good anchorage... oregon masts (8 inches square) erected section by section... stayed by stout steel cables... considerable wind... frost-bite...

Early October... aerial about 90 feet up... began to send messages... some caught by Sawyer at Macquarie Island...October 13 hurricane completely wrecked one mast... not re-erected until January 1913 when supply ship returned.

January: " ...a wireless telegraph station had at last been established and we could confidently expect communication with the outside world at an early date".

New wireless operator... Jeffryes... occupied regularly every night listening for signals and calling at intervals. Big spark transmitter... induction effects noted in metallic objects around the

Continued next page

GGREC'S biggest ever hamfest sale

Hundreds of amateurs from Melbourne and beyond converged on the Cranbourne Community Hall in July for the largest and most successful amateur radio market ever conducted by the Gippsland Gate Radio & Electronics Club.

The new venue, with around six times the floor space of the old venue, proved to be ideal for staging an event of this kind. Stallholders were pleased with the large tables provided and the buyer attendances.

Commercial stallholders included G & C Communications and Ten Tec, both of whom anticipate good follow-up sales after the event. The large dining area also proved to be a hit. Many amateurs see these markets as an opportunity to catch up with seldom seen old friends over the free tea and coffee provided. Peter Pavey, VK3VB, the GGREC President said that the social aspect of the sale was every bit as important as any financial success we may achieve, hence a lot of space was reserved for the dining area.

The venue has an enormous kitchen facility that had at least six volunteer kitchen staff active throughout the event, maintaining a steady flow of snags, burgers and cakes.

The W.I.A Victorian Division was also represented at the sale, providing assistance and membership information to the visitors. Jim Linton, the W.I.A. Vic Div. President was on hand to draw both the cordless drill kit door prize and the raffle prize of the Icom dual-band handheld. The transceiver was won by John Whittingham VK3XJW, which we will probably hear 'on air' via the new 70cm Club repeater that John has been instrumental in constructing. This win continues his lucky streak, as he also drew the winning ticket for the Club's Christmas hamper in December.

Event organisers praised the efforts of the many Club members who had formed into an extremely efficient team on the day to make the event run very smoothly. Most of them were able to stay and help clean up the venue afterwards.

All forty tables had been booked out some six weeks before the event. It was thought that, after seeing the venue in action, scope for some additional tables placements could exist for future radio markets. It is almost certain that the same venue will be booked again for the *next* Hamfest Sale in 2004, around the same time of year.

Proceeds from the sale will be contributing to the Clubs 'shack building' fund to further the interests of Amateur Radio in the region.

Jim Linton VK3PC draws the winner

The large crowd explored GGREC's Hamfest from top to bottom

Radio as it used to be

Continued from previous page

hut... cook at the stove drew sparks whenever he touched the pots.

Feb 15th... excitement... Jeffryes heard Macquarie Island sending coded weather message to Hobart... immediately started the engine... repeated calls... no answer.

Feb 20th... call at last reached Sawyer at Macquarie Island... responded "Good evening" at which point the insulation of a Leyden jar broke down and nothing more could be done.

Feb 21st... signals exchanged... news out and in. The first news in... Scott and four companions had perished on their journey to the South Pole.

Mid March: "Jeffryes and Bickerton worked every night from 8 p.m. to 1 a.m., calling at short intervals and listening attentively... It was now a common thing in the morning to find quite a budget of wireless messages had been received in the night" "It was often possible for Jeffryes to hear Wellington, Sydney, Melbourne and Hobart, and once he managed to communicate directly with the last-named". A coded weather report was sent out each night, via Macquarie Island.

June 7th... strong wind carried away top half of main mast.

July 5th... winds up to 116 miles per hour... for eight hours, average speed 107 miles per hour. "Early in July Jeffryes became very ill... much anxiety... work on the wireless had been assiduous at all times... continual and acute strain of sending and receiving messages under unprecedented conditions... eventually mental breakdown."

August 4th... at last a calm day. Reconstructed wireless aerial on shorter mast... finished by evening. "At eight o'clock Jeffryes, benefited by his rest, was eager to commence operating once more... soon tuned to Macquarie Island... communication unbroken from then until November 20 when interference of continuous daylight caused us to close down".

Mawson and Ainsworth wrote up their diaries nearly 90 years ago. Months of struggle just to get the aerial up. Kilowatts of power and great rasping sparks. Striving to read faint dots and dashes while the blizzard howled in the wires. Think about it when you press the button on your little black box, and talk to the world.

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Technical Abstracts

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30 Moore Street, Box Hill South Vic 3128

Cardboard Box Antennas for Oscar 40

Some cheap antennas which are cheap to make and relatively non critical were described in QST March 2003 by Anthony Monteiro AA2TX. The antennas were built out of large cardboard boxes for the structure with a covering of thin aluminium cooking foil to form the reflecting surfaces. Where the foil is not quite wide enough it can be overlapped by a few inches to provide a wider surface. The 2.4 GHz down converter can be light enough to be direct mounted to the antenna with a simple probe for the feed. This eliminates feedline loss.

The receive antenna is a Pyramidal Horn which for the size given will have around 20 dbi gain. The basic Pyramidal Horn antenna is shown in Fig 1. The dimensions of the horn panels are given in Fig 2. The dimensions are the actual inside dimensions of the horn and you should allow for the thickness of cardboard where they are taped together.

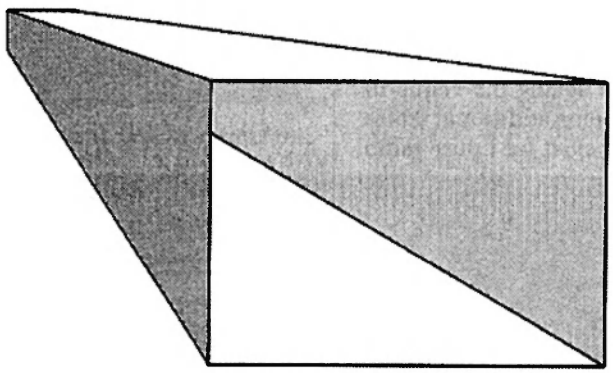


Fig 1 - Basic pyramidal horn used for downlink antenna.

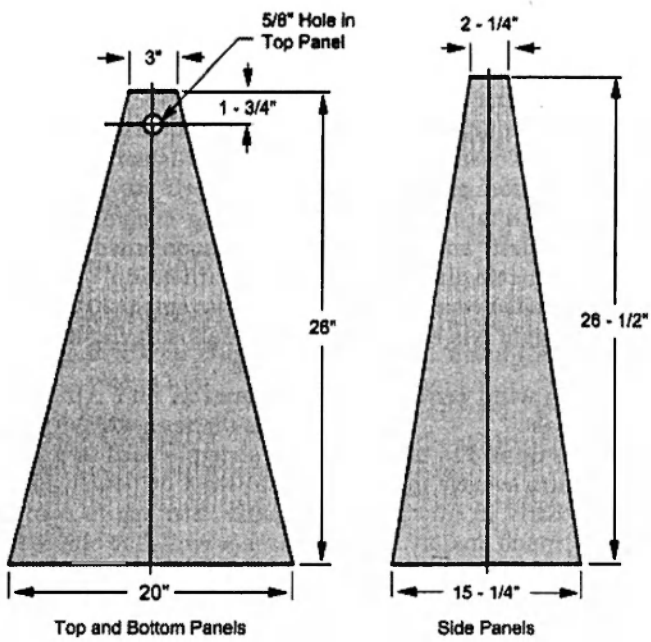


Fig 2 - Dimensions of downlink horn antenna panels.

This will then give you the figure 2 dimensions as the inside dimensions of the horn. You should cut the panels out and then cover them with foil. It may be helpful if the edges of each panel are first taped over before covering with foil. This helps strengthen the panels. The foil covering of the inner side should be folded over the edges and taped in place taking care not to cover what will be the mating edges with tape.

The horn can then be constructed by butting the edges together and holding them with tape. The completed horn structure should have no gaps along the edges where they butt together. Tape tightly any gaps so as to ensure foil to foil contact along each edge. The design can tolerate a few linear gaps no longer than 1/4 inch to 1/2 inch long. This should be fairly easy to do. Any larger gaps which resist taping can be patched by overlapping foil patches taped in place internally.

The horn can be supported by mounting it in another cardboard box. A hole is cut in the bottom of the box and the horn is inserted so that the mouth of the horn fits in the top of the box with the small end of the horn sticking out through the hole in the bottom of the box. The horn should stick out enough to enable you to mount the downconverter with the probe antenna used as the feed on the hole in the rear of the top panel of the horn. Fig 3 shows the final assembly of the horn into the supporting carton.

The down converter is mounted by using the N connector on the input as a mounting. The N-connector is bolted to the hole in the side of the top panel using a nut on the connector thread. The nuts used to mount single hole mount "UHF" and "N " connectors are suitable. The nut should be flush with the top of the connector when mounted to the top panel. To achieve this and also to strengthen the mounting point a number of 2 inch by 2 inch cardboard squares are used on the outside between the N connector mounting on the down converter and the top panel of the horn.

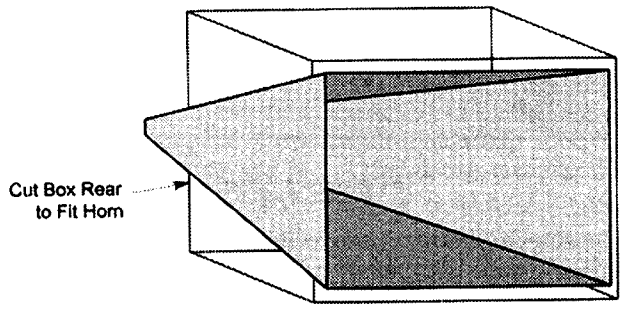


Fig 3 - Downlink antenna assembly showing how horn fits into supporting carton.

The stub antenna or coaxial coupling probe used to feed the horn is a piece of solid bare 14 AWG copper wire inserted into the centre pin of the N connector. This wire size is approximately the same outer diameter as the normal type N connector pin and so should fit nicely without damaging the connector. The wire should be 1.625 inches long and when inserted into the connector should stick out 1.25 inches from the connector. Do not bend the wire.

There should be a fair amount of play in the down converter mounting. Hold the down converter so that the probe is parallel to the back plane of the rear of the horn and tape it in this position. Finally cover the rear of the horn with aluminium foil and tape it in position. The horn is now ready for use.

For an Uplink antenna you can make a corner reflector using cardboard boxes and aluminium foil for the reflecting surface. Once again this is a relatively

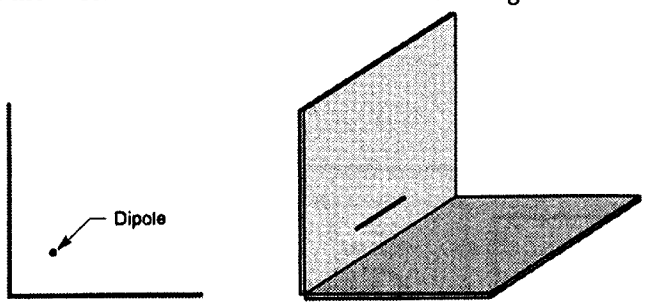


Fig 6 - Basic corner reflector antenna used for uplink. Note dipole feed.

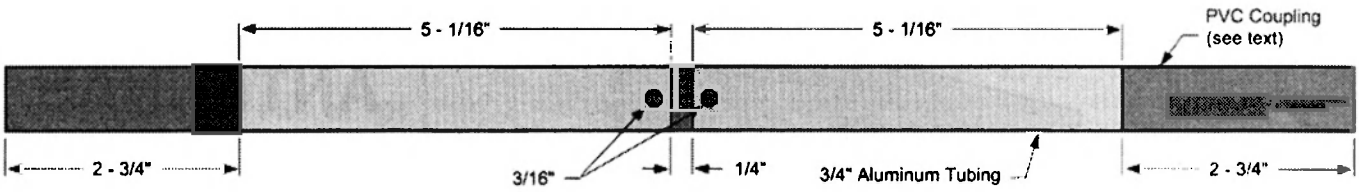


Fig 7 - Dimensions for corner reflector dipole feed.

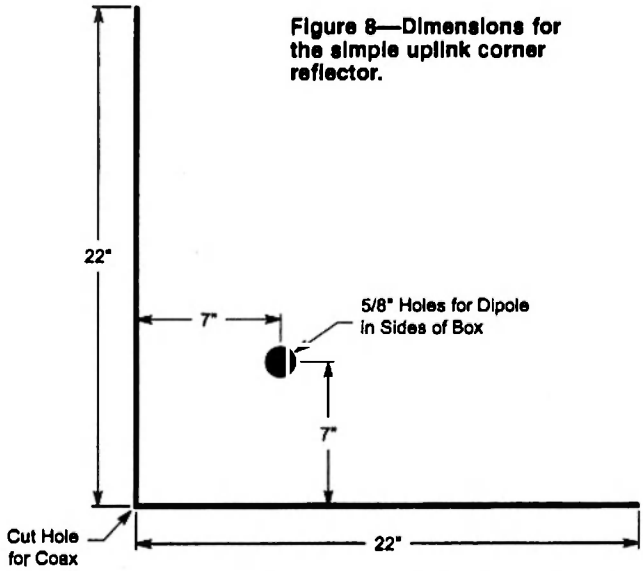


Fig 8 - Dimensions for simple uplink corner reflector.

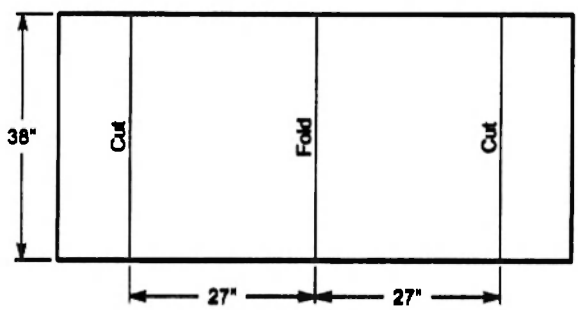


Fig 9 - Cutting details for high performance corner reflector surfaces.

simple and non critical antenna with good gain. The basic corner reflector antenna is shown in Fig 6.

The dipole feed is made from a couple of short pieces of 3/4 inch diam. aluminium tube with insulators made out of the black PVC couplings used in water sprinkler systems. The exact diameter is not overly critical and substituting locally available parts would be OK. The dipole feed assembly is shown in Fig 7. The dipole feed is 50 ohm in the mounting position in the corner reflector. No Balun is needed. Use a short length of RG58 type cable between the dipole and the transmitter. A minimum length would be about 5 feet (1.5 m) but you should use the minimum length needed due to cable losses. The coax should be connected to solder lugs mounted using screws at the dipole centre.

The corner reflector is made by coating two sides of a box with aluminium foil. The dipole feed is mounted through holes in the other two sides, which are at right angles to the reflector sides. The dimensions of the corner reflector are shown in Fig 8. This reflector will give an 8 dbi gain. The reflector size is 22 inches by 22 inches by 16 inches. To obtain more gain a larger reflector can be used which is 27 inches by 27 inches by 38 inches. The cutting instructions for the larger reflector are given in Fig 9. The larger reflector is covered with aluminium foil using a number of overlapping pieces of foil. Be generous with the overlaps and tape the foil down well so as to ensure contact between the pieces of foil.

The reflector is then assembled using tape and other pieces of cardboard to form the corner reflector. The dipole feed is assembled by making a holder like the smaller corner reflector out of a cardboard box. This is then taped in position in the centre of the larger reflector. The larger corner reflector has a 50 ohm feedpoint and will give a 14 dbi gain. Not bad for some cardboard boxes and cooking foil..

Gate Dip Oscillator

An interesting GDO or Gate Dip Oscillator a modern descendant of the Grid Dip Oscillator was described in *QST* for May 2003 by Alan Bloom N1AL. The design features a two terminal coil and uses common easy to obtain FETs and transistors. The design owes a great deal to a previous design by Lloyd Butler VK5BR which appeared in AR Jan 1997 which is acknowledged in the article.

The GDO is shown in Fig 10. The circuit uses a pair of source coupled MPF102s as the oscillator. An output to drive a counter is provided by the source follower Q3. Q4 a 2N3904 acts as an RF detector and Q5, an emitter follower, drives the meter.

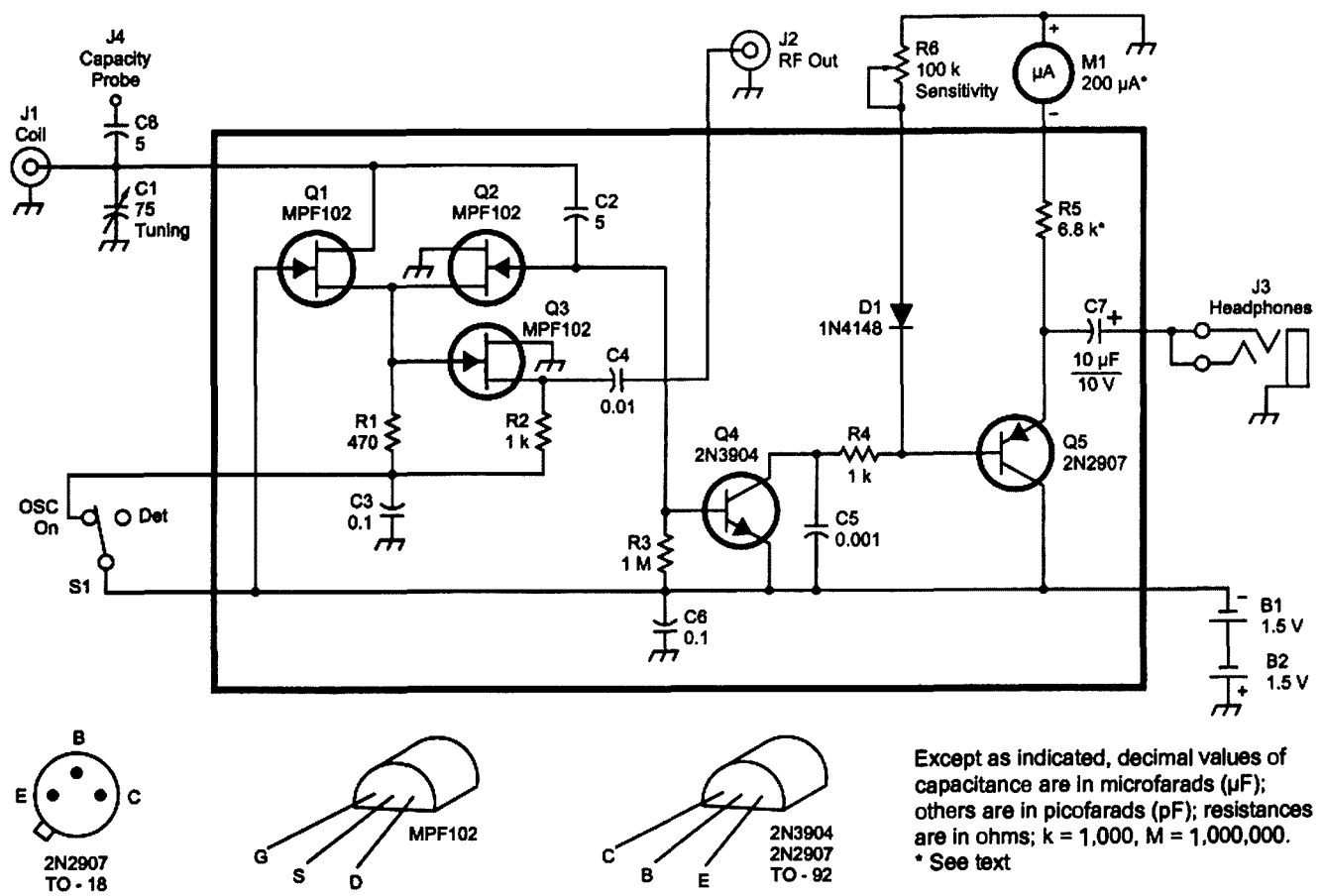
The coils use a BNC connector to provide the 2 terminal plug and socket. The connectors are readily available and much easier to find than other traditional plugs and sockets.

Coil data is given in Table 1. This is of limited utility, as most constructors will use a different tuning capacitor than that used in the original.

Table 1. Coil winding data for GDO.

The coils and frequency ranges are valid for the original design using a 75 pF variable tuning capacitor. They may require adjustment if other components are used.

Wire Gauge	Coil Form Diameter	Coil Form Length	Coil Length	Number of Turns	Frequency Range
#12	0.375 inches	———	0.125 inch	2	130-150 MHz
#14	0.5 inches	1.5 inches	0.5 inch	3	62-108 MHz
#18	0.5 inches	2.0 inches	0.4 inch	5	29.5-62 MHz
#18	0.5 inches	2.5 inches	0.5 inch	10.5	16.5-35 MHz
#22	0.5 inches	2.5 inches	0.6 inch	21	9.2-19 MHz
#26	0.5 inches	2.5 inches	1.0 inch	46	5.1-10.5 MHz
#30	0.5 inches	2.5 inches	1.5 inch	100	2.8-5.6 MHz
#30	0.5 inches	2.5 inches	1.6 inch	180	1.5-2.8 MHz
#30	0.5 inches	3.9 inches	3.3 inch	390	0.9-1.5 MHz
#30	1.25 inches	3.9 inches	3.4 inch	230	620-980 kHz
				(+53 pF)	505-640 kHz
				(=106 pF)	440-525 kHz



Except as indicated, decimal values of capacitance are in microfarads (μF); others are in picofarads (pF); resistances are in ohms; k = 1,000, M = 1,000,000.
* See text

Fig 10 - Schematic diagram of GDO.

Ground Rod Driver

In the Hints and Kinks column of Bob Schetgen KU7G in *QST* for May 2003 a ground rod driver is described which is similar to the devices used to drive star pickets for rural fencing. The idea and design came from Ron Wagner WD8SBB. The ground rods are known as earth rods and are available from electrical wholesalers who supply electricians. They are commonly used to provide an earth point for electrical wiring installations.

The device is shown in Fig 11. The earth rod should be an easy sliding fit inside the pipe but there should not be room for much sideways movement. The aim is to supply the driving force in line with the length of the earth rod and so maximise the driving force without bending the earth rod being driven. The diagram is self explanatory . The weight supplied by the stack of scrap steel is bolted to the top and should be symmetrically distributed about the centre line of the device. Mark the centre of gravity of each weight (scrap steel piece) and align it with the centre line of the driver. Find the centre of gravity by balancing the weights on a smaller object and then mark the balance point. The pipe used will most likely be 1/2 inch water pipe but any suitable steel pipe will do. The length is a compromise between the length of the blow and the nuisance value of the device slipping off the earth rod. A pipe which is too long wont let you drive the rod as far into the ground as it will cease to work leaving the pipe length of the driven rod still out of the ground.

The device is raised up the earth rod and then brought down delivering a hammer blow to the top of the earth rod to drive it into the ground . This is repeated until the rod has been driven into the ground. You raise the driver and on the down stroke you only need to guide it as the dropping weight does the work.

You should wear good protective goggles and heavy leather protective gloves when using the driver. The device has the same driving weight as a mash hammer or small sledge hammer and should be treated with respect. If you doubt the efficacy of such devices just watch a fencing contractor putting in some star pickets. Remember to keep hands and fingers well away from the action except for the essential guiding and lifting function.

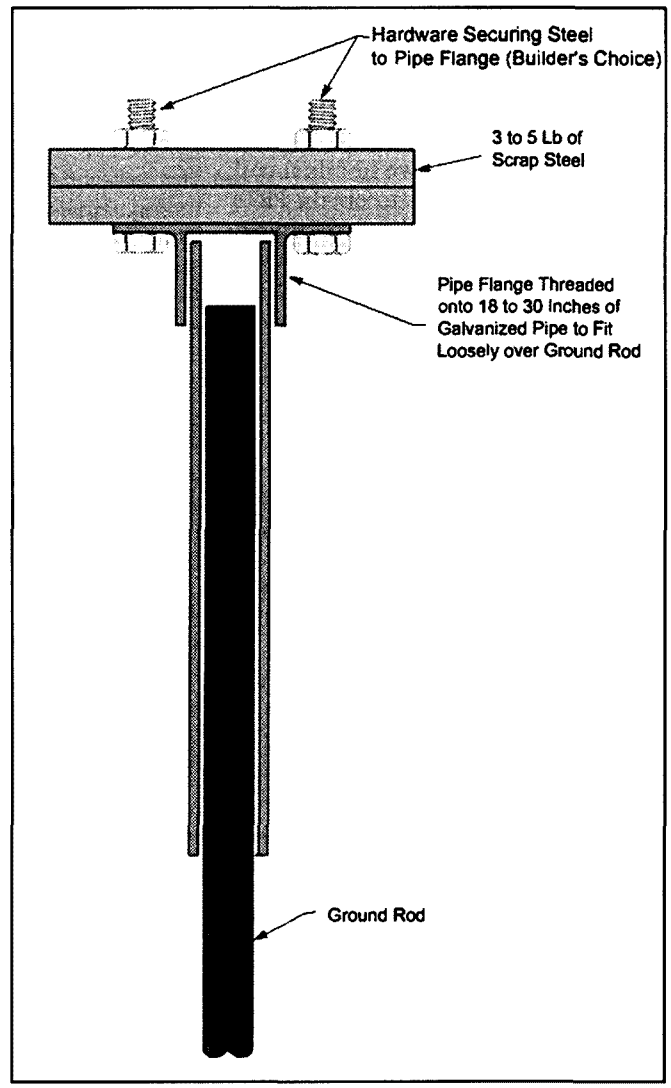


Fig 11 - WD8SBB's ground rod driver slides up and down on ground rods to hammer them into the soil.

Centre Insulator for Whip Dipoles

In the *Hints and Kinks* column of Bob Schetgen KU7G in *QST* for March 2003 an idea for making a centre insulator for dipoles made from two mobile whips was provided by Roy A. Raney K0OVQ. The idea is to use a large PVC pipe cap as the centre insulator.

A whip dipole is made by using two mobile whips as the two legs of a dipole. In this way you have an antenna which is not dependent on ground and which will be fairly easy to match as most mobile whips have a radiating resistance well below 50 ohm. With losses the low whip impedance rises . By using two whips operating as a dipole a reasonably easy to match antenna can be built. Band changing is by changing whips. In the USA the range of Hamstick whips is simple mass produced and therefore affordable whips. Locally there are similar whips or helicals available. They make a small and inconspicuous antenna not requiring radials in some of the difficult situations where antennas are frowned upon.

Roy K0OVQ mounted two Hamsticks on to a three inch ID PVC pipe cap. He also mounted a Van Gordon balun between the whips secured to the top of the cap using standard whip screw base mounts. The mounts used were the simple single hole mounts used for attaching a whip to a bull bar or similar mounting.

This type of balun is a tube with caps at each end. The top has a suspension hook which is attached by a screw thread and machine nuts. The threaded hook and its attachment to the balun was used to attach it to the Pipe Cap insulator and provide a convenient suspension point. The bottom of the balun has a coax connector to which the feed line

continued next page

Beyond Our Shores

David A. Pilley VK2AYD
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This month I should like to dedicate "BOS" to the RSGB and congratulate them on their 90th birthday.

Although in 1904 the UK parliament passed the world's first Wireless Telegraphy Act and, in 1912, Amateur Radio was outlined as an experimental and scientific hobby, it was not until July 5, 1913 that a formal Radio Club was formed and known as "The London Wireless Club".

Between 1913 and 1923, which encompassed WW I, other clubs such as the Radio Transmitting Society and the British Wireless Relay League were formed. In 1923 they amalgamated and the Radio Society of Great Britain was incorporated. This name has remained ever since.

In those early days, amateurs really were experimenters. Firstly operating in the low frequencies around 300kHz, then to middle frequencies and eventually to high frequencies. Reading through the history of amateur radio in the UK it was interesting to read that there was a time when amateurs were prohibited from talking to stations outside the UK!

The Society was run entirely by volunteers up until 1939 when John Clarricoats, G6CL, (known throughout the world as "Clarry"), was appointed General Secretary and Editor of the Society journal *"The T & R Bulletin"* which was more popularly known as the "Bull".

The "T&R Bulletin" was first launched in 1925 and was renamed as the *"RSGB Bulletin"* in 1942. Today it is well known as *"RadCom"*.

From the very beginning the RSGB and the then government authority, the Post Office, had an excellent association. To this day they have very close ties with the UK Radiocommunication Agency and we salute them for maintaining such a good liaison.

In 1939, in the UK, there some 2,000 'experimental transmitting' licensees together with 2,000 'artificial aerial' licensees. (Compare that to the 100,000 then licensed in the USA).

WW II saw the radio amateur playing a vital role and many were conscripted into various branches of services that included the "Y" branch and covert operations in enemy occupied territory. Those that were in reserve occupations or outside of conscription age, were given receivers and helped the "Y" service monitor transmissions. Throughout the war, the RSGB continued as an active Society. At one time its Headquarters were at the Clarry's home, before moving to Ruskin House, then Doughty Street in London, before moving in 1988 to their present home at Lambda House, Potters Bar, 10 miles north of London.

Amateur Radio peaked after WW II and membership of the RSGB began to grow fast as ex-service people took an interest in Amateur Radio and found so much government surplus equipment available at very low cost. At that time some service qualifications provided exemption from examination making an easy path to the hobby. By 1985 membership of the RSGB exceeded 37,000, however with the introduction of computers and other electronic equipment the number of Radio Amateurs in the UK has fallen and today there are approximately 80,000 and the membership of the RSGB is around 24,000.

The Society is honoured with HRH Prince Philip, Duke of Edinburgh, KG, KT, as their Patron. It has a Board of Directors headed by President Bob Whelan, BSc, MSc, PhD, G3PJT, with 8 members and 9 Regional Managers and a full time staff of 19 supported by 7 part-timers who look after the QSL Bureau, Museum, Web pages, etc.. The RSGB has one the finest Bookshops in the world of Amateur Radio, which is being added to monthly. Besides the QSL bureau and technical assistance, the Society offers its members credit card facilities, equipment insurance and many other facilities.

To celebrate their 90th anniversary, memorabilia such as 90th Anniversary Pins were struck, together with a Commemorative Mug, an Anniversary Parker Pen and even an Anniversary Ale. Yes an ale with a 4.6% proof! A special call sign, GB90RSGB was issued to various clubs around the country and on the weekend of July 26/27 they celebrated with a Picnic in the Park. If you happened to work one of these stations you can obtain a special QSL card – QSL via the RSGB Bureau.

Congratulations RSGB – may you enjoy another 90 years.

RSGB Headquarters, Lambda House

Centre Insulator for Whip Dipoles (Technical Abstracts) continued

attaches. The antenna attachment points on the sides of the balun provide a convenient attachment point for the wires to the whip bases.

You do need the balun. This is a balanced feed point and in a situation where antennas and amateur radio are frowned upon the last thing you want is RF crawling back down the coax outer and wreaking havoc with the neighbours TV's and other electronic goodies.

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ALARA

Christine Tylor VK5CTY
vk5cty@vk5cty or geencee@picknowl.com.au

ALARA Contest Logs

The Contest is over. I hope you had a good time and made lots of contacts. Now all you have to do is to send your log to Marilyn, VK3DMS our Contest Manager. Please do send your logs in, no matter how big or small they are.

If we don't send the logs in we will find the committee deciding that the Contest is just too much trouble (I don't think they would, but it is possible). Unless most of the logs are sent in it is difficult to check those that we do have, and it takes away something from the winners of the sections.

The long time format we use that gives us two evenings, along with the repeat contact allowance should make it possible for everyone to get on air and make a few contacts. I hope there were some clubs participating, these add to the fun and give extra people a chance to meet some YLs.

Logs can be sent directly to Marilyn, QTHR the callbook or by email to alaracontest@wia.org.au

The Birthday Net

Did you forget the Birthday Net or did you start to listen and discover that there was a contest going on at the same time? I wonder?

The Waitakere Sprint was on at the same time as our Birthday Net last year, too, but it finishes at 1100 Zulu and as it means there are possibly some of the ZL girls participating who will stay on a bit longer to talk to us, why not make a few contacts in the Sprint while you wait?

Gwen VK3DYL did this, this year, after which Shirley VK5JSH and Christine VK5CTY had a conversation with her. We were joined by Bron VK3DYF and Dot VK2DB a bit later. Not a large group but with so many regular participants already on the road heading North for the winter, it was not surprising. Unfortunately we did not hear any ZL stations but Gwen said the band was very noisy for the Sprint.

Anyway, think about the Waitakere Sprint as well as the ALARA Birthday Net next year.

VK5 Birthday Luncheon

Despite the travelling ones we had eight YLs and five OMs at the Marion Hotel for the birthday. Apart from the regular Friday lunchers, Jean VK5TSX, Maria VK5BMT, Sue Mahony, Shirley VK5JSH and Christine VK5CTY we had long time members of ALARA, Myrna VK5YW, Lorraine VK5LM and Janet VK5NEI.

It was a very enjoyable lunch and despite worries that we might have to vacate our table for more diners, we were left in peace for as long as we wished.

A very old photo (from the 1970's) was passed around in the hope that someone would be able to identify the associates grouped there, but not many names came back. Isn't it interesting how we recognise the faces but lose the names?

Unfortunately VK5 is the only state, now that celebrates the ALARA birthday with a luncheon, but we are glad we live near enough to each other to be able to do so.

Janet VK5NEI

Lorraine VK5 LM

The Old is also the New

On the Birthday Net Shirley VK5JSH spoke of a YL net she had discovered. She had had several contacts with both adult YLs and with some Guides, on the afternoon she found the net. She was delighted.

However Gwen pointed out that that particular net had been running for about 30 years. The old for Gwen is the new for Shirley, the way things always are.

The net in question is the ANZA net. It is run on Friday, Saturday, Sunday and Monday on two bands. It is on 14.183MHz in the 20 metre band at 0530 Zulu and on 21.205 MHz in the 15 metre band at 0545 Zulu. The net controller was Barbara NH7FY in Hawaii when Shirley heard it but it is possible that there is a roster of operators.

Have a listen around and join in. I am sure they would be delighted to have you.

JOTA is approaching

Don't forget JOTA is on over the third weekend in October. If you are asked to supply some radio equipment, try to help. This weekend is a marvellous way to introduce young people to our great hobby.

A large number of current operators had their first taste of radio at a JOTA weekend.

With the Australian version of a foundation licence on the discussion board there will never be a better time to give boys and girls the chance to make a radio contact for the first time.

I know there are quite a few YLs who regularly participate in JOTA. Please let me know about your station. Others are interested, you know.

Travellers' Tales

Recently Bev VK4NBC spent several months in Central Victoria with Judy VK3AGC to help Judy manage things after she had her wrist broken and repaired. It was just before she was to go to Perth for the 1997 ALARAMEET that Judy broke her wrist. It never mended correctly so she decided that rather than have a wrist she couldn't use properly she would have it redone. She was very grateful for Bev's assistance during her recovery.

But, when it came time for Bev to go home, the two of them decided to go from Central Victoria to Brisbane the long way. They covered 8,000 km in 12 days and had a ball!!. Now they want to do it all over again.

What a great idea!!

This is when so many southerners take off for warmer climes. Many of them use the Travellers' Net to keep in touch.

Leslie XYL of Hans VK5YX was very glad they were in the habit of talking to VK6HH and others each day. They had a tyre blowout on a dirt road. Not an unusual happening though one you would rather not experience. When they went to replace the blown tyre with the spare, however, they found that the spare was flat!

Through Roy and the net they were able to arrange for someone to come out from the next town to get the damaged tyres and to have them returned to them.

They did have to spend a day sitting on the side of the road watching whatever traffic there was, go by. But they sat there with the knowledge that amateur radio had come to the rescue and that they were to be on their way again more quickly than they would have been without it.

Some interesting feedback

An email recently asked me for the source of the little story I told in this column at the beginning of the year, about the young couple who fell in love through messages they exchanged in "dots" and "dashes" back in the very early days of radio.

I gave the OM the magazine reference for the story and was delighted when he messaged me back that he has been successful.

It was Barrie VK6BR, a member of the Morsecustodians Fraternity of WA. Affiliated groups hold yearly displays in most cities at which they use old Morse Keys to send old-fashioned telegrams for people. Do you remember sending or receiving telegrams? The current generation will never know what a telegram is.

In Adelaide the telegraphists display is usually put on in one of the big city stores. Watch for the advertisments for the event and go along to visit and admire the "old ways". It can be quite an eye-opener to see and remember how it used to be done.

Division News

VK1 News

Forward Bias

Peter Kloppenburg

Low Interference Potential Devices (LIPDs) have had a bad press with users of 70-cm repeaters ever since they were allowed to operate within the 70-cm band (433.05-434.79 MHz). However, LIPD bands are allocated on 20 other slices of the spectrum, but with a maximum of 1 watt on only two bands (26.957-27.283 MHz and 40.66-41.00 MHz).

It is the latter, 40.66-41.00 MHz, that is of interest to Gerard Borg, our guest speaker on Monday, July 27, 2003. Gerard lectures at the Australian National University in Canberra, where, among other duties, he heads a research project entitled Local Area Networks for the Bush. (BUSHLAN). Gerard spoke to the subject of BUSHLAN and explained the concept of it and the research that he had done sofar. He said that with digital TV taking over from analog TV, Channel '0' and '1' will become redundant within the next five years as the occupiers of these channels will move to the VHF bands. This means that Channel '0' (45-52 MHz) and Channel '1' (56-63 MHz) will become available to other users! Gerard's concept is to use 7 MHz of bandwidth in either of these channels to provide communication services to country towns or districts which are at present too remote or sparsely populated for on-line services. As the LIPD 40.66-41 MHz band is the nearest band that can be used for scientific research, Gerard has been, and still is, conducting and testing propagation models on 7.317 metres in the ACT and surrounding district with encouraging results. With a vertical dipole on Mount Ainslie and 40 watt of RF power, modulated with a pseudo random code, he has recorded signal strength levels at many different points around Canberra. As amateurs, we knew exactly what he was talking about because we have "been there and done that" at one stage of our lives. Because of this, there was a healthy interchange of experiences between Gerard and those of us with a professional background, such as Paul Bell, VK1BX, Richard Elliott, VK2KDE, Alan Hawes, VK1WX, and Chris Carroll, VK1GG. Because Gerard is experimenting with communication protocols such as X25 Packet software, Chris offered him a substantial quantity of TNCs and other modems to help out with Gerard's limited funds.

The Australian Ladies' Amateur Radio Association (ALARA) is thirty! To help celebrate the occasion, the Division has offered to pay the membership fee for one year to all Women Radio Amateurs in the ACT and surrounding district. To date, letters with the offer have gone out to the following: Sandra, VK2LSH; Ruth VK1YL; Linda, VK1HLT, Linden, VK1LSO: Robin, VK1ZBF; Marion, VK1MG; Irene, VK1NDV; Laile, VK2LO; Marion, VK1BNG; Leisa, VK1LC; and Ruth, VK1ZBE.

The Division now offers family membership to immediate members of an 'F'-Grade member. These include fathers, mothers, sons, and daughters. The fee for family membership is $38.75. This excludes the AR journal, but provides for all the rights and privileges due to a member of the ACT Division. Copies of membership application forms can be downloaded from the divisional Website at: www.vk1.wia.ampr.org and should be sent to the divisional address.

News Flash!!! The Committee has decided to hold a Trash & Treasure sale on Sunday, October 26, 2003. Buyers and Sellers are welcome at the Parks & Garden Depot compound in Longerenong St., Farrer, starting at 12 Noon. Some of the items on sale are mantel radios from the Thirties and Sixties, Coms. Receivers, test equipment such as signal tracer: VTVM; valve tester, TV sets, CB transceivers, VHF antennas, antique valves, FM-828 mobiles, and lots more

The next general meeting will be held on Monday, September 22, 2003 at Scout Hall, Longerenong St., Farrer, at 8.00 pm. Bring a friend. Cheers.

VK2 News

Tim VK2ZTM

Welcome to spring. If you took part in the recent R. D. Contest we hope that you sent in a log to help our Division. Our Special Event Station VK2WHQ took part under the supervision of Steve VK2PS.

The VK2 Bookshop continues to maintain a wide range of publications. WIA members through out Australia have the advantage of a further discount on most lines. Interstate amateurs may need to confirm their membership before placing orders. The VK2 Division 1 800 number only operates within NSW. Call by mail, telephone, FAX or internet. The Bookshop has a few WIA analogue wrist watches available as well as a WIA key ring. QST is one of the magazines stocked.

The VK2WI operators roster for the final quarter of 2003 will be drawn up this month. Again we seek additional personal for both the morning and evening sessions to ease the work load. VK2RSY, the Dural based beacons, are a major portion of the site's power bill. While we understand that some operators do make use of the service, few take the time to send in a report. These reports can be sent in by the internet. We get a few for the 10 metre unit on 28.261 by internet. While the sunspot cycle is now declining it shows that 10 opens from time to time. The 6 metre unit on 52.420 is one of the last still on 52 MHz. Jack VK2GJH advised that while the winter is quiet for 6, VK2RSY has been observed in VK4, 5 and 7, ZL and FK8. In early August the two metre beacon did in a transformer in the power supply. The smoke detectors did the right thing and alerted security and in

turn the Dural personal. Naturally, it did it in the middle of the night. All automatic services were shut down but it took a couple of days to locate the source. While little may get burnt, the smell gets into everything.

One service provided on behalf of the Division is slow morse training. Besides the automatic system on 80 and 2 metres, which now resides at Dural, there is the group of volunteers who provide 80 metre - 3550 kHz - VK2BWI live sessions, many evenings per week. Ross VK2ER co-ordinates this activity. He was wondering about the future of the service once the requirement of CW as an exam subject is determined. Divisional Council discussed the subject at their July meeting and concluded that even when it is removed from the exams, there will be those who would like to learn it. They encourage the continuation of both the manned and automatic services as long as there are those able to provide the facilities.

John Turner VK2WRT has retired from the position of Divisional Councillor when he heeded his Doctor's advice to slow up a bit. President Brian VK2WBK thanked John for his time on Council and for his work with Trash and Treasure and as Dural Officer. His place has been filled on Council by the cooption of John Vetters VK2JJV with the portfolio of Dural Officer. Council may be holding its October meeting at the Wagga Field Day if there are enough for the quorum. The Wagga Field Day will be over the long weekend – 4th and 5th. The Divisional office may still require the services of someone with MYOB skills for about 4 hours per month.

Members are reminded that the Parramatta office is open three days per week, Tuesday, Thursday and Friday. It is also open on Trash and Treasure Sundays and the first Tuesday of each month when the Home Brew Workshop is conducted. These will be Sunday 28th September and Tuesday 7th October.

Affiliated Clubs are reminded that the annual insurance renewal is coming up. Some Clubs did not respond to the request to update their affiliation details. The next Conference of Clubs will be Saturday 29th November. Council at their July meeting discussed and drew up the operating procedure for the handling of Deceased Estates. The Parramatta office has some VHS format technical tapes which may be borrowed. A list of titles may, by now, be on the Divisions web page. The Library, as most members will know is quite extensive with its range of publications, both magazines and books. However, little use is being made of it. This may be due to you not knowing what is there or you may have enough information in your own book collection. There is a detailed hard copy index system. It may be possible to make some of the index available via internet. Members are invited to indicate if they would make any use of an index service on the net. A lot of information may be found on the Divisional web pages. Check them out.

VK3 News

By Barry Robinson VK3JBR
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

A great effort and result

The amateur radio display at the Great Australian Science Show (GASS) 2003 was an enormous success, and a credit to those involved. Full story with picture is on inside back cover

LIPDs – time for action

The interference now being experienced by 70 cm repeaters from LIPDs (low interference potential devices) is adversely affecting the repeaters in several ways.

In VK1 a repeater constantly triggered by an LIPD reportedly resulted in its final stage failure. Among the other repeaters suffering LIPD interference are VK3ROU on Mt Dandenong, and VK3RPU at Arthur's Seat.

These last two WIA Victoria repeaters are also used for IRLP, but the LIPD problem will or has already resulted in the IRLP masters in Canada temporarily closing their node access due to the interference. The noise generated by LIPDs that opens these repeaters is unacceptable for the IRLP network.

The finger is being pointed at WIA Victoria to fix the problem. However, the only long term solution is for the draft revised 70 cm band plan to get approval so that the repeaters can be moved away from the LIPD allocation which currently includes repeater input frequencies.

Support for the new band plan has been received from VK1, VK7 and VK5, who agree with VK3 that a realignment of the repeater sub-band is required. But others don't agree basically because they don't have LIPD interference (yet).

There will be a cost involved in shifting the frequencies of the repeaters. WIA Victoria is of the view that the ACA should waive any charges related to site frequency coordination.

Attending club events

The Sunraysia Radio Club AGM in Mildura was a great opportunity to meet club members and talk about the issues affecting amateur radio in Australia.

The club is preparing itself for the new entry level licence expected to begin in early 2005, and looking at opportunities to promote itself in the local media. It has a regular item on the Mildura community radio station which is getting results.

WIA Victoria President, Jim Linton VK3PC was special guest at the AGM, and talked about EMR, licence reform and the end to the Morse code requirement for amateur licences.

The entry level licence was explained, including the expected requirements to be met to enable clubs to provide the training, assessment and mentoring aspects of the licence.

As part of WIA Victoria policy councillors will be visiting as many club hamfests as practicable.

Earlier this year WIA Victoria councillors attended the Healesville, Midland (Castlemaine) and Cranbourne hamfests.

A roster has been drawn up for the Shepparton Hamfest on 14 September, and Ballarat Hamfest, 2 November. Please visit the WIA Victoria table at these events, say "hello" and feel free to discuss any issue of concern or interest.

VK4 News

Qnews

By Alistair Elrick VK4MV

Sunfest

The Sunshine Coast Amateur Radio Club Hamfest will be held in the Woombye School of Arts on Saturday 13 September 2003, from 9 to 3. The venue will be open to exhibitors from 7.00 am with food and refreshments available from the kitchen. Entry fees are $5.00 single and $6.00 family. Table bookings are $15.00, which includes entry for two persons.

The hall is located in the centre of Woombye township just 100 metres from the railway station. Ample parking is available. Entry ramps provide easy access to both halls. A talk-in service will be provided on 146.850 MHz FM. Call VK4WIS for assistance. Further enquiries to the Co-ordinator Sunfest, Ron VK4GZ. Phone 07 5448 4063.

'THE' Convention

North Queensland Amateur Radio Convention 2003

North Queensland Amateur Radio Convention will be held 19th, 20th and 21st September. At the TARC Management Meeting on 1st July, members appraised a number of issues regarding the plan to have part of the Convention as attending the Townsville Skyshow. Concerns included the costs of public risk indemnity, the logistics of getting hams through large crowds and a dislike of most hams to be situated in large noisy crowds. Once the concerns were reviewed it was decided to go with the traditional program.

The following are activity highlights of the NQ Convention: Friday evening 19th September - official opening of Convention at Centenary Hotel. Saturday 20th - registration, trade displays, lectures, demonstrations, home brew entry and judging, convention banquet. Sunday 21st September - QNEWS, WIAQ seminar, car boot sale, trade displays, monster auction. Attendees requiring accommodation need to book it NOW - it's a big weekend in Townsville during the Convention weekend and accommodation will be scarce.

A popular feature will be on again this year. The Car Boot Sale will be happening on the Sunday morning in the University Hall Carpark. It costs nothing to display your wares; the only condition is that you be colourful and outward going with your display. You have to talk it up and show some showmanship. That way you attract more prospective buyers ! It also costs nothing to come along and check out what's on sale.

Deadline for Convention registrations, which gets you access to catering, is August 29th.

The Convention info pamphlet and registration form, is available on request from vk4wit@wia.org.au or downloadable from www.wia.org.au/vk4

If you are travelling to Townsville for the convention weekend, consider also taking in the Central Highlands AGM the following weekend - details below or at http://www.vk4tub.org/charc.htm

Central Highlands ARC

This is the weekend after 'THE' Convention. The 2003 Central Highlands Amateur Radio Club AGM and Monster Auction will be happening at Camp Fairbairn near Emerald QLD from 5pm Friday 26th September to Midday Sunday 28th September.

Day visitors' entry fee is $6.60 (inc. GST) per person (5 years old upwards - under fives are FREE). For people wanting to stay Friday and Saturday night there is dormitory accommodation available at $13.20 (inc. GST) per person per night - supply your own sheets, blankets and pillows.

A pay-as-you-eat BBQ will be put on by the Club on Saturday Evening and a pay as you recover breakfast will be available Sunday Morning (costs to be advised - but please advise attendance for catering). Other meals are the attendees' responsibility.

Please do not arrive before 5pm Friday afternoon. If you arrive during school hours, you will be sent back to Emerald to while away the hours window-shopping!

Note that those attending in camper vans, mobile homes etc, will need to see the caretaker on site prior to setting up.

Note that Education Queensland, the operators of Camp Fairbairn, nor the Central Highlands Amateur Radio Club accept any liability for injuries etc. You attend responsibly and you are responsible for your own well-being.

Please send cheques or money orders for payment to - Gordon Loveday/ VK4KAL, details below. Credit Cards not accepted!

2 ways to get there:

Way 1. From Emerald, take the Road to Springsure, turn off at about 18km south (the way is well marked), travel a further 6.8km and turn IMMEDIATELY LEFT at the grid and then follow the bitumen road.

Way 2. Heading west from Emerald, turn left over railway near Industrial Estate into SELMA Road, you might need to call on VK4RSP 146.825MHz (-600kHz split) for final directions.

Keep going beyond the advert for Lake Maraboon Village Resort for about 3km. The Camp Fairbairn turn is on the right near the cattle grid.

We hope to hold the AGM, followed by the Monster Auction on Saturday Evening. Treasure Donations gladly accepted!

Need more info? Contact:
Gordon Loveday VK4KAL
Hon Secretary/Treasurer
Central Highlands Amateur Radio Club
C/- Aviemore, Rubyvale, QLD, 4702
Phone 07 4985 4168
email donvk4kal@bigpond.com

JOTA Planning

Scout groups in the Kennedy region and Guide groups in the Flinders region have started contacting their regular radio operators for the 46th JOTA, which is happening on the 18th and 19th October 2003.

Information to hand so far -

- Alice River Scout Group with operators Phil VK4HSV and Les VK4ALS operating at Alligator Creek Camping Grounds
- Kirwan Scout Group with operators Lyndall VK4ZM and Gavin VK4ZZ operating at Linger Longer - Camp Tarmaroo Bluewater.

Groups intending to operate with a specially issued JOTA callsign need to get the necessary paperwork in PRONTO to avoid disappointment !

73's from Alistair

VK6 News

73 Neil
VK6 QSL Bureau Manager.

The VK6 QSL Bureau has from time to time, shown some stats as to the number of QSL cards that have passed through it. The following are figures for 2002 and are read as follows...country/no. of cards recd/no. of deliveries for the year 2002.

JA/3603/12, DL/2730/6, UA/1653/7, W/1332/3, I/1080/2, F/683/1, SP/570/5, OK/470/3, 9A/450/1,

HA/403/2, SM/393/1, S5/352/2, PA.ON/369/3, LA/345/1, OH/280/1, G/255/1, A4/133/1, HL/125/1,

HB9/88/1, OZ/60/1, BV/53/1, EW/37/1, CT/30/1, PY/30/2, 9V/17/1, NZ/10/4, YL/7/1, VR2/6/1,

YO/4/1, Z2/1/1.

Unfortunately, a high percentage of the 15526 cards are not collected by the VK6 amateurs. This is no doubt due to many reasons, probably too many to list here. It would help the bureau if the incoming cards could be reduced in number by the amateurs stating that they do not send or reply to QSLs.

Of some interest is the "standing" on the ladder of the Bureaux that sent cards last year. You will notice that not all Bureaux are listed, as simply no cards were received from those not listed. It is not unusual to have cards delivered that may have accumulated in a bureau for two years before being posted. One package received recently from a European country had cards dated 1985! Perhaps the amateur had just got around to catching up with his QSLing.

Postage has increased in most countries and it is now commonplace to receive packages weighing 1, 2 or even 3 kilograms. As a rough estimate, about 300 cards weigh approx. 1 kilogram. The VK6 bureau posts its outgoing cards to the VK2 QSL Bureau for forwarding, VK6 does not generate enough cards to have economical postings, especially to the countries with which VK6 have very few contacts. Sending cards to VK2 incurs a cost for their handling, as well as posting to VK2. This procedure ensures that cards do not languish in the VK6 Bureau.

A plea to the VK6s who use the bureau.....when having your QSL cards printed, keep the weight at 3 grams or less per card. Do not laminate them, use lightweight paper, etc., as some societies are now using automatic sorting and the machines do not think like humans, yet. And another plea, write the callsign of the recipient on the back of the card, in legible printing. It helps in the sorting process.

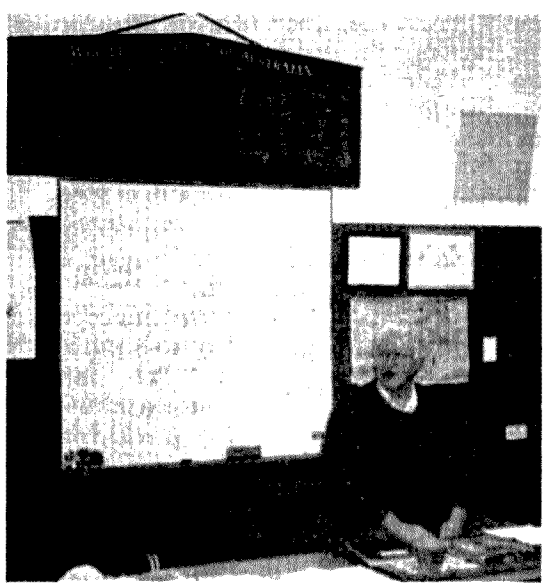
VK7 News

The last couple of months have seen some notable birthdays! Ted Burne, VK7GB celebrated his 90th and John Rogers, VK7JK celebrated his 80th. This has also highlighted VK7's oldest amateur in Pat Geeves, VK7GV who is 93 years young!

Branch Meetings/ News

The North West branch held a business meeting in August and had a good attendance. Tony, VK7AX and XYL, Rosemary have returned to Tassie and so the Monday night WIA Tasmania Branch and QNews rebroadcasts have resumed. These broadcasts can be heard on most of the Northern Tasmanian 2 metre repeaters at 1930 (local Tasmanian time). If you listen either in Tasmania or Victoria, to this rebroadcast then please call back to let the organisers know. The NW Branch also viewed the video of the Bob Whelan talk to the NSW Division on the UK entry-level licence. This caused some very positive discussion around the room. Altogether it was a very worthwhile evening despite the weather.

At this month's Southern Branch meeting Richard, VK7RO, the Divisional Historian entertained us with his comprehensive history of the Tasmanian Division. Richard has been compiling the history from minute books, newspapers, articles and talking with and documenting member's recollections. His talk started with A.H.Medhurst and W.P.Hallam contacting visiting warships in 1901. The first official meeting of the Tasmanian Division occurred in Hobart in February 1923. In 1924 the 1st AGM was very lively! A split occurred in the course of the meeting *"which some blood was spilt and a black eye told its tale"*. In 1925 the WIA Division was incorporated in Launceston and the AOCP examination introduced. In 1927 the PMG advised the bands were 8-10, 23, 32-33, 36-37 and 85-95 metres. In 1928 the WIA Federal Convention was held in Hobart for 5 1/2 days. This also occurred in 1935 & 1967.



Richard Rogers, VK7RO, WIA Tasmanian Division Historian giving an illustrated talk (see below) to the Southern Branch on the sometimes fiery history of the Division.

There are also a number of emergency events that are documented where amateurs helped authorities. The 1929 floods was one such occasion where 7DX, 7CW, 7HL, 7BQ, 7CS helped the PMG out with telegraphy. Another such event was in 1932 when 7CW, 7GE 7WM were commended for assisting when the Launceston to Melbourne cable broke down.

Field Days were the go and many were

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REMEMBRANCE DAY Contest

RD Contest 2003 address

Presented by Col Harvey, Group Captain RAAF Retired, VK1AU

Col was introduced by Ernest Hocking, VK1LK and Lt Commander Peter Ellis RAN, VK1KEP

It is 58 years since the WIA Council decided to honour amateurs who lost their lives in WW2. At that time most amateurs knew one another.

Then all were equal. You were either an Amateur qualified by the AOCP, or you were not!

Now it is only Old Timer octogenarians who have direct knowledge of some of those we honour tonight.

Our Honour Roll is not based on sacrifice, but on the spirit of ANZAC. It is about courage, endurance, and bravery in the face of dreadful odds.

The radio amateurs we honour grew up in post -depression years when money was scarce and most wireless equipment was scrounged or home made.

To be a successful scrounger amateurs needed to be observant, inquisitive, innovative, friendly and helpful to one another. There was a high level of mutual respect because all had taught themselves Morse and most were, by the outbreak of war, proficient enough to be of immediate interest to the military authorities, albeit for a pittance. Ten shillings and eightpence a day in the RAAF rings a bell.

Our Honour Roll is not based on sacrifice, but on the spirit of ANZAC. It is about courage, endurance, and bravery in the face of dreadful odds.

There are 14 men on the WIA Honour Roll who became silent keys through contact with an enemy.

Not forgotten are those who died by accident or of ill health. One was Cpl Phillips B.E.M, VK5BW, decorated for exemplary conduct and devotion to duty in the 2nd AIF in Syria. Then a Cpl., he carried tremendous responsibility. Working 20 hours a day whilst unwell, he refused to leave his post in charge of all wireless communications for 21 Aust. Infantry Brigade. He maintained contact with Navy, Cavalry, attached units, and Battalions of the brigade over a wide range of frequencies.

A radio engineer, he enlisted in the AIF as a Private returning to Australia as a Sgt. only to be killed in an Army vehicle roll-over accident in 1943. A sad loss to all concerned.

There is a story about a message supposedly passed to a Commander to the effect that his Company were "going to a dance" when what he expected to be told they were going to advance!

None of the operators we honour tonight would have allowed a signal to be signed out as "Received", or acknowledged with an "R", unless certain of accurate reception.

Insistence on accuracy was legendary amongst professional operators.

Then, unlike in today's computer world, "logging" On and Off required a signature carrying with it responsibility for documenting everything heard or sent on the watch frequency. Even "atmospherics" were logged, as Xs.

We tend to forget also, that, in the mid nineteen thirties, pre WW2, very few amateurs had a decent workshop and fewer still had test equipment. Torch globes often served as indicators of current flow, RF output and as fuses. Milliamp meters could be borrowed from the Institute Library in Melbourne. Temperature controlled soldering and resin cored solder had not been invented and soldering was often done in the family kitchen with a plumber's iron heated on a gas ring, using flux that looked like Marmite.

It is also easy to forget that in the early 1940s reliable voice capable ground to air equipment was not in military service. Decent airborne voice equipment was first heard in the RAAF when Kittyhawks and Dakotas arrived with Command and liaison sets.

Col Harvey VK1AU as Squadron leader, RAAF

In 1941 Wirraways tasked to defend Darwin, used a battery operated TRF Receiver with plug in coils.
The self- excited 2 stage transmitter required lead acid batteries for its filament supply.

Between his other in-flight duties, the wireless air observer often had to cope with decoding incoming morse messages, on his lap, using a mechanical Syko machine. Instructions for the pilot were passed by a tap on his shoulder preceding the passing of a scribbled note. Aircrew of that era were ordinary young fellows required to do an extraordinary job.

In war, those lucky to be in the right place at the right time, generally survived and sometimes scored a medal. In the wrong place at the wrong time and it was highly likely that your name would appear on an honour roll.

The Roll is an attempt to do justice to those young amateur radio operators who were executed, murdered, shot down or mistreated when POW's.

So when the RD contests opens, at 1800 EAST, and when it closes tomorrow evening, please remember these "Old Men" of the Australian Amateur Radio Service.

Please join me now in silent contemplation of the way in which these radio amateurs conducted themselves in the war supposed to end all wars, but didn't.

"Sgt J.A. Burrage 459 Sqdn (VK3UW).

ROLL CALL of Australian Amateurs who became "Silent Keys" as a result of contact with the enemy during WW2

Died during a flying battle over Sumatra".

"Fl Lt J.E. Goddard (VK6JG) 582 Sqdn RAF over France after a flying battle".

"Radio Officer N. Gunter (VK3NG). Killed when the SS "Kowarra" was torpedoed off Sandy Cape Q. with the loss of 35 lives".

"Cpl V.J. Jarvis (VK2VJ) 3 Squadron RAAF, Died in a Middle East ground battle".

"Gunner S.W Jones (VK3SF) Killed in action, Dutch New Guinea

"Lieutenant D. A Laws (VK4DR) "M" " Special unit, murdered by pro-Japanese natives near Saidor New Guinea ".

"Leading Teleg. J.E. Mann (VK3IE) one of 137 crew members of HMAS "Parramatta" who died when the ship was torpedoed in the Mediterranean ".

"Sgt J. McCandlish (VK3HN) 'M' Special Unit, Dutch New Guinea. Executed by the Japanese "

"F/ Lt P.P. Paterson (VK6PP) 24 Sqdn RAAF. Died after a flying battle near Rabaul".

"Telegraphist A.H. Rippon (VK6GR) Presumed Killed In Action when all aboard HMAS "Sydney" were lost".

"J.E. Snaddon (VK3VE) 459 Squadron RAAF. Died after a flying battle over the Mediterranean".

"Radio Officer R. P. Veal (VK3PV). Killed when MV "Neptunia" was bombed and sunk in Darwin Harbour".

"F/0 BR James (VK5BL) 76 Sqdn RAF. Died during a Halifax raid on Magdeburgh Germany".

"Signaller C.D. Roberts (VK2JV) Died while a POW working on the Thai-Burma railway".

"Lest We Forget".

The fate of David Laws VK4DR, "W Special Force WW2

Col. Harvey VK1AU ©

David Laws (VK4DR) was 30 years old in August 1940 when appointed to the New Guinea Service of the Dept of External Territories. At the time of the Japanese attack on Rabaul David was the Administration's Radio Superintendent. Also an Army Reservist, he was Lieutenant in charge of a platoon away from Rabaul when a decision was made to evacuate as many as possible by ship. Word of this did not reach Lieut. Laws and his platoon was left behind. Rations and a Teleradio were available to them. The group salvaged a boat hull and a truck engine from a plantation and within a month were able to set-off for Buna on the coast of Papua, only to arrive 200 miles further away near Sio. Supplies were airdropped to the party who subsequently walked into Bena Bena, and were then flown to Port Moresby.

After home leave to recover from this ordeal Laws returned to New Guinea to join a party of five who were to relieve a Coastwatch team operating near Saidor on the Papua coast between Madang and Finschafen. Law's role was to walk-in with the team, put the Coastwatcher's Teleradios in order and return with the relieved party. A graphic description of their 14 day slog over steep slopes and along rudimentary tracks can be found in Erie Felt's book "The Coast Watchers".

Three weeks after Saidor became a "M" Special force outpost it became a Japanese staging post for barge traffic between Madang and Lae- Salarnaua. The Japanese presence affected the native population; some openly assisting the Japanese by helping raid Coastwatch supply hideouts. Lieut. Laws, with Naval Lieut. Bell and a civilian left on the return journey to Bena Bena on 2 May 1943.

A casualty report in the Melbourne Archives Office says that "(Lieut. Laws) reported 19 August 1943 then missing 78 days". Murphy's Law ensured that Army Records Office staff read this as Laws reporting back to his unit on 19 August after having been missing 78 days! In fact since 5 May he had been in a bush grave near Sibog Village. When the grave was uncovered none of the three occupants were wearing "dog tags" but all wore Australian army boots. One was short and fair, another dark and bearded. The bearded dark man was well known in the Madang area and was readily identified as Lieut. Bell. The short and fair man was said to be a stranger who did not speak "pidgin".

As a Special Entry officer, David Law was not medically examined so his physical characteristics do not appear on his Army AAF D I record. Reliance had to be placed on circumstantial evidence as to who the "short fair man" might have been.

As a Special Entry officer, David Law was not medically examined so his physical characteristics do not appear on his Army AAF D I record. Reliance had to be placed on circumstantial evidence as to who the "short fair man" might have been. Much signalling and correspondence flowed before it was accepted that Lieut. Laws' casualty status should be varied from "Missing" to "Missing believed killed".

Given the nature of "M"' Special force operations "behind enemy lines", the location of the grave was suppressed even from Army LHQ. However, there is a report on an AWM File signed by the then ANGAU Legal Officer (Capt.

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A WW2 Casualty, VK3NG Norman Gunter

Col. Harvey VK1AU ©

The List of names read on-air each year before the start of the RD Contest includes Norman Gunter VK3NG son of the late Arthur and Cora Gunter. Here is part of Norman's life story.

Norman was instrumental in introducing me, then a 12 year old, to the world of wireless and to a career in radio. He was a First Class Commercial operator who built his own Amateur station equipment. It was at Norman's desk in 1932 that I first saw the hypnotic blue glow from mercury rectifiers and the magic of a torch globe brightly lit without benefit of an installed battery. It became my passion then to try and emulate his skills. Norman was 23 years old when he first went to sea as Wireless Officer aboard the SS "Kowarra". Seven years later he was to lose his life during his sixth tour of duty on that vessel. Pre-war he served aboard the "Koolinga" and "Lanena" and after WW2 broke out, aboard the "Fiona"; "Cardross"; "Mamoo"; "Nairana" and "Koonda".

In 1942 Norman signed on again aboard the "Kowarra" a single screw steamer of 2125 tons built in 1916. The vessel was owned by the Australian Steamship Company and managed by Howard Smith. Norman was on-watch at sunset 24 April 1943 when the ship was torpedoed by a Japanese " I" Class submarine, while en-route independently from Townsville via Bowen to Brisbane with a cargo of sugar. At 1835 Z while steaming at full speed of 8.5 kts near Sandy Cape Q. the crew felt a heavy thud below water on the starboard side between holds three and four. By the time the third Officer got on deck, "Kowarra" had listed to starboard and the main mast had fallen out of the ship, carrying away the wireless aerial.

By the time Engineer Mr. Clark reached number three hatch, the foredeck was under water. Just as he reached the boat-deck the ship's back broke and the bow rose to such an extent that the covers and beams fell out of numbers one and two hatches, smashing the bridge and wireless room. The boilers blew up and Mr Clark was thrown into the sea as the vessel sank by the stem about 45 seconds after the torpedo struck.

The Chief Officer (Mr G. Harley aged 50) who was on the bridge when the torpedo struck, started signalling with an Aldis lamp towards Sandy Cape lighthouse. He was last seen on the bridge still signalling as "Kowarra" sank. Unfortunately his frantic signalling was not seen by lighthouse staff.

Chief Officer Harley was eventually awarded a posthumous British Civil Commendation for this brave conduct, which cost him his life.

Of "Kowarra's" seven Officers and 24 men only two officers and nine men were rescued and then only through a fortuitous sighting by an U. S Navy ship 12 hours after the attack.

A U.S.N. vessel engaged in convoy escort was ordered to proceed to a ship at the tail end of the convoy. It was seen to be making for the wrong vessel, but when the Convoy Commander tried by signal lamp to correct it's heading, his signal lamp failed. The Commander was then puzzled to see his detached ship circling about 2 1/2 miles away off the port quarter of the convoy. At 0730 K he received a message saying that two survivors had been picked up. Then at 0820K there was a request for an aircraft to be sent to search for other survivors, saying that by then (13 hours after the sinking) only 11 of "Kowarra's" crew of 31 had been rescued.

The convoy commander (Lt. Sweet, USN) tried unsuccessfully for four hours to contact a shore station on 500; 4235; 8470 and 425 kcs. Finally at 1425 K he asked the merchant ship "Kurimba" to try and make contact. An hour later "Kurmiba" reported that the request for air search had been passed to Rockhampton on 500 kcs. Thus the request for air search did not reach shore until 21 hours after "Kowarra" sank. The first air search (by an Anson) *did* not start until *dawn* 26 April, 36 hours after the sinking. Had it not been for wireless communication failure (still unexplained) some of the missing crew might have been rescued, including a probably injured VK3NG.

A note on file shows that at the time survivors were picked up, the convoy was about 180 miles from Brisbane and 150 miles from Rockhampton, normally an easy daylight path for most of the frequencies tried.

The answer to what went wrong with ship to shore communications is on Navy file 2037/2/1462, which I have been unable to find in Archives.

Vale, Norman Gunter VK3NG

The fate of David Laws VK4DR

Continued from page 45

Selby) that reveals the truth of the matter. A party comprising Lieuts Bell and Laws, a half-caste named Otto Schultz and a native boy from Rabaul were to walk out across the Finnister Ranges to Bena Bena, a 14 day journey. Starting from a Coastwatch camp on a tributary of the Nankina River below Waibol, several days into the journey near that village, the party were attacked by natives with axes and murdered, their belongings being taken to the Japanese.

Justice appeared to have been done when five natives (three from Waibot Village) were sentenced to death for the murders. Another native was sentenced to 5 years imprisonment for instigating the crime. However on 13 October 1944 all sentences were commuted to five years with hard labour.

The ANGAU file covering the period July - October 1944 which would contain the reasons for a recommendation for clemency going to the Major General commanding New Guinea Force, cannot be found.

Lieut. Laws, VK4DR, the Radio Technician who attended to Coastwatch communication needs and understood their difficulties, was never replaced.

His remains were transferred from Sibog to Madang War Cemetery, then to Lae War Cemetery where they now lie under the inscription "His Countries Friend".

Vale David, VK4DR.

Amateurs who died while in the Services in the 1939 1945 World War

VK3DQ Morris J.D. VX16925 T/Maj AAMC 212 CCS. D 24/6144 at sea SWPA Accident

VK5BW Phillips J.G. BEMSX 2395 Cpl died 1/1/43 Army vehicle accident, Australia

VK6KS Anderson K.S. S/Sgt. Sigs Training Battalion. D 5/3/41 accidental drowning

VK2BQ Easton F.W. 429240 F/0 100 Sqdn. RAAF. D 5/3/44 when Beaufort A9-480 crashed shortly after taking off from Vivigani strip

VK2YK Abbott R.E 264204 (A)/F/Lt R.E. Abbott. D 16/11/43. A/c accident near Springshure, Qld.

VK2AJB Curle G.C 207732 Sgt 3 Sqdn D 17/3/41 in the Middle East as a result of a ground accident

VK3GO Stephens T. 418036 F/0 518 Sqdn RAF D 16/8/44. Died as a result of an accident in Scotland

VK30R Orr M.D 1700 F/0. AFHQ. D 29/7/41 at Kerang, due illness

VK3PI, Colthrup J.F 3485 F/0. 3 W.A.G. School. D 21/2/42 when Tiger Moth AI 7-19 crashed at Maryborough aerodrome Qld.

VK4FS Starr F.J 5085 AC 1. 23 Sqdn RAAF. D 12/8/40 in a flying accident off the Queensland Coast

VK4PR Allen R 404945 P/0 13 Squadron RAAF. D 1/1/42 when following engine failure, Hudson A16-29 dived into the sea off the Molucca Islands. 3 of the 4 crew members were killed

VK5AF Ives C.A. 300407 F/Sgt. Melbourne W/T Station. Died Ascot Vale 6/7/42 due illness.

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The RD Contest, when and why did it start?

Neil Penfold VK6NE.

Those who were around when the first RD Contest occurred are now 54 years older. That means there are many who have no idea of the when and why. So let the following enlighten you.

Although the inaugural contest was held in1948, the idea was born in 1947 in a motion brought before the Federal Council by the Queensland delegate attending the annual Federal Convention held in Melbourne. In the following year rules were drawn up by Bill Mitchell, VK3UM. A trophy was designed and subsequently manufactured by George Glover, VK3AG, and the perpetual date of the weekend nearest to the 15th August set aside as the period for the contest each year, representing the weekend nearest to "VJ" day, the day WWII ended.

Because the contest was decreed in memory of the licensed amateurs who gave their lives in defence of their country, it was aptly named the Remembrance Day Contest and the callsigns of those who died that we may live are permanently engraved upon the perpetual trophy which bears the name of the contest. The trophy itself is held by the division winning the contest each year.

That was written by Pierce Healy VK2APQ in October 1972, in Electronics Australia.

The trophy was in Darwin when cyclone Tracy struck and it suffered damage. It needed considerable repair and this was done in Adelaide principally by Ian Hunt VK5QX. The whole trophy was really transformed into "as good as new" condition with gold plating of the metal parts, the plinth refurbished and a second plinth added so that in future years, there would be space to add each year's winning division's medallion to the trophy.

It is possibly the most enduring and irreplaceable piece of WIA property.

I invite any member to write to AR describing the intense competition that took place between the Divisions of some years ago now. Yet then during the contest one would hear contestants stop occasionally to say "hello" to another operator that they had not heard since the last contest, asking how each other was, then plunging back into the contest. It was all fair and friendly, all Divisions and operators seemed to enjoy the contest and perhaps it drew the amateur fraternity a little closer together.

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Operation from Bomana War Cemetry

International Papua New Guinea – P29KFS Rick Warnet

Rick P29KFS brought a major enhancement to our Remembrance Day activities this year, in brief an operation from the Bomana War Cemetery with a field station on as many HF bands as possible.

The connections for many old timers in Aussie with PNG go back to WW2 and many of their mates still reside here – in the cemetery.

The callsign used was P29AIF in honour of the Australian Infantry Force. They were set up for the RD in a small building about 100 m inside the main entry gate to the left of the road. This has mains power and a convenient verandah, table and operating area. Nearby is a large tree with branches suitable to support the three dipoles for 40, 20 and 15 m and the intermediate support point for the multiband LW that terminated nearer to a tall coconut tree. The other ends of the dipoles were supported by a PNG made telomast, clamped to one of the vehicles parked a suitable distance from the tree. Planned frequencies were all P29 oriented, 1829, 3629, 7069 / 7129, 14129, 21229, 28290 with any CW ops just 29 kHz above the band edge. (Clever Rick... 29!) A BBQ fed the troops.

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Ham Shack Computers

Alan Gibbs, VK6PG
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Email: vk6pg@tpg.com.au

Part 29 –

Files and Data Backups

Checking Software

Assume you've recently bought a new, or acquired a second-hand computer. It came with "all the software" and seems to work quite well. Make a detailed list of the software that came in the package. Start with the operating system, then each program package one by one. The majority of modern packages are on CD-ROMs and very easy to catalogue.

Some of the disks might be supplied in paper envelopes and vulnerable to damage, some are not even labeled and difficult to find out what it actually does! Some new computer vendors might supply the disks, but the serial numbers of the software on the computer are different to that shown on the disks! The reasons are that the supplier loads the software from a file server being quicker for them to do rather than from individual CD-ROMs. So make sure you have EVERY software package you are entitled to and the serial numbers match correctly. For disks supplied in paper envelopes, purchase a quantity of Crystal CD cases, write down the identifying information and slide into the new case. Folding a narrow strip along the label can easily make a side-edge of paper. Remove the inner part of the case, insert the paper label and then clip the case back together. Now you'll be able to stack the CD's and see the titles rather than fumbling around like a pack of cards.

Old 1.2Mb floppy disk boxes are a handy means of storing CD's – that's if you can find them these days!

Handbooks are now a thing of the past. So-called "on-line" help files are part of, and written to, the supplied CD-ROMs leaving no option but to plug-in and surf around for answers to common questions.

Smaller programs like device drivers might be supplied on 1.44-Mb floppy disks. Make sure these disks are write-protected, and store them inside small floppy crystal cases available from 'Two Dollar Shops' in packs of five, and make paper labels to fit inside the boxes.

Software Backups

Backing up floppies is easy. 'Click' on My Computer, point to the 1.44Mb Drive A: then 'click' Copy Disk... and follow the instructions on the screen. The once common floppy disk is fast moving into the realm of obsolescence and backing up files and programs too large to fit on floppies has to be done using one of the following options:

- Removable Media like Zip or Jazz drives capable of storing 100Mb, 250Mb and up to 1Gb of data. These have become obsolete due to the high cost of disks. Each disk retails for upwards of $25 for a single 100Mb disk and about $180 for the Zip Drive to do all the work! At about $2.50/Mb upwards - NOT an option today.
- High-Density Tape backup systems used to be common place for copying whole computer systems. However, tape systems are long obsolete, unreliable, slow in operation, and extremely expensive to set up and maintain.
- USB Keys now come in a variety of sizes and shapes. About the size of a car key fob, these little 'keys' plug directly into a spare USB (Universal Serial Bus) socket. Storage sizes vary from 16Mb upwards depending upon the depth of one's pocket. They are ideal for portable use and primarily intended for business users rather than serious hobbyists. Nice to use and quite a gimmick for those who can afford them. Fine as a passing interest but the high cost-per-megabyte equation is not realistic for Ham Shack Computer use.
- Adding a Secondary IDE Hard Drive is a fine choice. The cost-per-megabyte is very low, and the added drive offers random access at high speed. Drives around 40-80Gb are cheap to buy ($130-$150), can be divided into discrete partitions, reliable, faster than floppies, Zip Disks, USB Disks, and leaves tape drives groveling around way back in the dust!

Hard drives are very simple to install and can provide the perfect back-up solution for the whole of your primary Hard Drive C:\ using Norton Ghost as a mirror. Readers wise enough to have purchased Norton SystemWorks, complete with Norton AntiVirus 2003, would already have the backing-up software ready to roll at no extra financial outlay. All round, a fine choice for wise readers following this series. Another advantage of adding an extra hard drive being that if C:\drive fails – swap drives and you're operational again.

It's cheaper just to add a replacement drive and everything is back to square one. For readers who think this is not an option, then wait until the one hard drive fails – then EVERYTHING has been lost in one go! All the software and documents must be replaced to a new hard drive which can take days to do (if at all).

- CD-R/W (Read and Write) Drives (3) offer perhaps the best dollar-for-dollar backup solutions these days. Modern computers already have CD-ROM (Read Only) drives installed as standard. Without CD-ROMs it would be impossible to install programs, look at photo images or play music CDs. Therefore it makes good sense to add a CD-R/W drive to the combo. Blank CD Read /Write disks are especially cheap to buy and capable of storing 700Mb of data for about $2 each. They are even cheaper if purchased in packs of five, ten or more including crystal cases. But for just $2 you effectively have

700Mb of storage on a drive that can be used like a floppy. Very cost effective because files can be deleted, added to, defragmented etc.

- CD-R (Read Only) means that you can write data once only – then read back. In other words once only record but you can read them as many times as you like. At about 50-cents each including narrow crystal cases, or cheaper if bought as 'spindles' of about 25 or 50 disks in one go, but you'll need to also buy the crystal cases for later storage and protection. Unlike the CD-R/W disks, they cannot be overwritten, but files can be added until the disk is full. However, at such a low price, backing up programs and files is easy, once updated backups follow, throw away the old and replace with the new and swap the cases!
- CD Notes and Tips but first a few words about cases. There are two types of cases, the standard crystal case and thinner versions called the compact case. Making and fitting labels inside the standard case is easy with Nero CD Burning Software (2). Readers lucky to own colour printers will be delighted by the professional results, and the ability to write title information on the wide edge – easy for library stacking CDs with the standard case. But the thinner compact is more difficult to label except for the flat face and lacking a wide edge. Slim cases take less storage room and are nice to use. If you end up with a pile they are difficult to sort through because each disk has to be pulled from the pile to see the front face. It's all about personal choice and cost.
- Nero Software is a dream to use with options to copy data and/or music CDs. Whole directories, individual files, pictures, music and computer programs can be preselected from the dual directory display just like the old Norton Commander days. Drag and Drop files one-by-one during the selection process. Nero saves the "image" with the help of a disk usage strip showing how the proposed storage is filling the newly inserted CD-R disk. The "burning options" can be modified, reviewed, added to, and subtracted from - until personal satisfaction is attained. If all is well, 'click' the 'BURN CD" and let Nero finish the job for you. Nero also offers label wizards and the design tools for you to produce professional looking labels for the sides and front/back of standard and slim crystal cases, and round annulus shaped labels used as "stickers" to the top sides of CDs.
- Planning Backups should be done seriously otherwise you'll end up with a huge box of CDs that is difficult to sort through in an emergency. Most users will save their files in a sub-directory of My Documents. This whole directory as well as the sub-directories can be dragged and burnt onto a CD-R/W disk each week. If downloaded files and programs are regularly grabbed off the Internet, these can be placed to another CD-R/W CD called "downloads" or whatever. Files from popular magazine CDs can be added to other CD-R's called "Programs" and so on. Within a few weeks, you'll end up with specific CDs for specific functions used in your own environment. If they are nicely labelled and stacked – that's good news. Coloured cases could be used for specific jobs like – RED operating systems, GREEN documents, BLUE for programs, ORANGE for photographs etc.

Summary

This edition lightly covers the problem of backing up computer stuff just in case misfortune should strike. Don't leave backup disks where they can be mislaid, eaten by the dog or pinched by the grand kids. A locked, metal filling cabinet is ideal, and in the case of mission critical situations, in another building in case of fire etc. Businesses already do this anyway just in case their computers get stolen!

Setting up a high-density backup system for less than $100 including spare CDs is an offer too good to refuse, AND all those grubby floppy disks can now be relegated to the bin. Remember that about 600, 1.44Mb floppy's can be saved to ONE CD-R for a cost of around 50 cents (the cost of posting one letter anywhere in Australia)! Really folks – do you have a choice, or are you one that can't be bothered? Well if you don't bother about backing things up, try reading issues 10, 12, 13, 16, and 24 of Ham Shack Computers once more. Imagine losing your entire electronic logbook with over 20 years of entries, DXCC, awards records...and more thanks to just one mains power surge – Yuk!

Remember – Slim cased CD-ROM's with all published Ham Shack Computers articles, including copies of the featured software described in the series are available from the writer at $10 including packing, postage anywhere in Australia or New Zealand. CWO only by post with enclosed $10 for each disk required please.

Ham Tip No. 29. Coloured Dymotape™ is great for slim case edge labels.

Ham Shack Computers, Part 30 – 'Programming the Icom ICQ7A/E' If you've ever tried to do this by hand, now try it the easy way instead.

References:

(1) Ham Shack Computers Web:
http://www2.tpg.com.au/users/vk6pg
(2) Nero CD Burning Software at:
http://www.nero.com
(3) 52x24x52x CD-R/W drives at:
http://www.liteonit.com

73's de Alan, VK6PG

- ar

Silent Key

Ted Beard VK7EB

It is with regret that we announce the passing of Ted Beard VK7EB.

Ted was born in 1924. He became a silent key on 26 July 2003.

Ted served in the Royal Australian Navy during World War Two and became an amateur radio operator in 1959 as VK7ZAU. A couple of year later he became VK7EB. Ted was always willing to contribute to amateur radio and the Institute and was Divisional Secretary from 1990 to 1994. Our condolences to Ted's wife and daughter and close friends.

Vale Ted.

Justin Giles-Clark VK7TW

Club News

North East Radio Club

The August meeting of the North East Radio Club was held on Friday 8th. It was attended by about 30 club members. The meeting commenced with business, followed by light refreshments. The speaker for the night was Keith VK5OQ who discussed Fox Hunting techniques and equipment. He demonstrated the HB9CV antenna and a highly effective receiver. There is renewed interest in fox hunting of late. The club intends to follow up with some practical activities using this mode. It is also a means of encouraging new members into the ranks.

The weekend of the 9th and 10th of August was the Rally of SA. The NERC club along with several other clubs, individuals and friends provided voice and packet communications for the Rally. Twenty four stages over the 2 days meant involvement of over 60 people. The weather was cold but not too wet, until the last stages on Sunday. Thanks to all the people who gave up their time to help, but also gained experience in portable operation.

Club members were successful in the last examination, with David Fisk being the latest to get his new call sign, VK5HJC. Others passed in some of the subjects. Congratulations to all. The club will run its next exam on Sunday September 21st. All enquiries to Peter Watts VK5ZFW.

NERC meetings are held on the Second Friday of each month at the Ardtornish Primary School, Saarinen Ave St Agnes. The club is starting a construction night on the 4th Friday of each month. August 29th will be the first, it is planned to modify computer power supplies to provide 13.5V at 20 amps. Brian VK5VI will lead this night. A small charge will be made for parts.

73s David Clegg Hon Secretary. vk5amk@chariot.net.au

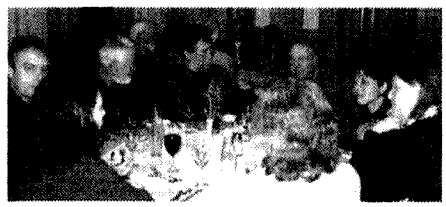
Adelaide Hills Amateur Radio Society

This month we can only report that our Mid-year Dinner was a great success. Despite a number of members being on the road heading North there was a good roll-up. Approximately 60 people enjoyed good fellowship and a good meal.

There is some publicity for the club in one of the local newspapers, "The Hills Courier", the article was prepared by Rob VK5RG. Hopefully there will be some inquiries about amateur radio and about our club, as a consequence, but only time will tell.

Thank to Dave VK5NU for the photo(s).

A good program of lectures has been planned for the rest of the year. Anyone visiting Adelaide is welcome to come to a meeting on the third Thursday of each month at 730 SAST at Seymour Road Blackwood.



Bass Amateur Radio IRLP Group Inc

Nicholas Brasch – author of *Communication in Australia through Radio and Television*, will be making a guest appearance on VK3IRL (date to be advised) discussing his book.

There are 5 books to be given away during the broadcast and all you have to do to be in the running of one of these signed copies is to put your Name, Address and Call Sign on the back of an envelope and mail it to BOOK GIVEAWAY, VK3IRL, P.O. Box 368, Rosebud, Victoria, Australia, 3939.

For more information contact Graham VK3JBO.

Phone/Fax: 61 3 5982 0315

http://www.barirlpg.cjb.net www.qsl.net/vk3irl

Wagga Amateur Radio Club

Wagga Amateur Radio Club are again the hosts for the Riverina Field Day. This is one of the longest running Field Days on the Amateur Radio Calendar and alternates between the Twin Cities club in Albury Wodonga and Wagga.

The date has been changed to hopefully attract some better weather and this year it is being held on the Labor Day long weekend in NSW. October 4 & 5.

Saturday will be quite busy with the NSW WIA Council meeting in Wagga Wagga for the first time during the Saturday afternoon. That will be followed by a smorgasbord dinner at the clubrooms for the modest price of $20.00 and catered by the Wagga Commercial Club. The cut off date for dinner numbers is Monday 29 September.

On Sunday, doors open for the public at 9am and along with free cups of coffee and tea you will find a good array of pre loved and new equipment along with the NSW WIA Bookshop. Seminars running during the morning include a talk on Weak Signal communications. If there is enough interest some foxhunts will be organised.

The club is looking forward to hosting this event as well as welcoming old and new faces from around south eastern Australia.

For more information or to book tables and dinner ring John VK2YW on 0269265471 or e-mail to vk2yw@wia.org.au

Contest Calendar September - November, 2003

Sep	6/7	Worked All Europe DX Contest	(SSB)	
Sep	13/14	PNG Independence Day Scramble	(SSB)	(Sep 03)
Sep	27/28	CQ/RJ WW RTTY DX Contest		
Oct	4/5	Oceania DX Contest	(SSB)	(Sep 03)
Oct	5	RSGB 21/28 MHZ Contest	(SSB)	
Oct	11/12	Oceania DX Contest	(CW)	(Sep 03)
Oct	18/19	JARTS WW RTTY Contests		
Oct	18/19	Worked ALI Germany Contest	(CW/SSB)	
Oct	19	RSGB 21/28 MHz Contest	(CW)	
Oct	25/26	CQ WW DX Contest	(SSB)	
Oct	25/26	CQ WW SWL Challenge		
Nov	3	High Speed Club Contests (	CW)	
Nov	2/3	Ukrainian Contest	(CW/SSWB/RTTY)	
Nov	9/10	OK/OM DX Contest	(CW)	
Nov	16/17	LZ DX COntest	(CW)	
Nov	23/24	CQ WW DX Contest	(CW)	
Nov	23/24	CQ WW SWL Challenge	(CW)	

Results CQ/RJ WPX RTTY Contest 2003

(VKs only Call\score)
Single Operator, All Bands, High Power
VK5GN 178,366
VK6GOM 148,410
Single Operator, All Bands, Low power
VK3DBQ 88.804
VK2CZ 3,424

A Cry For Help!!!!

It must be obvious to all readers that these notes are not being properly maintained. This is because they need a loving carer.

Could you help?? We need someone to compile the monthly notes, contest results and organise rules for publication. Please, if you can help have a word with the AR Editor, Col. Low, at edarmag@chariot.net.au or Ian Godsil on phone 0408123557.

2003 Oceania DX Contest Rules

From Brian Miller ZL1AZZE Contest Manager

Special Notes:

- Single-Op Single Band logs are to record ALL contacts made by the station - both on the band chosen for the entry and on any other bands. (2002 rule change)
- Further information on the contest is available from the Oceania DX Contest web site at 7/25/03.

THE AIM: To promote HF contacts with stations in the Oceania region (VK, ZL, Pacific Islands and other locations within the IARU "Worked All Continents" Oceania boundary).

Contest Periods:

PHONE Contest: 0800 UTC Saturday 4 October to 0800 UTC Sunday 5 October

CW Contest: 0800 UTC Saturday 11 October to 0800 UTC Sunday 12 October

Bands: 160 m - 10 m (no WARC bands).

Entry Categories:

Single-Op	Single Operator, All Bands or Single Band.
Multi-One	Multiple Operator, Single Transmitter, All Bands.
Multi-Multi	Multiple Operator, Multiple Transmitter, All Bands.
SWL	Short Wave Listener (Receive Only) All Bands.

Exchange:

RS(T) report plus a three or four digit number starting at 001 and incrementing by one for each contact. Multi-One entries are to use a separate serial number for the Multiplier station. Multi-Multi entries are to use a separate serial number for each band.

Multiplier:

The number of different prefixes worked. The same prefix may be counted once on each band for multiplier credit. A prefix is the letter/numeral combination that forms the first

part of the amateur call.

Contact Points:

All entries score twenty points per contact on 160 m; ten points on 80 m; five points on 40 m; one point on 20 m; two points on 15 m; and three points on 10 m. The same station may only be counted once on each band for contact points credit.

Final Score:

The sum of the contact points from all bands multiplied by the multiplier.

Electronic Logs:

These are preferred, especially for logs containing more than 50 contacts. These should, where possible, be submitted in the Cabrillo format. The Cabrillo log file must include both an accurately completed header (containing the summary information) and the QSO log data. All of the fields in the Cabrillo header must be completed except for the ARRL Section, Power, Category Overlay and Soapbox lines. See the Oceania DX Contest web site for information about the Cabrillo format requirements.

If you cannot submit a Cabrillo log, then you may submit the plain ASCII text output from most of the popular logging software such as TR, CT, NA, Writelog etc. All non-Cabrillo logs must be accompanied by a separate summary file in plain ASCII text - see the requirements for paper log summary sheets below. All electronic log files must be in plain ASCII text. Log information in columns is to be separated by character spaces - do not use Tabs or other formatting characters for this purpose.

File names are to include the call sign used during the contest and an appropriate file extension - e.g., ZL2WB submits a Cabrillo file - it should be named ZL2WB.LOG.

The files are to be submitted as an e-mail attachment or posted on a 3.5" diskette. Only one entry is to be included in each submission. Files sent via e-mail must be sent as attachments, not as the text of the e-mail. Send the files to phoctest@oceaniadxcontest.com (for phone entries) or cwoctest@oceaniadxcontest.com (for CW entries). Do not zip files. The E-mail message subject line must include the entry's call sign, Mode (CW or PHONE), entry category and the word "OCEANIA" in the Subject line.

Diskettes are to be posted to: Oceania DX Contest, c/o Wellington Amateur Radio Club Inc., PO Box 6464, Wellington 6030, New Zealand with the entry's call sign, Mode (CW or PHONE), entry category and the word "OCEANIA" clearly marked on the front of the package. Diskettes are not returnable.

If an electronic log is not possible then paper logs in the following format are acceptable. Include additional columns showing the contact points and new multiplier prefixes claimed against individual contacts. Show multiplier prefixes for the first time that they are worked on each band. Duplicate contacts must be clearly shown - Do not delete duplicate contacts. Each paper log is to be accompanied by an alpha/numeric checklist of claimed multiplier prefixes worked on each band plus a summary sheet.

Official log sheets and summary are available at the contest website or by sending a SASE to the address below with sufficient postage. If official forms are not available then you may make your own in accordance with the general requirements outlined above. Post logs to the above address. Only one entry is to be included in each submission.

Deadline - All logs must be emailed or postmarked NO LATER than 16 November 2003. A list of logs received will be posted on the contest website.

Awards (ZL)

Top entrant from Oceania in Single Operator All Band Phone category - Ron Wills, ZL2TT Memorial trophy sponsored by ZL2GI, ZL2AL, Wellington Amateur Radio Club and NZART.

Additional awards are available for Australia, Asia, North America and others may also be applied at the discretion of the Contest Committee.

Brian Miller ZL1AZE
for Oceania DX Contest Committee

The PNG Independence Day Scramble

13/14 September 2003
Saturday 00:00Z to Monday 00:00Z

I. Period of Operation: 4x2 hours sessions

Stations may operate for 4x2 hour sessions. Off times must be a minimum 4 hours and clearly marked in the log. For example:

Sat 1400-1600 (20M), 2100-2300 (80M)
Sun 1000-1200 (15M), 1900-2100 (40M)

II. Purpose: Promotion of PNG and Amateur Radio in PNG

To promote the awareness of Papua New Guinea as a nation and encourage friendly participation of amateur radio operators in PNG while improving SSB operating skills across the amateur radio bands.

III. Objective:

The object of the contest is for PNG amateurs to contact as many other amateurs in different countries and DX zones (1-40) around the world during the contest period.

IV. Bands of Operation: The 3.5, 7, 14, 21 and 28 MHz bands may be used.

Stations may use only the 3.5, 7, 14, 21 and 28 MHz bands. In order to minimize band disruption and to make it more convenient for stations who wish to participate the following frequencies in each of the bands will be used.

80 metre	3.560 -3.600	
40 metre	7.050 -7.100	
20 metre	14.175 -	14.250
15 metre	21.175 -	21.250
10 metre	28.450 -	28.550

V. Terms of Competition:

Only PNG Amateurs will be eligible for entry but stations contacted during the contest will have the opportunity to confirm PNG as a QSO contact or qualify for the PNGARS (Papua New Guinea Amateur Radio Society) Bird of Paradise

Award (details below). QSL cards will be specially printed to show the QTH's of the stations participating.

VI. Rules:

Single Operator Only:

1. Stations will operate as a Single operator station at which one person performs all of the operating, logging and management of the station's equipment.
2. All entrants must operate within the privileges of their license. Transmitters and receivers must be located within a 500 metre diameter circle and all antennas must be physically connected by wires to the transmitters and receivers used by the entrant.
3. On-air periods must not exceed 2 hours and only 4 periods of transmission are permitted. Only one transmitted signal of a maximum power not exceeding 100 watts is allowed at any time.
4. Duplicate contacts of stations are permitted if the stations contacted have not been previously logged on the band in use. That is, each station must be logged only once on each band of operation.
5. If a station ceases to operate after commencing an on air period it will count as 1 of the 4 on air sessions permitted.
6. The contestant must work the same band for all of the 2 hour period.
7. Each contestant must work at least 3 separate bands during the contest. The fourth band of operation can be of the operator's choosing. It may be a band already worked or a band not worked from the list above.
8. The submitted log will be under the control operator's PNG callsign.
9. A second operator of a lower license class is permitted for a period of up to 2 hours during the contest. These periods can be broken into smaller blocks during any of the 4x2 hours sessions the operator chooses to compete. PNG second operator regulations will apply. This should give more experienced and qualified operators the opportunity to assist a younger or less experienced operator to participate in the contest and be elmered into amateur radio.

VII. Exchange:

RS(T) report will consist of the usual reception and strength (5/9) as well as the DX zone number in which the station is located. For PNG the report will be 5928

VIII. Contact Points:

Contacts between stations will be awarded points on the following basis as determined by the band of operation.

10 m = 2 points
15 m = 1 point
20 m = 1 point
40 m = 2 points
80 m = 4 points

The total points scored for contacts during the contest will be the sum of all points from the contacts on each of the bands operated.

IX Multipliers:

The total number of zones and countries worked across all bands will act as independent multiplier values for the contestant's score.

ie Total score = Total contacts points x Total Zones x Total Countries

IX. QSL Cards:

Stations may apply for QSL cards for bonafide contacts. A self addressed envelope and a suggested donation of US$2.00 for postage and handling of cards is requested. (No IRC's please. They don't have the same value here.) A card should be written for each station contacted for which a confirmation is required. The suggested donation will cover all contacts needing confirmation- ie: US$2.00 covers 1 or 10 QSL cards providing they are posted in the 1 envelope.

Cards requested through the bureau for the contest will be handled in the usual manner but it will be the responsibility of the operator to reply.

Contest related QSL requests for cards should be sent to:

P29KPH Peter
PO Box 384 UKARUMPA EHP 444
PAPUA NEW GUINEA

X: Bird of Paradise Award:

The Bird of Paradise Award is conferred on Amateur Radio operators around the world who are able to provide evidence of confirmed contacts with 5 P29 operators in 3 separate provinces of PNG. A certificate acknowledging that the holder has met the requirements of the Bird of Paradise Award is sent to successful applicants. Stations meeting the Award requirements can apply for the certificate and relevant QSL cards after the contest. The processing of the award has a US$5.00 handling and postage fee. The contest provides the opportunity for stations worldwide to succeed in working enough P29 stations on the same weekend to qualify for the award.

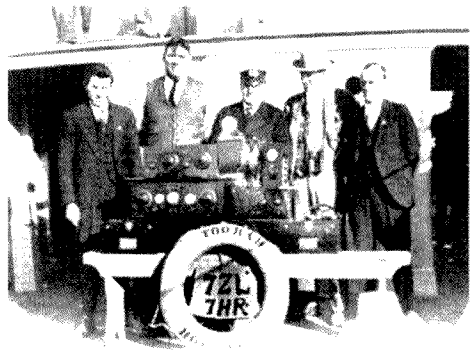
ar

VK7 News

Continued from page 33

held all over the state complete with dapper stripped WIA blazers that were obligatory for these events! There was constant rivalry between the North and South and as one of the clubs became more active it would take over and the Divisional HQ would move between Hobart and Launceston.

1939 saw Col Wright, (now VK7LZ and still an active amateur) reconstruct the Northern zone and the minutes record a vote of thanks. This year also saw the start of WWII and the Division went into recess and was reactivated in October 1945 in Hobart with about 12 members. Sometime between 1947 and 51 the WIA in the NW becomes active. In 1951, VK7 won the RD contest. In 1958 the Division met in the club rooms in Liverpool St, Hobart and the antenna mast can still be seen today! In 1961, Grote Reber became a full member and the Division went into the radio construction business, building and supplying ambulance and fire brigade radios and accessories. The 60s saw the rise of VHF and foxhunts and field days were very popular.



The WIA assisted the ABC on several occasions. Above far left is Trevor Watkins, 7DX and far right, Lon Jensen, 7LJ from Devonport, aboard the Marine Board vessel, Toorah, to broadcast descriptions of the Hobart Regatta in 1929. 7ZL was the ABC station and 7HR the Hobart Radio Research Club Station callsign.

Many thanks to Richard for a very entertaining and illustrated talk demonstrating the Tasmanian Division's rich history. See the VK7 website at www.wia.org.au/vk7 for more historic pictures.

73, Justin Giles-Clark, VK7TW

Silent Key

Cec Bardwell

I note with regret in the June issue of AR that Cec Bardwell has become a Silent Key.

I was one on many hundreds (thousands?) of present day amateurs who were able to pass their theory test by using the correspondence course so ably provided by Cec and the NSW Division. And therin lies a tale.

I always had a bit of an interest in radio right from my school days, but never got past the crystal set and one valve radio stage.

In PNG in the early 60's, I was a young surveyor and, at that time, at the start of the satellite age, the Americans wanted to connect their islands in the North Pacific to Australia, staging through New Guinea in a fairly extensive geodetic survey using airborne radar ranging. This was to make tracking of their satellites more accurate. I was attached to a US Air Force Unit that was doing a reconnaisance for their many mountain top stations in PNG. Because of the electronic nature of the project, one of the party was a amateur, whose call I could never remember, but whose name was John Keith. John got me further interested in amateur radio, and told me about things such as HeathKits, which were a real boon for budding home constructors in those days.

At the conclusion of the attachment, I went on 3 months leave, and ended up in at my mother's house in Brisbane after a month, wondering what to do with the rest of my leave. So, I started to try to find where I could get some tuition on the theory of AR.

The Marconi School of Radio seemed to be a good bet. So, off I wrote. Got the usual letter back extolling the virtues of the Marconi School, all very good, and the fee level, all very bad. But, there was a postscript to say that the WIA, NSW Division, had a course that might more suit my interests in amateur radio. Well, it might be a lot less expensive so, with nothing to lose, off I wrote, and got a letter back giving me the information, fees etc, all of which were more at my level. So I started on that course.

It was not until some months later that, for some reason, I had both letters open, and the penny dropped. They were both signed C.E. Bardwell. He was of great assistance to me in getting my theory up to speed, and his written comments on my papers was of great benefit. I met him personally only once, when I was returning through Sydney after my honeymoon on the South Coast of NSW, part of which was spent doing the course papers. My wife still puts up with amateur radio.

He is a great loss to Amateur Radio.

Brian Mennis VK4XS, formerly VK9BJ, P29BJ.

Bill Magnusson VK3JT

PCsat may be Permanently QRT

"We were hoping she would make it to the 17th – 31st July full sun period, but the last packet captured was 7 days prior, on about the 10th of July".

Thus announced Bob Bruninga a few weeks ago. There was more than just a touch of sadness in Bob's announcement. PCsat was "his baby". It was conceived in the US Navy's Cadet College, built by Bob's students under his supervision. He continued, "Our other command stations report the same". "My guess is that one or more of the NICAD cell's finally shorted, reducing the voltage below our low-voltage cut-off circuit which was designed to protect one side from a failed battery on the other.... and in the end game, to shut it up for good". It seems that there is still a little life left in PCsat. The last few days before writing this column reports have come in of stations connecting briefly and recording some telemetry. The writing is on the wall however. PCsat has been a successful experiment in "unproto" satellite digital communications. It was launched on September 30th 2001 making it almost 2 years old. It has been operating at less than potential for some time due to damaged solar cells at launch making power management difficult. Bob has another similar satellite undergoing tests at present. He posted the following information a few weeks ago. "PCsat2 prototype is on the air in Annapolis, Maryland (USA) and may be workable out to about 10 miles. We invite anyone in range to please experiment with its three transponders:

APRS/UI digipeater (145.825 up and down)

PSK-31 transponder (10m SSB up 435.250 down)

FM Voice repeater. (145.800 up 437.975 down)

See: http://web.usna.navy.mil/~bruninga/pcsat2.html for further information on PCsat2. Of course this was just a local experiment but it gives an indication of some of the services to be offered by PCsat2.

More on the "S.C.R.A.P" software package

In the June 2003 column I reviewed a brand-new satellite tracking program called "S.C.R.A.P".

The author Bill AA6ED has posted an update on the AMSAT-BB giving details of new features included in the program as a result of feedback from users. Bill is obviously burning the midnight oil on this software and it could develop into something that will be embraced by many amateur radio satellite enthusiasts. Best of all - he is putting the program into the public domain - it's free! You can download a Power-point presentation of the software at:

http://www.rtty.com/bytheway/SCRAP

The program itself can be downloaded at:

http://www.rtty.com/bytheway/SCRAP/download

SCRAP is similar to Analytic Graphics STK, Aerospace SOAP, Predict and InstantTrac software, with the exception that it is truly Windows based, has been tested on Windows 95, 98 and 2000.

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000 UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034

Graham's email address is:
vk5agr@amsat.org

DX Operation on AO-40

With the sunspot cycle on the way down we can expect to see DX working on the HF bands become more and more difficult and unpredictable.

At similar times in the past, AO-10 and AO-13 in their turn provided a platform for good DX operation at times of low sunspot activity. As a result a lot of HF folk joined the ranks of satellite operators. AO-40 is in a prime position to repeat this feat. The last month or two has seen an upsurge of DX working on AO-40 and many DXpeditions have been including AO-40 portable stations on their wanderings. Some very rare call areas have been activated. As an example Jim, K0SBH reported the following. "The 7P8NK DXpedition in Lesotho was active this past week on AO-40 CW and SSB. Starting Monday, 28 July 2003 they will be relocating to Swaziland as 3DA0WC. They expect to be operational from the new location for 4 days and will be operating AO-40". That announcement is enough to whet any DXer's appetite.

Possible return of UO-22

Chris Jackson has indicated that UO-22 may not be dead after all.

He informed the BB that new software had been uploaded to the spacecraft and it was expected that it would respond - at least when not in eclipse. I haven't had a chance to check it out at the time of writing but we can live in hope of seeing this 'old faithful' return to service. It will be great to have at least one 9600 baud digital bird operating again.

continued next page

Silent Key

John Kerr Tutton VK3ZC

1914 – 2003

John, known as 'Jack' to his sisters, passed away at Cabrini Ashwood on 13 March 2003. He had been in ill health for some time following a stroke, a quadruple bypass and a motor accident. He was not able to go out unassisted.

John became an SWL in 1928 and obtained his AOCP on 24 May 1932 aged 18 years. He was a very keen CW operator, and an enthusiastic competitor in the Commonwealth Contest (BERU). He was also a great advocate for this contest, and persuaded many others to participate. He had never married, and amateur radio was one of the greatest pleasures in his life. Educated at Xavier College Melbourne, he was secretary of the Old Xaverians Amateur Athletics Club for 50 years. He was awarded a plaque by The International Union of Modern Pentathlon - Distinguished Service Award for 50 years service to the sport. On one occasion he broke a leg when pole vaulting. John's civilian career was devoted to the Sun Alliance Insurance Company.

John and his close amateur friend Jim Hunt VK3AZY of Cheltenham, with the assistance of the athletic association, once walked a 38 foot oregon aerial mast from Hawthorn to Camberwell. Jim has taken possession of this mast; he has also taken over John's old call sign of VK3ZC.

John, having been a member of the pre-war Militia, enlisted in the 2nd AIF, and joined the unit that became the 2/12 Field Regiment. He retired as a Major at the war's end. He was 'Mentioned in Dispatches' during his war service. He was a 'Tobruk Rat' and served at El Alamein , New Guinea and Borneo. John became President of the 2/12 Field Regiment Association, and was awarded Life Membership in 1988. He was a prominent figure, resplendent in uniform, leading his comrades down St Kilda Rd in the annual ANZAC Day march.

He became member number four of the Radio Amateurs Old Timers Club, and served as a committee member for many years. His knowledge of DX matters was very useful during his proof reading contribution in the production of Amateur Radio magazine.

John's sister Betty, who was a war widow, passed away only a fortnight later than her brother, so his surviving sister Margaret has had to cope with a double tragedy. Sympathy is extended to her. Margaret wishes to express thanks to all who gave John friendship over the years. John was one of nature's gentlemen, and will be greatly missed by all who knew him.

Graham Thornton VK3IY

AMSAT continued

FEC - the Way to the Future of Amateur Satellite Telemetry

Peter Guelzow DB2OS presented a paper on the use of Forward Error Correction (FEC) with AO-40 telemetry at the recent AMSAT-UK colloquium.

He went out of his way to thank Phil Karn K9AQ for his persistence in "pushing" FEC as the right system to ensure better copy of the AO-40 telemetry under very adverse conditions. To quote Peter "It is one of the best things, for Amateur satellites, to be developed in the past 20 years. My congratulations to Phil, Peter and the whole implementation team that helped bring this about and another thank you to AMSAT VP of Operations Stacey Mills W4SM for modifying his telemetry program, so that we all may use the FEC operation. Ron VK5AKJ spoke very highly of the new system on the AMSAT-VK net last month. He was able to get perfect copy from the 400 baud PSK telemetry beacon on AO-40 with very simple antennas, even when squint angles were much less than optimal. Full details including Windows based software is available for download from the AMSAT-NA web site.

ECHO takes shape

Dr Tom Clark W3IWI gave the following details of a meeting held last month to review the progress of AMSAT-OSCAR-ECHO.

"On August 5th, Dick(W4PUJ), Rick(W2GPS) and Tom(W3IWI) met with Mark(N4TPY), Dino(KC4YMG) and Bob(WA3WDR) at SpaceQuest to review the progress on the "core" of AMSAT-OSCAR-ECHO. First off — the big news: Dino (who is coordinating the launch arrangements) informed us that the launch date is set for March 31, 2004. The planned orbit will be ~800 km high and sun-synchronous. A total of (up to) ten satellites will ride to orbit. During the meeting we were able to view and exercise all the critical SpaceQuest-provided hardware systems arrayed as an open "flat-sat" on the bench for testing". Tom advised operators to look at this web site. http://www.pbase.com/tomcat/amsat_echo where you will find some selected photos of the hardware. He continues, "First you will see all the modules (except for the tray that will house the S-Band transmitter) laid out side-by-side on the bench. As a reminder, the trays are about 7"x7" in size and stack one on top of another to make up the cube-shaped satellite. One of the most exciting new innovations in Echo is the "programmable" attitude control magnet. In the past Microsats, gross attitude control has been achieved with fixed bar magnets — the attitude control magnet on Echo will "swap" the up/down faces of the satellite between users in the northern/southern hemispheres".

Spotlight on SWLing

Robin Harwood VK7RH

Sorry, I was wrong

I have to commence with an apology for recently writing that various clandestine stations targeting the Horn of Africa were coming from transmitters in Austria. Wolf Harrath, the recently retired DX Editor emailed me from the Austrian Radio (ORF) in Vienna to protest and yes I was wrong. It always pays to double-check my copy before sending off to the editor. Glenn Hauser who edits the World of Radio over various shortwave senders and Martin Schoech of the Clandestine Radio Watch also pointed out my glaring error. I should have said that most of these clandestine stations to this particular region seem to be from Juelich in Germany.

Saving RFPI?

Yet another shortwave station may be history by the time this column is printed. You may heard Radio for Peace International from Costa Rica on non-standard frequencies adjacent to the 7 MHz amateur allocation, or on 15040 or 21845 all on USB. This station is located on the campus on a UN sponsored University for Peace in Costa Rica yet has been independent from it. Programming was mainly from alternative political and social groups in addition to some daily UN broadcasts. Most of these alternative groups are left of centre. Apparently the station never bothered to register their transmitters or frequencies with the Costa Rican government because they claimed to be on UN territory.

Recently the university administration changed their policy with a new chancellor and decided to overhaul the university and relations between the campus and RFPI deteriorated. The Costa Rican government was also annoyed when RFPI commenced broadcasting locally on FM without asking permission from the government first. In late July, the university placed armed guards and locked the RFPI studios and buildings, which were not owned by the university although on campus. Also a letter evicting RFPI from the campus was sent. There is a standoff with some locked in staff continuing to broadcast over shortwave and others unable to cross the locked gates. Also the station has been denied access to the Internet to download their programming. At present all I am hearing is appeals to save the station and asking supporters to protest to the UN Secretary-General.

Unusual station

I am hearing a very unusual station on 5924 LSB from approximately 1200 most nights. It is broadcasting in a Chinese language probably Mandarin with three figure groups. I was tentatively able to identify the language from my Microsoft Encarta CD/ROM. There is a female announcer who gives out these numbers in a rather singsong voice. Each of the groups seems to be preceded by letters from the English alphabet eg MIT APN. I initially thought that the transmission was in an Indochinese language because there is a station on 5925 AM in Vietnamese from 1230 which turns out to be a shortwave relay of the Voice of Vietnam's Domestic Service from Hanoi. I have no idea where this numbers station is originating from although some are speculating it is from Taiwan.

South Pacific

HCJB-Australia has recently retimed their evening South Pacific release and frequency to avoid co-channel interference from WYFR. They are now on 11750 instead of 11770 commencing at 0800 till 1200. They also have commenced a morning release from 1800 till 2030 on 11765 but it seems to me to be very bad timing, as it would be from 4 am till 6: 30 am EAST. This may be better when daylight saving is in, but the target is of course NZ and the Pacific Island and not necessarily Australia.

Well that is all for this month. ***Don't forget*** you can email any news or comments to me at vk7rh@wia.org.au.

Robin VK7RH

Silent Key

Eric Vidler VK2ZEV

Birrong Sydney NSW

It is with regret that I have been informed of the passing of Eric VK2ZEV April 2003 in Sydney.

I first met Eric in 1953 while attending Newtown Tech School. I became interested in Amateur radio, my uncle owning DEITCH BROTHERS army disposal store in Oxford Street, Sydney. Also living in Marrickville a few doors from well known amateurs at the time, Ted VK2ABO and his brother Alf VK2AVI, was a good start to my long career in amateur radio. As Eric was working as a radio tech for ACE radio in the St. Peters store down the road from the School I was attending , we became good friends as I used to call in to the shop each afternoon after school.

After obtaining my AOLCP VK2ZXC, I soon became very interested in 2 and 6 metres prior to the establishment of repeaters. While Eric and I were modifying 522 transceivers for 2 metres and Farmer mobile am radios for 6 metres, we became frequent operators along with other 6 and 2 operators, to name a few: VK2ZVL, VK2ZVW, VK2ZGB, VK2ZDW, VK2ZIM, VK2ZTM, VK2ZSK, VK2ZAU. Eric was self-employed and worked as a TV technician for the best part of his working life living at Birriong western part of Sydney.

Norman Deitch VK2ZXC

HF Predictions

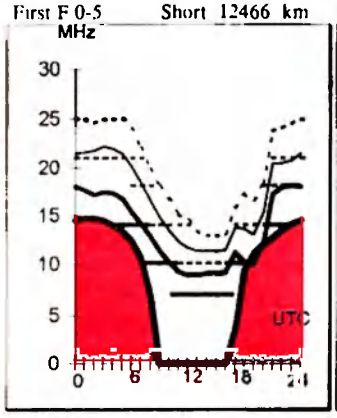
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

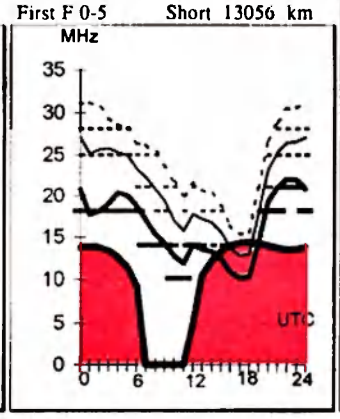
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

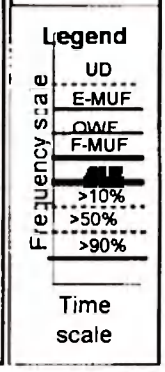
Adelaide-Anchorage 30
First F 0-5 Short 12466 km



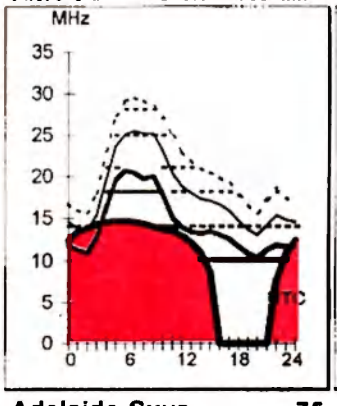
Brisbane-Lima 122
First F 0-5 Short 13056 km



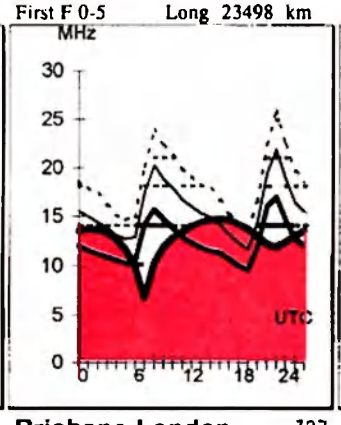
September 2003
T index: 56



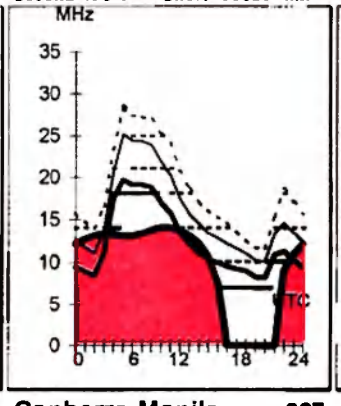
Adelaide-Budapest 305
First F 0-6 Short 14908 km



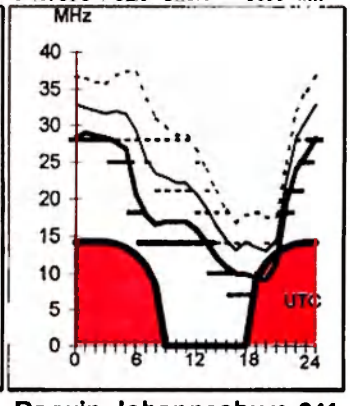
Brisbane-London 147
First F 0-5 Long 23498 km



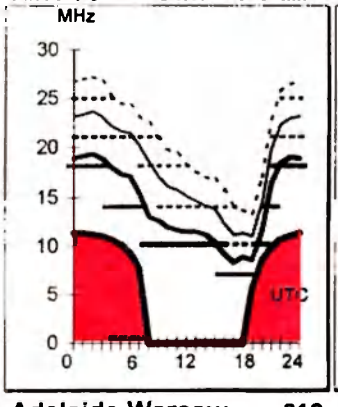
Canberra-Lusaka 239
Second 4F3-5 4 Short 11620 km



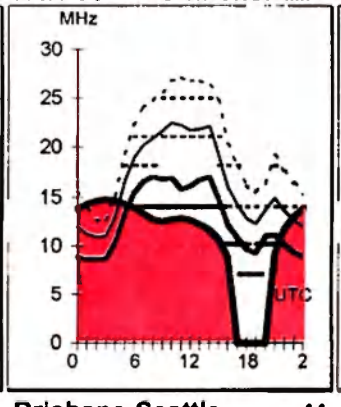
Darwin-Honolulu 65
First 3F3-7 3E0 Short 8635 km



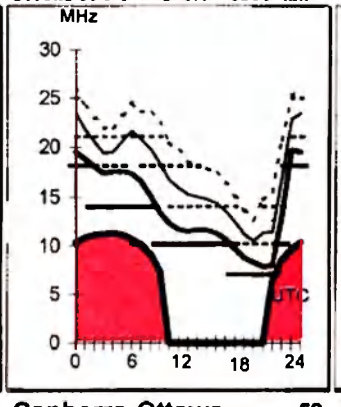
Adelaide-Suva 75
First F 0-5 Short 4340 km



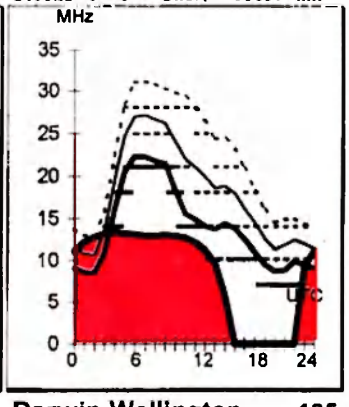
Brisbane-London 327
First F 0-5 Short 16526 km



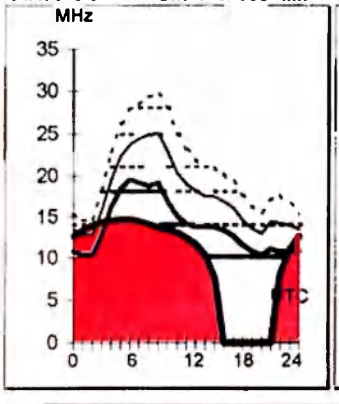
Canberra-Manila 327
Second 3F8-14 Short 6286 km



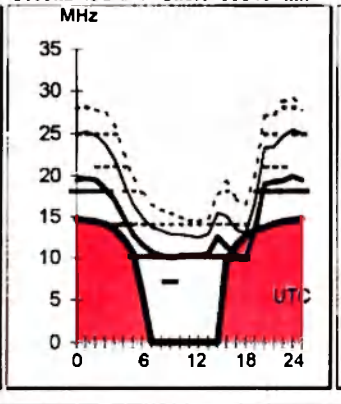
Darwin-Johannesburg 241
Second 4F4-6 4 Short 10639 km



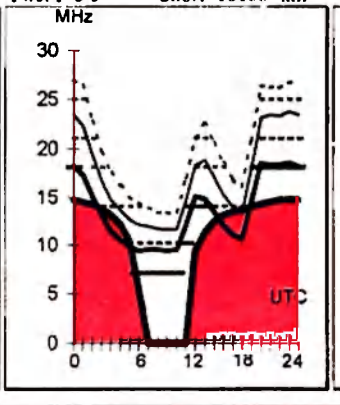
Adelaide-Warsaw 312
First F 0-5 Short 14818 km



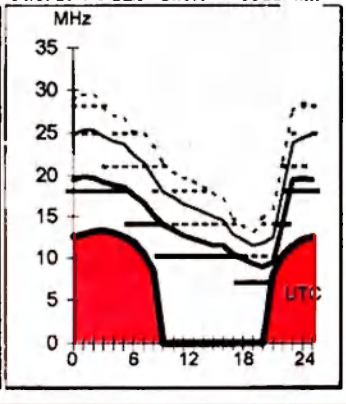
Brisbane-Seattle 44
Second 4F2-6 4 Short 11846 km



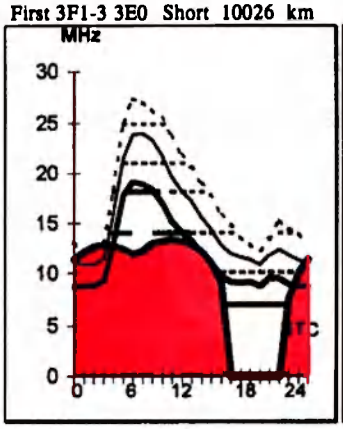
Canberra-Ottawa 59
First F 0-5 Short 16100 km



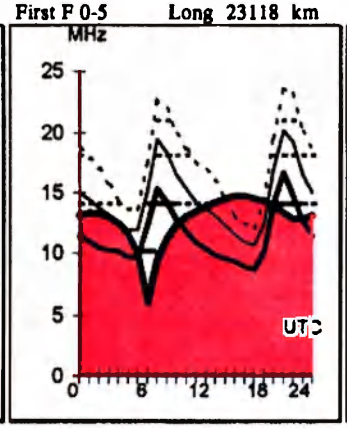
Darwin-Wellington 135
First 2F4-6 2E0 Short 5322 km



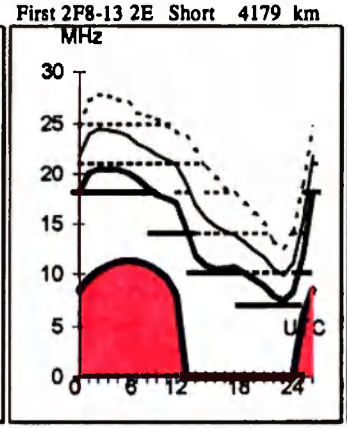
Hobart-Capetown 220
First 3F1-3 3E0 Short 10026 km



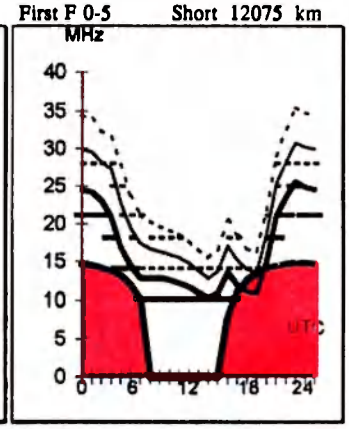
Melbourne-London 131
First F 0-5 Long 23118 km



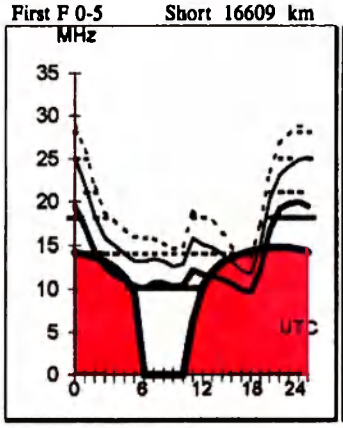
Perth-Kuala Lumpar 336
First 2F8-13 2E Short 4179 km



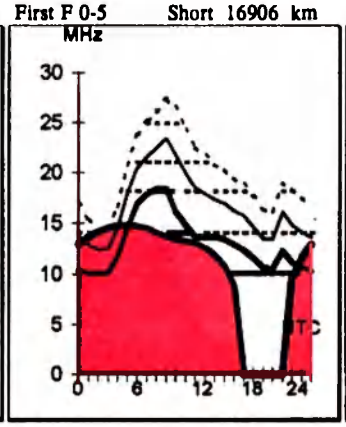
Sydney-Los Angeles 61
First F 0-5 Short 12075 km



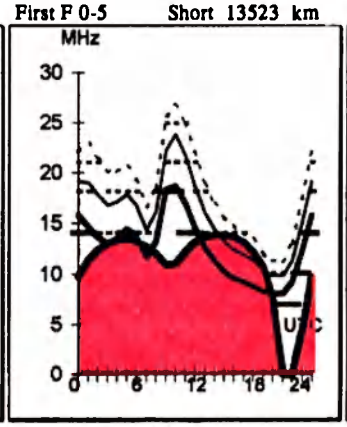
Hobart-New York 80
First F 0-5 Short 16609 km



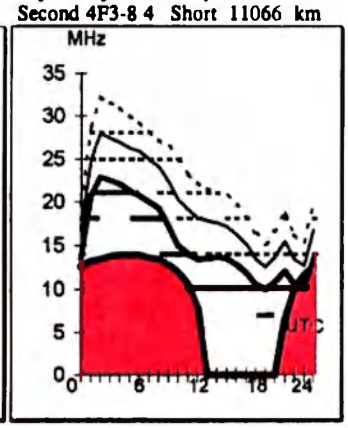
Melbourne-London 311
First F 0-5 Short 16906 km



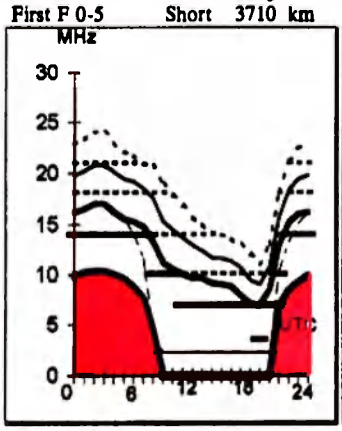
Perth-RiodeJaneiro 203
First F 0-5 Short 13523 km



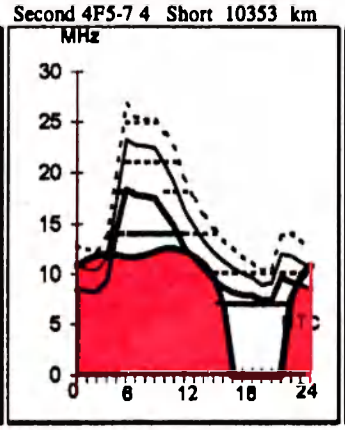
Sydney-Rawalpindi 304
Second 4F3-8 4 Short 11066 km



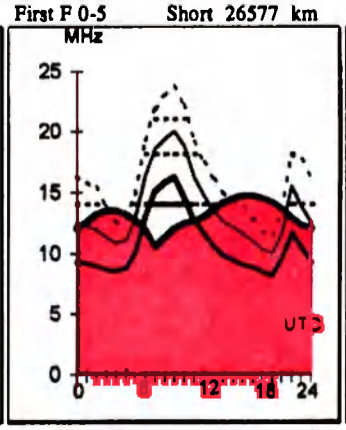
Hobart-Port Moresby 360
First F 0-5 Short 3710 km



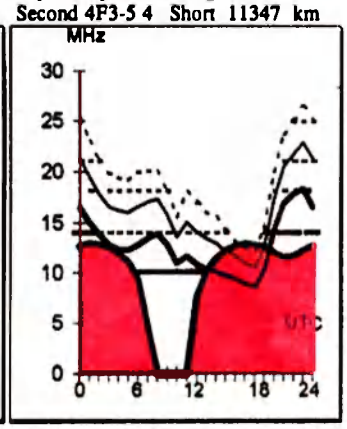
Melbourne-Pretoria 234
Second 4F5-7 4 Short 10353 km



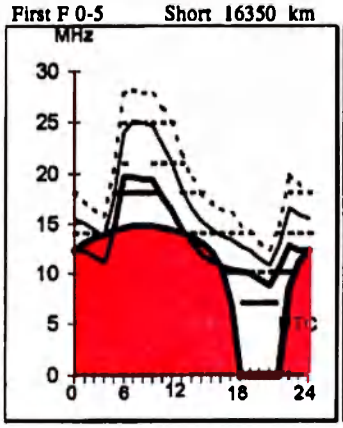
Perth-Stockholm 144
First F 0-5 Short 26577 km



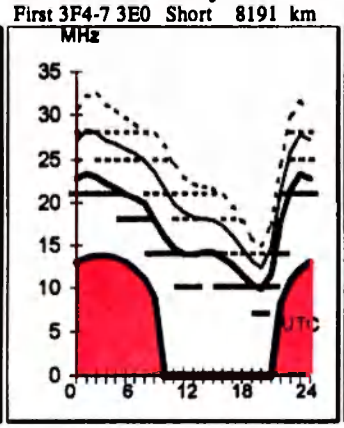
Sydney-Santiago 145
Second 4F3-5 4 Short 11347 km



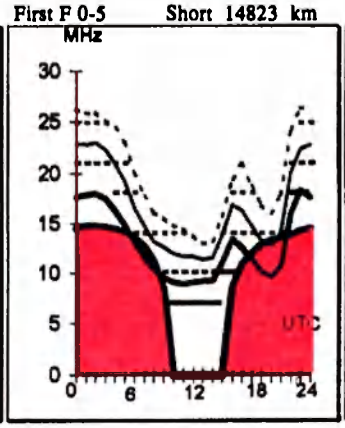
Hobart-Rome 284
First F 0-5 Short 16350 km



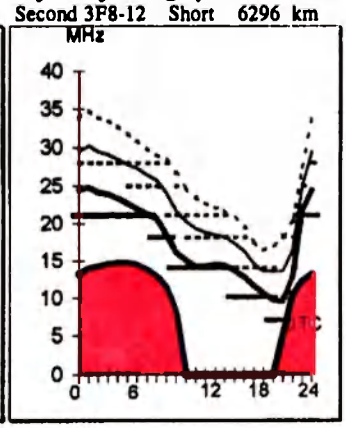
Melbourne-Tokyo 356
First 3F4-7 3E0 Short 8191 km



Perth-Vancouver 50
First F 0-5 Short 14823 km



Sydney-Singapore 298
Second 3F8-12 Short 6296 km



VHF/UHF - An Expanding World

David Smith VK3HZ vk3hz@wia.org.au
Leigh Rainbird VK2KRR vk2krr@telstra.com

Weak Signal

The generally poor band conditions on 2 m were brightened by an opening from Melbourne to the west on the evening of July 18th. Richard VK5USB to the north of Adelaide, Bill VK5ACY on Kangaroo Island and Roger VK5NY in Adelaide were worked by a number of stations in Melbourne and further east. This opening was exactly as predicted by the Hepburn VHF/UHF Tropospheric Ducting Forecast site (www.iprimus.ca/~hepburnw/tropo_aus.html) so it's worth keeping an eye on things even in the colder months.

Speaking of propagation predictors, a presentation given at the recent GippsTech conference sparked the interest in this area. Jim VK3ZYC spoke of using weather radar anomalous propagation as an indicator of band conditions. The web site www.weatherzone.com.au provides almost realtime weather radar information from around Australia (you do have to register first). When conditions are good, the radars can receive anomalous returns from long distances displayed as activity on the Lightning Tracker screen. However, there is no corresponding cloud cover shown on the Current Weather screen. These anomalous returns are due to reflections from much more distant objects being returned to the radar during the following pulse period. We need some good conditions so that this can be examined in more detail.

Robbie VK3EK with his Wednesday evening Net on 144.150 is still attracting a crowd and it is good to see some newcomers appearing on the SSB end of the band including David VK3ZDR in Geelong and Mike VK3UBM in Hawthorn. Mike initially came up with his FT-817 into a vertical whip in his flat and was able to work the Melbourne stations but no further. The next week, encouraged by the results, he'd built a 3 element beam and managed to work down to Moe. Who knows - before long he might have 4 x 13 el and an AM17 – we can only hope!

Rex VK7MO has also joined in on the Wednesday evening activity, although in a different way. He will be active most Wednesdays from 2030 AEST beaming towards Melbourne using JT44 on 144.225 or 432.225. He has already managed to consistently work Chas VK3BRZ, David VK3XLD and Charlie VK3FMD on 70 cm.

EME

Following Guy VK2KU's words on EME and digital modes, there have been a number of people enquiring about EME operation. There is an excellent article called "Getting Started on 2 Meter EME" written by Bob Kocisko K6PF and available on the net at www.gm4jjj.co.uk/K6PF/k6pf.pdf. The references in the article also point to a number of other excellent EME web sites from the likes of W5UN, N1BUG, GM4JJJ and others.

One thing to consider before diving into building and erecting an EME-capable station is the band on which you will operate. While 2 m seems to be the most popular band, at least in terms of active operators, 70 cm should be given careful consideration. Whether you are building or buying equipment, 2 m and 70 cm are probably on par. However, on 70 cm, antenna arrays are smaller and less visually dominating (important in an urban environment), TVI is less of an issue (again important with the neighbours) and the sky is much quieter. It's worth considering.

Microwave

There seem to be lots of construction projects happening at the moment – possibly something to do with winter. A number of 10 GHz operators in Melbourne and Gippsland are following the lead from the Western Districts and are building gear for 24 GHz. This was helped along by the appearance recently on the US EBay site of a number of 1 W 24 GHz amplifier modules. A bulk lot of these amplifiers has found its way to VK3 and will be put to good use. All have now gone unfortunately.

Stations in North America are exploiting a different form of propagation enhancement to extend their operating distances. VE4MA in Winnipeg recently worked W0ZQ/0 in Minneapolis on 10 GHz rain scatter over a distance of 635 km. Severe thunderstorms were occurring at the time in northern Minnesota in a direct line between the two stations. Signal reports varied between S7 and S9 with the typical rain scatter (aurora like) tone. This contact appears to be a new US to Canada 10 GHz record. The Australian 10 GHz record currently stands at 1912 km for a contact between VK5NY/5 and VK6KZ/6 in 1994.

PLAN AHEAD

Jambouree On The Air JOTA 18 - 19 October

2 m & 70 cm FM DX

What an adrenalin rush it is to come home in the evening, switch the transceiver on to find repeaters, many hundreds of kilometres away, being received full scale on the meter.

This is what happened when I arrived home on Friday evening, 18th July. This is one duct opening I won't forget, and being the middle of winter, it was most exceptional. As soon as the radio was switched on there was a signal from the Ararat 2 m repeater (410 km) which was full scale. After the scan resumed the radio stopped on 146.900, Mt Gambier (630 km) which was S9+20dB, just magic. More on this opening later in this month's report.

It was reasonably quiet during July in the southeast and I have had no reports from other corners of the country.

In the evening on Wednesday the 9th July there was slight enhancement around central VK3 and a duct showing in eastern VK5 areas. Brian, VK5ZMB in Gawler reports good 70 cm conditions across the two Gulfs to Port Lincoln and into Berri on 2 m. David, VK5HDW in Millicent was able to get to Ararat on 2 m and also reported good 70 cm conditions.

The big one for the month began building up from around Monday the 14th with good high pressure cells dominating the weather charts, and clear skies with relatively calm days. A front moved through around Tuesday night but was kept relatively confined to the south and luckily dissipated quite quickly. Conditions were slightly enhanced most of the week and things remained calm enough so the duct was able to reach a workable level on the afternoon of Friday the 18th. Some great signals were passed between a number of stations taking advantage of the rare conditions.

VK5ZMB Brian reports that from his QTH near Adelaide he was able to work a number of 2 m repeaters across Victoria, including Mt.Macedon, Ararat and a few other Melbourne repeaters. These work out at around the 600 km mark for Brian, who has just recently got his 8 element vertical yagi in the air, which already seems to be paying dividends. Brian was also able to work simplex on 2 m to VK2KRR near Wagga at 764 km and reported hearing the Wagga 2 m repeater but being unable to work it.

Contact was made simplex from John VK5NJ in Mt. Gambier to VK2KRR near Wagga on both 2 m and 70 cm (632 km), with received signals from VK5NJ peaking at 5/6 on 70 cm and 5/7 on 2 m. A great effort from John who I believe was running only an omni directional antenna on 70 cm, whereas I was running a 27 element ATN yagi.

The only other significant simplex contact I heard of was between Greg VK5THA and VK2KRR. Greg is located in Northfield, near Adelaide; this was 771 km and the furthest simplex contact noted.

Most distant repeaters worked on 2 m from here at VK2KRR were VK5REP at Cowell on 146.800. At 961 km this was rather difficult to access and only lasted about 5 minutes. Aside from this, Port Augusta VK5RAE was relatively easy to get with 5 watts at 910 km. VK5RAH was quite good at 747 km using only 6 watts. Mt. Gambier at one stage was easy on only 2.7 watts at 630 km.

A good run on 70 cm repeaters using only a single ATN antenna produced great results. VK5RAD in Adelaide on 438.575 (764 km), VK5RSB in Summertown on 438.125 (760 km) and VK5ROH in Mt. Gambier on 438.575 (630 km) could all be accessed.

A path to at least one area of VK5 was present all through the night and most of Saturday, weakening significantly at 11am. Weak signals persisted from the likes of Murray Bridge, Lobethal and Port Augusta most of the afternoon until, at 7.30 pm, they were gone.

Its great to hear of a growing number of stations getting the DX bug and organising new antenna set-ups and experiments to further improve their station ability; including VK2PDW in Wagga, VK3EME in Bendigo, VK7HDM Gagebrook, VK1TB in Canberra and VK3HGC in Wangaratta.

FM DX Season Tally Competition Logs are being accepted during the first week of each month. If you are just starting out or updating your existing tally, please send it by email to vkvhffmdx@bigpond.com. You can also view the updated tally table at www.users.bigpond.com/vkvhffmdx. With enough log submissions we will print some results every few months in AR mag.

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Silent Key

Doug Sim VK4BP

All of us at the Sunshine Coast Amateur Radio Club were greatly saddened to hear of the sudden death of our fellow club member, Doug Sim, VK4BP, on the 23rd of May, 2003. Doug and his XYL June, VK4SJ, were on a DX-pedition to the Cook Islands, when Doug was involved in a head on collision between his motor scooter and a van.

For most of his working life, Doug was an electrical engineer officer with the Merchant Navy. He worked on bulk carriers, container ships and oil tankers, such as the BP Enterprise and the BP Endeavour. He was delighted to obtain the call VK4BP, which was a constant reminder of his happy years on the BP Tankers. Together, Doug and June shared their Ham Radio interests, which took them to many parts of the world, visiting and playing host to many of the friends they made "on air".

Doug left us doing what he enjoyed, in a place he really loved. He leaves behind a host of happy memories and a life well lived. Our deepest sympathy is extended to June, Anthony, Andrew and the family. Vale Doug Sim VK4BP.

Opinion

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Examining the examinations

This article relates to the examination process for Amateur Radio operators. It also highlights the need for change in the process in order to improve access and convenience for Amateur Radio Examination candidates.

The existing system:

The present system for Amateur Radio examinations has been in place (with few changes) since the process was passed to the W.I.A from the then Dept. of Communications. The process now relies upon a relatively small number of registered examiners to stage exam events, at infrequent intervals, in conjunction with various Clubs and Zone.

A person, having studied the exam syllabus, may then express a desire to attempt one of the theory or regulations exams. That person must then make contact with a certified Club or Zones and apply for an exam.

In some areas these exams can be conducted for individuals upon request. More typically, that person must wait until several candidates can apply so that a multi-candidate event can be staged. This usually implies a wait of 1 to 2 months. The minimum notice for an exam event is approximately 10-14 days so that applications can be processed and exam papers ordered and dispatched. After the exam event, the typical response time for the marking and dispatch of the results is around 21-28 days. (Much longer if the papers are being marked over a Christmas break.) Then, once all appropriate forms and photographs are sent to the ACA, a successful candidate must wait a further 14 to 21 days to receive their Operators License.

Consequently, a candidate must wait between 56 and 100 days before they can get on air *if they are successful.* Unsuccessful candidates may have to go through this 56 to 100 day cycle several more times before all subjects are passed. Notwithstanding the difficulty level of the exam, the *actual exam process* is the biggest disincentive we have for people contemplating the acquisition of an Amateur Radio License.

A major change in the examination process is needed, and it should happen in conjunction with the other proposed license changes presently being considered.

What I propose is this:

- We retain (or expand) our present list of examiners with the various clubs and divisions.
- An Internet site is established with a range of on-line exams for both theory and regulations. These will be real exams with on-line marking facilities, but they can only be conducted by the authorised examiners.
- To stage an event a PC with simple web cam attached to the USB port is needed. The web site is accessed, a (modest) fee is collected from the candidate, the examiners check the candidate I.D., they enter these details (with their individual passwords) into the system, along with a head & shoulders image from the web cam of both the candidate and the examiners. The Web-Exam is then conducted under examiner supervision, similar to the way it is supervised now and a Pass/Fail result appears on screen.
- If they fail, the attempt is logged with the web site and the candidate can try again at the examiners' convenience. The next day or week – whatever.
- If they pass, they get to select a callsign from the on-line database and a 14 day license falls out of the adjacent printer, complete with photo. The successful candidate then leaves the ACA license fee with the examiners, signs the appropriate form and goes home with a valid callsign.
- The examiners then forward the completed application to the WIA federal office, who retain an exam fee, confirm all identities (with the pics on the screen) and simply forward the license application portion to the ACA who generate a formal certificate & license to post to the candidate in the normal fashion. (The ACA would probably prefer to receive these applications as a regular bundle from a single source rather than intermittent correspondence they receive now from around the country.)

With such a system the workload in the W.I.A federal office is greatly reduced, as other than collecting statistics they only need to perform a small amount of work processing *successful* candidates. Exam events can be far more spontaneous, requiring a lead time that is limited only by examiners' convenience. Exams could be held in the corner of a Club meeting venue, a Hamfest sale or special event. If Internet access is difficult, most provincial libraries would be cooperative in providing the quiet on-line environment needed to stage an exam. (Many libraries encourage this sort of use of their resources.)

This will make a *big* difference to the number of exams being held, for less workload. Even when candidates fail, there will be reduced stress and tension as they walk away with the result, rather than waiting a month for news of failure.

(Over many years I have seen the present process infuriate many genuine would-be amateurs to the point that they have walked away from the entire hobby in disgust.)

Another aspect of this proposal is the additional interest it will generate. Amateurs pride themselves on embracing new disciplines, Internet based exams would be an example of sensible use of this new technology.

The difficulties involved are minimal and the return, in the form of more licensed amateurs, would be achieved without affecting the integrity of the process or the subject matter.

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Leading the horse to water doesn't necessarily make him thirsty

53 years of involvement in and with amateur radio doesn't automatically confer the wisdom of Solomon on a contributor to a debate which in part, and one way or another, has been going on since the mid 30s. Back then amateurs were arguing whether it was best to make your own components, or buy factory made gear such as was available. The subject is peripheral to current licensing argument but the connotations have a familiar ring.

Messrs Linton and Harrison have (April AR) mounted a detailed but simplistic view that updating syllabi and throwing open amateur bands will, in some miraculous way, entice newcomers to the hobby — somewhat analogous to going to the doctor with an undefined symptom and getting the response "take an aspirin or two and it will probably be right in time". This proposed "fix" would seem to have been initiated by amateur organisations other than our own. The net result appears to barely take into account the root causes for lack of technical interests and then suggesting a possible solution to ease the pain.

Seven and one half pages have been devoted to "outlining a bit of history " as they put it, and just 26 para lines page 17 vaguely touching on the real problem and then taking a quantum leap into suggesting an apparent fix, then one can be excused for offering a somewhat different interpretation. The prevalent view seems to be that by revitalising licensing requirements, offering band frequency sharing- there will be a rush of amateur band communicators, suddenly imbued with a technical awareness skill which will impress government spectrum administrators and fulfil the unexpressed aim of increased radio society membership — for those who are impressed sufficiently to want to join.

The sad bit is that leading the horse to water doesn't necessarily make him thirsty. The basic tenets of amateur radio as espoused on the rear page of " AR" under the masthead Division Directory appear to be forgotten but fervently hoped for, one suspects, by those by adopting the "aspirin" approach. But are there additional inputs that can be organised into a potential fillip to the cause?

We are all aware of the decline in technical interests, and not only in amateur radio.... the demise of technical literature/magazines such as "Ham Radio", manufacturers like Heathkit, non availability of useful components to roll your own creations are a reflection on the culture that has developed for decades.

One cannot escape the influence of television, a medium basically providing entertainment - by and large it is and has been a disappointment and has not provided answers or the stimulus for youthful minds that should be stimulated to find out more about the technical world around them unless one happens to be a devoted follower of archaeology or prehistoric animal life. Television and more lately computers have dominated leisure time activities supplanting more scientific activities. The dissemination of popular and not so popular scientific thought and encouragement has been a haphazard affair, guided by a few discerning teachers, parents and acquaintances who can recognise a latent interest.

Market and sell the product

Television— If we are living in the "knowledge economy" why not use the medium suffering the disparaging comment made earlier.

Consider:

1. Seek sponsorship of both commercial and public TV to run technically oriented programs but not necessarily radio based.
2. Work with school/TAFE educators to get approved courses that are meaningful to augment standard set curricula.
3. Seek government grants or other financial aid to set up amateur radio at education facilities.
4. Establish working exhibits on any electronic topic on a permanent and semi-permanent basis with coverage by aforementioned TV channels. Encourage the theme "see it and go out and do it"

In short, use whatever material/ media/ opportunity is available to tell the world what you have.

Idealistic? Impractical? — as James Bond said "never say never" This is a whole lot better and capable of greater far reaching results than the dubious expedient of fiddling with a concept to get the numbers\.

Of course any meaningful approach along these or expanded lines can only take place with a united front- something recent political leaders have been careful to encourage.

As long as this Institute suffers the factions inherent in state fiefdoms, little change to the status quo can be expected. - a national funded discrete identity has to be forged, but that topic has been well aired in previous years- with little change.

The technical culture too, has to be changed; not by the equivalent of throwing money at a problem and hoping it will be fixed -" culture is a phenomenon perceptible out of the corner of one's eye and manifested in gestures such as the freedom HP and 3M allow for unsupervised research acknowledging that innovation springs from curious tinkering as well as from concerted research and development" (quoted from The Age Review by Gordon Haigh).

This desirable outcome can only be achieved if future interest in the hobby rises above the common place of emphasising primarily, communication.

Pete D Williams VK3IZ

Views expressed in the 'Opinion' and 'Over to you' columns are those of the authors, and do not necessarily reflect the policies of the Wireless Institute of Australia.

Send contributions to:

The Editor
Amateur Radio Magazine
34 Hawker Crescent
Elizabeth East SA 5112
or email:
edarmag@chariot.net.au

Hamads

FOR SALE NSW

• **SB-220** linear amplifier 2kW, mint cond, manuals, spare 3-500z $950. Also **Hygain TH-3** antenna, near new, stainless hardware, manuals $300. VK2JAU Phone 02 9636 6061.

• **Superior ham residence**: 20 m steel tower, outboard ham shack, city views, 3 b/ room, large kitchen, family room, air-cond, quiet location, Greystanes $440k VK2JAU Phone 02 9636 6061

• **Kenwood TS-440S** s/n 6060081, **MC-80** mic power supply. Station monitor **SM-200.** Dummy load 100 W & 1000 W. **Hansen peak power meter.** Offers VK2DTR Phone 02 9918 3835.

• **Tower,** gal steel, triangular 570 mm per side, 8 sections each 3m long very strong, ex Telstra $300. John VK2ZHM QTHR Phone 02 9417 5338, mitchell@zeta.org.au

WANTED NSW

• **HF beam 10/15/20 m.** Mosley, Hy-gain, Cushcraft, anything considered. Heavy duty rotator. Complete unit would be great. Arthur VK2PE, Phone 02 6552 4694, Email: aparcher@dodo.com.au.

FOR SALE VIC

• **KLM KT-34A** 4 element tri band beam $400. **Cushcraft D-40** 40 m rotable dipole $250. **Hygain quad** $175. **Tri band** beam $150. Trapped vert $50. **8 element 2m beams** $50. **11 element UHF beams** $50. Some require work ring for details. Also copies of AR, ARA etc, free. David, Phone 0439 316 702 or 9786 6323 Seaford.

• **Westinghouse transistor 8** portable b/c radio circa 1950 in leatherette case. Mint condition, $15. Max, Phone /fax 03 5985 2671.

• **Collins 32S-1** in VGC with original op manual $500. **Collins 75S-1** also in similar condx $450. Further description and pix available http://www.vk3rx.com/ Ebay profiteers need not apply. Damien VK3RX Phone 03 5427 3121 Email vk3rx@wia.org.au.

• **Varactor tripler** machined silver plated module, 500/1500 MHz , 15 W in, 7.5 W out, 1N5150 diode, plus RF driver amp, 2W/15 W, 470-520 MHz, BLX93/94 , nom 24 V operation, supplied with tech docs. $30 Terry VK3ZXY QTHR Phone 03 9592 3514, email vk3zxy@leithy.com.

• **Ham gear from three amateur stations.** Please phone, write, or email, for lists of Tx, Rx, Antennae, and Test gear, and/or books, and/or Tx and Rx Valves. Bruce VK3QC. QTHR. Phone 03 5762 6540, bplowman@bigpond.com

• **YAESU FL-2100Z** HF Amplifier. GC $500. Contact VK3MW, Phone 03 59787177 or jandrg@alphalink.com.au

WANTED VIC

• **SM-220** station monitor, **SP-430** external speaker, **MC-60A** microphone, **E31-2154-05** calibration cable, **CW filter** for TS-680S. Steve Algar Phone 03 5941 1680.

• **AR-8** HF receiver and/or companion AT-5 transmitter. Clem Smith VK3AYY, Box 365, Lakes Entrance 3909, fax 03 9725 5230, Phone 0417 574 456.

FOR SALE QLD

• One **GELOSO VFO** in good condition, no paper work and complete with valves. Merv. Deakin VK4DV, Phone 07 4928 5537.

WANTED QLD

• **Copy of driver software** for HP scanner model Scanjet plus HP9195AB floppy disk or CD ROM. Gwen VK4CB Phone 07 3202 7137.

FOR SALE SA

• **Diamond CX-401** 4-way antenna switch with surge protection $100. **Diamond CX-301** 3-way antenna switch $50. **MFJ-1702** 2-way antenna switch $25. 2 x **Yaesu YO 301** station monitors $250 ea. **HAL Telereader CWR-6800** CW/RTTY terminal with built-in 5 inch monitor incl keyboard, 12 V power supply and additional 12 inch monitor $390. **HF linear amplifier CE-5000E** (details see AR April 2003). Prices are negotiable, plus postage. Harro VK5HK Phone 08 8323 9622.

WANTED SA

• **Information on Marconi receiver model HR-110.** VK5RG QTHR Email gurrrc@picknowl.com.au,

• **Service manual** and/or circuit diagram of a Philips GM3121 grid dip

• oscillator. Contact Christopher.VK5ZST, Phone 08 8520 2988,

WANTED WA

• A copy of the **ARRL book 'Solid State Design for the Radio Amateur'** by Wes Hayward W7ZOI and Doug DeMaw W1FB, published in 1977. Please help - contact Steve VK6VZ, Phone 08 9298 9330 or at sire@iinet.net.au

FOR SALE NT

• Small Wonder Labs **PSK-20 Transceiver Kit,** unassembled **20 metre PSK transceiver** complete with the optional case, $150. **ICOM OPC-589** Microphone Adapter Cable, 8 pin modular to 8 pin microphone, new in packaging, use with ICOM IC706, others? $25. JJ VK8JJ QTHR, Phone 08 8953 0065 or vk8jj@ozemail.com.au

TRADE ADS

PSK-31, SSTV, RTTY SOUNDBOARD
Interfaces Fully isolated, ready to plug in. http://www.G3LIV.CO.UK, johnny@melvin.com, G3LIV QTHR.

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- Hamads may be submitted by ***email*** or on the ***form on the reverse of your current Amateur Radio address flysheet.*** Please print carefully and clearly, use upper AND lower case.
- Separate forms for For Sale and Wanted items. Please include name, address STD telephone number and WIA membership number if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
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- QTHR means the address is correct in the current WIA Call Book.
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The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Alan Hawes	VK1WX
Secretary	Deane Walkington	VK1DW
Treasurer	Linden Orr	VK1LSO

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga. VK1 Home Page *http://www.vk1.wia.ampr.org*

Annual Membership Fees. Full $80.00 Family $38.75 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@wiansw.org.au*
Fax 02 9633 1525

President	Brian Kelly	VK2WBK
Secretary	Owen Holmwood	VK2AEJ
Treasurer	Noel May	VK2YXM

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.

Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Jim Baxter	VK3DBQ

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

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PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

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Secretary	Bob Cumming	VK4YBN
Treasurer	Bill McDermott	VK4AZM

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 In both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au

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VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

President	Neil Penfold	VK6NE
Secretary	Roy Watkins	VK6XV
Treasurer	Bruce Hedland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also In "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.wia.org.au/vk7*
email: *vk7dg@useoz..com*

President	Phil Corby	VK7ZAX
Secretary	Dale Barnes	VK7DG
Treasurer	Dale Barnes	VK7DG

VK7WI: At 0930 hrs every Sunday on 146.700 MHz FM (VK7RHT, Hobart) and relayed on 147.000 MHz FM (VK7RAA, Launceston), 146.625 MHz FM (VK7RMD, Ulverstone), 146.750 MHz FM (VK7RNW, Ulverstone), 147.075 MHz FM (VK7RWC, Rosebery), 3.57 MHz LSB, 7.090 MHz LSB, 14.130 MHz USB and UHF CB Channel 15 In Hobart area.

Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

GASS: *bigger and better than ever!*

Learning about Amateur Radio at the Great Australian Science Show (GASS) 2003

The amateur radio display at the Great Australian Science Show (GASS) 2003 was an enormous success, and a credit to those involved.

WIA Victoria and four of its affiliated metropolitan clubs – EMDRC, GGREC, RWARC and NERG –combined their resources to mount the display on the Saturday, Sunday and Monday 16-18 August, at the Melbourne Science Museum.

GASS, which included numerous displays by a range of organisations, was held in conjunction with National Science Week.

Unfortunately this year it conflicted with both the WIA Remembrance Day Contest, and the International Lighthouse Weekend, making it a little harder to get volunteers who were not committed to those other activities.

Due to the environment and other restrictions in the museum, HF radio is not possible. However, 2 m and 70 cm beams were hung from the ceiling above the amateur radio display. A tripod mast with a 70 cm beam was erected for use on the IRLP.

In addition to IRLP, there were two FM92s on 2 m, feeding dummy loads that enabled communication across the display area by visitors.

Other aspects of the display were:

- Antique crystal sets including one set in a milk carton
- A radio connected to an oscilloscope to display modulation
- Some antique transmitters
- An exploded mobile phone mounted on a board with appropriate labelling
- QRP HF transceivers
- Various pieces of ARDF equipment
- A computer Morse code program with a paddle and a hand key

The walls were covered with photos, posters, award certificates and QSL cards. The front table had a DVD presentation on all aspects of our great hobby with plenty of give away pamphlets promoting radio clubs and the WIA.

Attendance over the three days was good, with plenty of questions asked about our hobby.

The WIA Victoria Council thanks the clubs who took part in this event that is a major public relations exercise for our hobby.

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October 2003
Volume 71 No 10

Amateur Radio

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GippsTech 2003

GippsTech Overview by Jim Linton VK3PC

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- An improved coupler for balanced and single-wire feed antennae *Drew Diamond VK3XU*
- REVIEW: The bhi NES 10-2 DSP speaker *Stephen Newlyn VK5VKA*
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Our Cover this month

GippsTech 2003 featured some outstanding work from homebrewers. See Jim Linton VK3PC's comprehensive observations of the Conference on pages 17, 19 and 28

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Founded 1910

Representing
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Editorial Comment

Colwyn Low VK5UE

Changes: do we need 'em?

As I write this, the discussions on the future of Amateur Radio in Australia heat up. Unfortunately some of the comments on the ACA proposal are made without the benefit of explanations of the implications from the ACA. Some of us are continuing to be distrustful of any proposed changes to the legislation under which Amateur Radio in Australia operates and greatly fear the current push by Governments in Australia to privatise anything they can.

My present thoughts are that as Amateurs we have to first make sure we agree on what the Amateur Service is. Is it still well defined by the definition at the top left of this page? Are there some things that require redefinition in the light of 2003 not the reflection of say 1925?

When we are reasonably sure what the Amateur Service is then we can start defining what are the requisites required to join this Service. The next step is to consider the recognition steps in being a member of the Service. Are there development steps? Do we recognise what has been learnt and what has been done? Do we have to demonstrate greater knowledge and responsibility to gain access to the full resources available to the Amateur Service in Australia and the World?

> **Amateur Radio Service:**
> A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

I have a feeling that if we have these principles clear every thing else will fall into place.

DO NOT FORGET TO REPLY TO THE ACA DISCUSSION PAPER.

There is much concern in our ranks about BPL. Again we need to be properly informed before we make comment. The ARRL and RSGB websites carry information. There has been great concern expressed in Europe. I hate to think what it may do to some of the domestic home entertainment systems in Australia that are not very well designed to deal with electromagnetic interference. If we as Amateurs have trouble with equipment next door or across the street, what will happen to these home entertainment units when the mains is carrying the source?

To move on, there are several activities that might get us motivated to use our frequencies between now and Christmas. There is the Oceanea DX Contest on 4th 5th and 11th 12th October, there is JOTA on October 18th 19th, there is the VHF-UHF Spring Field Day 1st 2nd November and then over December January there is the Ross Hull VHF Contest. If this is not your cup of tea then there are events in all states that are asking for WICEN support. If all else fails then just try and work a few stations each week to check that the gear still works.

My Icom IC-25A should put out 25 watt on high power but when I was moved to check why it was not performing I found it to outputting 1 W low and 3 W high. Took the cover off and after the adjustment pots had been rotated a few times back and forward (I suppose that cleaned the tracks) we were back to 1 W low and 21 W high. Just shows Murphy is still with us.

The next issues of AR will be November, available 1st week November, then a 64 page December issue, available last week in November 2003 and then a January/February issue, available end of January 2004

Happy operating Colwyn VK5UE

ar

WIA Comment

Ernie Hocking VK1LK
Email: president@wia.org.au

The last month has been one almost entirely devoted to the issue of the Federal WIA response to the ACA discussion paper on the future licensing arrangements for the Amateur Radio Service in Australia. However, there has been one other area of interest and concern in the area of Broadband Internet over Power Lines (often seen under the acronyms of PLC or BPL). In recent months the RSGB and ARRL has been battling the matter of BPL in the UK and the US. During this time the WIA has been carefully monitoring the situation here. Of late we have learnt of increased interest in this technology here and have seen some early attempts at evaluation of it along with some deployment of home based use. The use of power lines to distribute broadband internet has the potential to impact on all users of the HF spectrum and the WIA is not alone in its concerns. For those interested, the ACA has recently released a paper on the issue. Further details can be found on the RSGB and ARRL web sites. For those of you with a more technical bent I would refer you to articles in the April and May issues of IEEE Communications.

WIA Response to the ACA Amateur Radio Discussion paper

The WIA Federal council met at Paramatta on Saturday 22 September to discuss the Federal response to the ACA discussion paper. The meeting was attended in person by VK1, VK2, VK3, VK4, and VK5/8. VK6 and VK7 were represented by telephone. The timing of the meeting was such as to allow feedback on the first of the ACA public meetings to be discussed at the meeting as well as discussing the detailed response to the paper.

I am pleased to say that all divisions were in broad agreement across the board in terms of the Federal WIA response. It is important that the Federal response captures the intent of the membership of the WIA. As such the outcomes of the Paramatta meeting will be taken back to the WIA divisions to be presented to the members and further discussion held.

Review of the ACA paper led to the conclusion that most of the proposals were logical outcomes of the recent WRC 2003. There are however a number of areas where the amateur radio community has specific concerns about the proposed changes. These concerns centre around the issue of types of licence and the handling of interference issues.

Types of Licence

It has been WIA policy for a number of years to promote the concept of an Amateur Radio Operator Licence. The operator licence aims to capture the key difference between the Amateur Radio Service (ARS) and other licenses through the recognition of the valuable contribution that the ARS makes to the community. The WIA operator licence proposal was set out in a 1997 submission to the Department of Communications Information Technology and the Arts. The WIA response to the discussion paper will reiterate this position.

The Interference handling proposal

The other area of major concern in the discussion paper was the proposal on how to handle interference in the context of the Amateur Radio Service. The WIA opposes the proposal set out in the paper on a number of social justice and technical grounds. At the meeting though no clear leading alternate proposal was identified. A strategy to define an acceptable alternate proposal was agreed upon and this will be further discussed over the next few weeks in light of the discussions amongst members and the public hearings.

The Australian Entry level licence

The final area of discussion at the meeting was around the details of the proposed Entry level licence. The outcome of the meeting is summarised below:

- That the Entry level licence forms part of a 2 tier system. This would see an entry level licence plus a full call licence. All exiting licenses would be converted to full call privileges on the basis of the similarity of the current novice and full call theory examinations when compared with the Entry licence.
- That the Entry level licensee should be allowed to run 100watts (in line with currently available commercial equipment)
- That the licence should grant access to all modes
- That the following frequency allocation be sought:

Band	Allocation	Rational
1.8 MHz	Nil	To avoid BCI issues
3.5 MHz	All except the DX window	Exclusion of the weak signal segment
7 MHz	7.100 – 7.200 MHz	The band offers both day and night propagation.
14 MHz	Nil	Excluded to offer an incentive for upgrade (This is the main DX band and we need to be conscious of sensitivity to international interworking issues)
21 MHz	All band	
28 MHz	All band	
50 MHz	52Mhz -54MHz	Most of the band excluding the weak signal segments and avoid broadcast TV stations.
144 MHz	144.625 - 145.800	
146.000 - 148.000		Most of the band excluding the weak signal segments
430 MHz	432.625 – 435.000	
438.000 – 440.000		Most of the band excluding the weak signal segments
1.2 GHz	Nil	Excluded to give an incentive to upgrade
2.4 GHz	All	To encourage WLAN experimentation (subject to power limits and weak signal considerations)
5.8 GHz	All	To encourage WLAN experimentation (subject to power limits and weak signal considerations)
10GHz and above	Nil	Excluded to give an incentive to upgrade

continued on page 9

An improved coupler for balanced and single-wire feed antennae

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Deservedly popular all-round HF antennae are the horizontal, or inverted-vee dipole, or horizontal or vertical loop fed with "open-wire" line. The impedance at the station end of the line is usually of unknown value, from perhaps tens, to thousands of ohms, with large frequency-dependent variations, and may be inductively or capacitively reactive. Amateur transmitting amplifiers are ordinarily designed to operate into a low-reactance unbalanced load of nominally 50 ohms. It is therefore not practicable to simply connect such a line to a transceiver and expect effective multi-band operation.

A suitable coupler is required to allow a transmitter to work into, or "see" a 50 ohm resistive load, and thus provide an efficient match between the unbalanced output/input of the radio, and the balanced impedance at the station end of the line. Although it may appear to do so, an antenna coupler at the station end of the line does not "tune" an antenna. The ratio of standing waves upon the feed-line, and ratio of wave distribution upon the radiating wire is not altered when the coupler is adjusted so that the system accepts power.

An open-wire fed antenna uses all of the radiator, from the lowest band, where it may only be a quarter wavelength long, to the highest, where it will be several wavelengths, and therefore have substantial gain in some directions. It does not matter that the feed-line SWR may be high, losses are very low because the dielectric (the material between the wires) is mainly air, and the conductors are of low resistance copper.

Radiation and pick-up from a well balanced line will be negligible, and the antenna will therefore be "quieter" on receive, and radiate very little (from the line) on transmit.

A feed-line is said to be operating in a "balanced" manner when the current in each leg is of the same magnitude but opposite direction, and the voltage is of the same magnitude, but of opposite polarity with respect to earth at all points along the line (Refs 1 and 2). Their respective magnetic and electric fields are then strictly confined to the line.

Quest for the "ideal" coupler

Like most amateurs with a preference for wire antennas, I have a keen interest in the various antenna coupler configurations, and have built many of them in my search for the ideal device (if such a thing exists in reality). Significant variations in measured feed-line current, efficiency and accuracy of balance have been observed between popular circuit types, and some iterations were found to be rather restricted in their impedance matching range.

Very few published designs invite the builder to measure the feed-line current co-incident with minimum coax SWR (but see Ref. 3). A 1 : 1 SWR on the radio/coupler coax may not necessarily indicate the best and only coupler adjustment for a specific band (Ref. 4). In particular, the popular American T-network "Transmatch" was found to be lacking in range, and suitability for balanced line work. Their desperate use of a 4 : 1 "balun" to interface between the unbalanced output of the T-network,

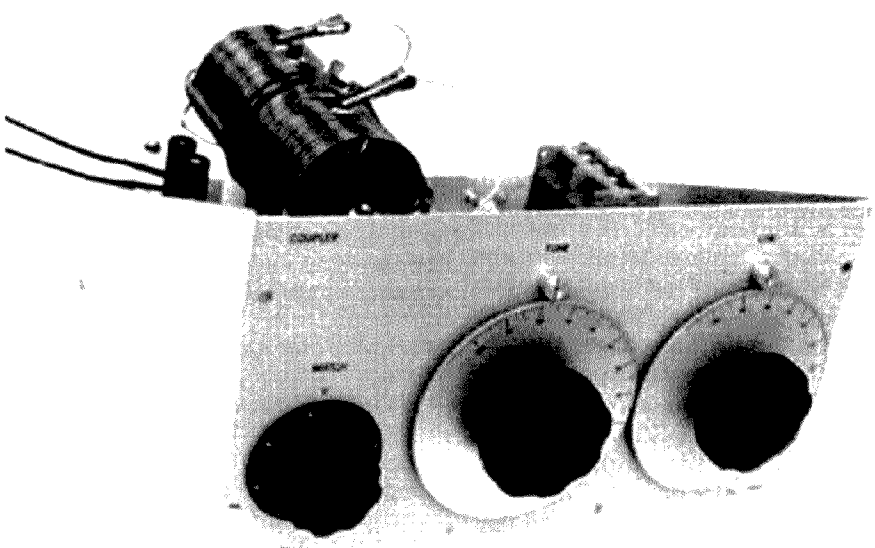


Photo 1: Suggested chassis style.

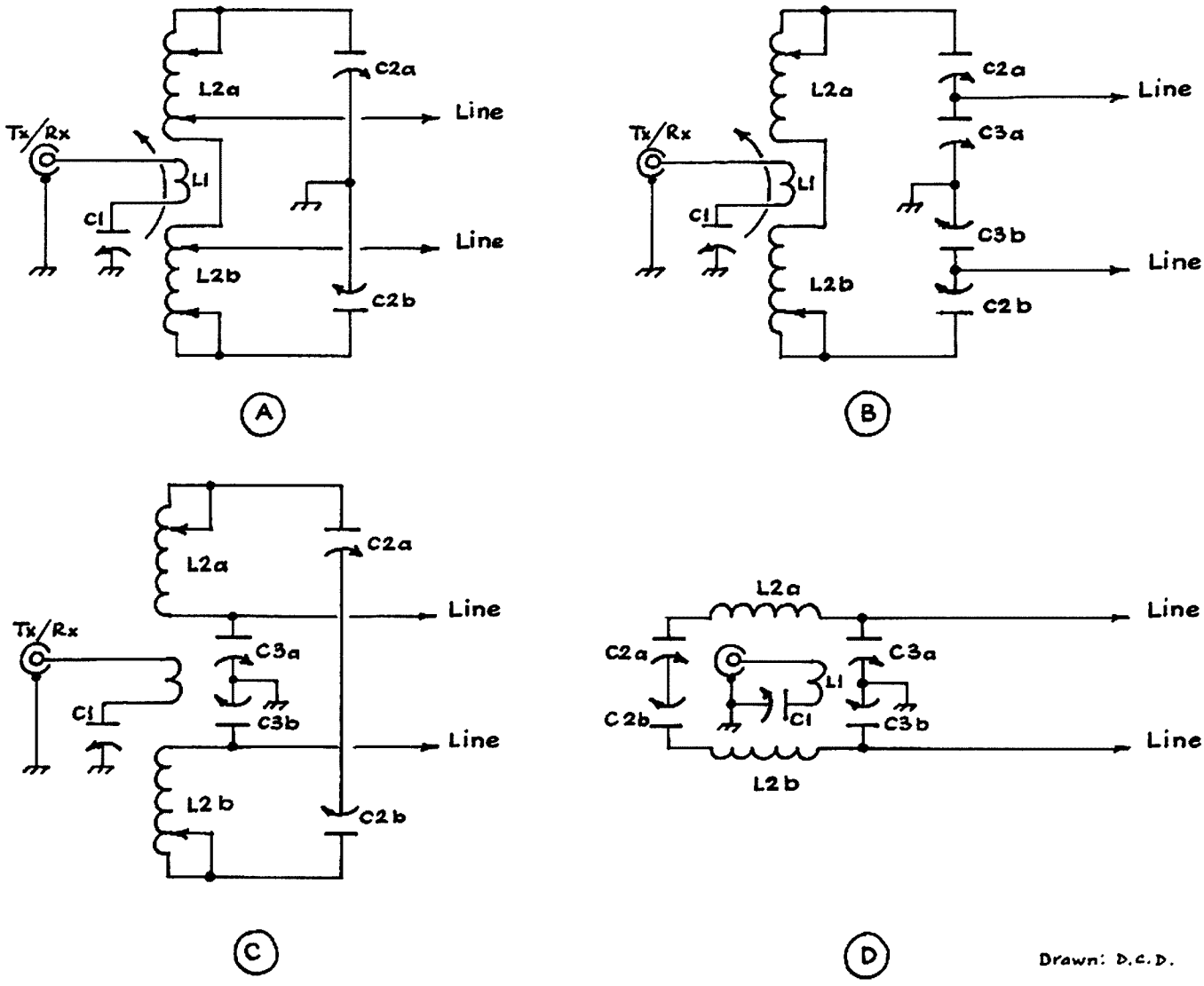


Figure 1

and the balanced, unknown, probably highly reactive feed-line is very questionable. Certainly none of my attempts with various Transmatch and balun configurations would provide a satisfactory match and identical current in each line.

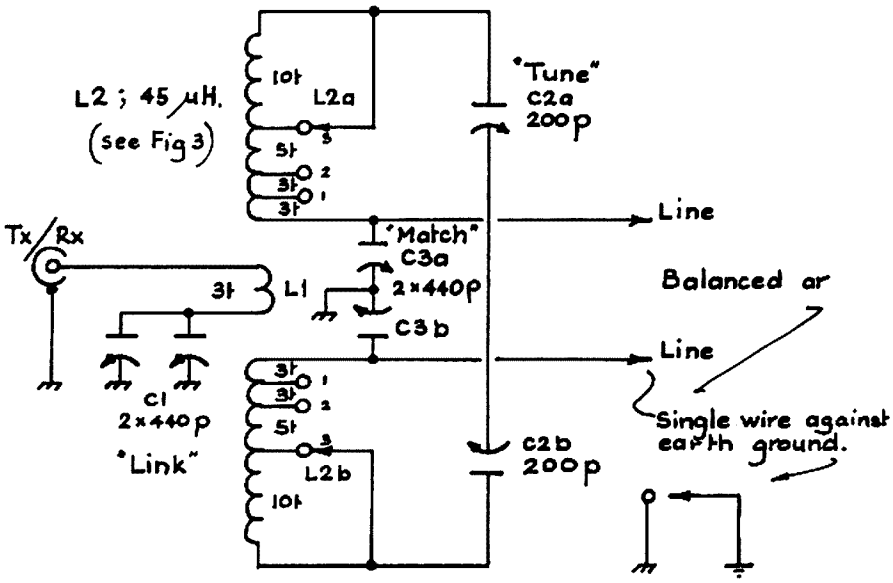
Further efforts here at getting around the problem simply, such as by using a balanced pi-coupler (inductance divided equally) and a choke current balun and/or voltage balun between coax and coupler (Refs. 5, 6 and 7) could not be made to work correctly for every band (due, it is thought, to the imperfection of real baluns).

A truly balanced link coupler (Refs 8, 9 and 10 for example), a type undeservedly absent from the standard radio handbooks for some years now, has four or five, instead of the usual two or three variables, and is therefore capable of efficiently and unambiguously matching our 50 ohms to a very wide range of impedances, both balanced-line and single-wire feed.

The link coupler of Ref. 10 attracted only one criticism, in that there are (admittedly) rather a lot of coil taps required to fulfill the potential matching range. Fortunately, recent work (outlined in Ref 7) is causing a re-evaluation of a neglected circuit configuration. By using a dual-gang variable capacitor instead of the close-spaced coil tappings of the swinging-link model, we obtain improved control over the line matching. Furthermore, a "swinging" link was found not to be necessary, so the number of variables has been reduced from five, to four.

Circuit

The evolution of the improved circuit is illustrated in Fig. 1, where A shows the conventional link coupler. Two series connected coils L2a and b are parallel connected with split-stator capacitor C2a and b, whose rotor (frame) is connected to chassis ground. L2 is gapped so that coil L1 may be coupled at the "zero-RF" potential point in the centre. Swinging-link L1 is mechanically arranged so as to be variable in the degree to which it may be coupled with L2. Capacitor C1 is used to compensate for the reactance presented by L1. Capacitor C2 is tapped across L2 an equal number of turns from the outside of the coil, working inwards as operating frequency is raised (the unused portion of the coil is shorted to prevent parasitic resonances, or "Tesla-



C1, C3; ordinary 2-gang B/C type.

C2; 2×200 pF split-stator, or equiv., > 0.4 mm plate spacing.

Figure 2

coil" effects). The antenna feed-line is connected to equidistant taps (for balanced line) inside those of C2 at a point where, after adjustment of C1, C2 and swinging-link, feed-line reactance is accommodated and an efficient match between the coax link and antenna is obtained.

Fig 1B shows how the need for close-spaced taps is avoided by the addition of split-stator capacitor C3a and b. C2a and b remain ganged but electrically separate, which effectively forms a capacitive voltage divider across L2. We thus achieve greater control over the line matching ratio. Devotees of the highly regarded Johnson "Matchbox" will recognize the similarity. The Matchbox has C2 and C3 as a dual-differential, with an additional split-stator across coil L2 to re-resonate the network. Unfortunately, capacitor C2 may be tricky to accomplish in practice, and dual differentials are extremely rare items. Furthermore, it is found that L1 still needs to be a swinging or switchable turns link.

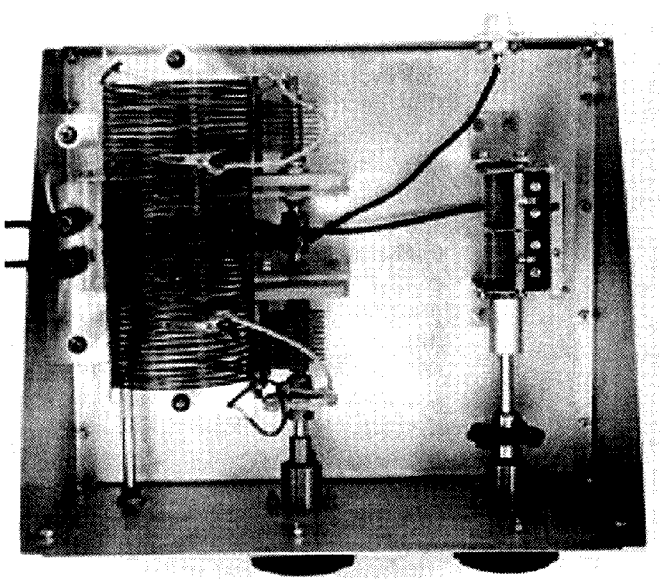


Photo 2: A "symmetrical "layout.

An improved circuit is shown in Fig 1C and Fig 2. Because capacitor C2 and C3 of Fig 1B are effectively in series, capacitor C3a and b may be moved to the electrical centre of coil L2, which now allows the rotors of C2a and b to be more conveniently connected (or the shafts of two identical capacitors may be physically and electrically joined). Thus, the need for (perhaps) fiddly close-spaced line taps has been eliminated. Interestingly, it is found that this configuration also removes the need for a swinging link; a fixed three-turn link will cover all HF bands. Note that the centre of C2a and b is not grounded.

Our circuit may be re-drawn as in Fig 1D, showing that we now effectively have a balanced pi-coupler arrangement, which offers improved harmonic rejection. Capacitor C3, being an ordinary broadcast capacitor with fairly close-spaced plates, also forms a convenient spark-gap for the discharge of any static electricity build-up on the antenna.

Construction

The home-made aluminium chassis in Photo 1 measures 280 x 230 x 150 mm WDH. To maintain good electrical balance, the physical arrangement of the coil and capacitors C3 and C2 must be symmetrical. A suggested layout is shown in Photo 2. C3 is just visible under the coil. Photo 3 shows the coil in greater detail, where C3 is partly visible.

Details of coil L2 are shown in Fig 3. Imperial dimensions are easier when marking out the rack upon the perspex former. A suggested method making high-Q coils (this one has a measured Q of 252) was described in Ref. 11. The 170 x 65 mm rectangle of 3 mm perspex for the coil assembly is supported upon two nylon (or similar) rods measuring 105 mm long, 12 mm dia. Photo 4 shows how the winding is cut in the centre, and a small rectangle of perspex, with suitably sized holes, is slipped over the coil wires (which connect to C3a and b) and cemented for mechanical support. The six coil taps may be of shim brass; remove the wire enamel, then fold a little tag of brass, about 6 mm x 20 mm around the wire to make a flag, clamp to wire shape with pliers, hold in place with an alligator clip, then solder.

Alligator clip "flying" connections for the coil taps should be made with stranded insulated electrical wire. Link coil L1 is three turns of insulated single-strand electrical wire. A few twists in the wire near the coil will hold L1 securely upon the centre of L2.

Capacitor C2 rotor shafts (or frame) must be insulated from chassis. The two 200 pF Eddystone units of the prototype are mounted upon perspex rectangles, which in turn are fitted to a U-shaped aluminium bracket for attachment to the chassis. The shafts are joined by a solid coupler, with an insulated coupler connecting the dial drive. C2 must have fairly wide-spaced plates, at least 15 thou/ 0.4 mm, which does not flash over on bands between 3.5 and 28 MHz at power levels up to about 120 W CW. No firm figures for power handling can be stated here because of the many variables in feed-line impedance. However, from 3.5 to 29.7 MHz, a similar pair of capacitors, or a 200 + 200 pF split-stator with similar or greater plate spacing should do. Capacitors C1 and C3 may be ordinary 2-gang broadcast types.

The knobs on the shafts of C2 ("Tune") and C1 ("Link") may be directly coupled, or preferably, have vernier dials as shown. C3 ("Match") is broader in adjustment, and less in need of a reduction drive.

For connection of the antenna feedline, a pair of binding post terminals may be fitted to a rectangle of perspex which in turn is mounted upon a pair of nylon posts in a similar manner to that for the coil.

Antenna and feed-line

All of the standard radio handbooks give details of open-wire feed antennae. Some radiator and feed-line lengths will perhaps give an easier match on particular bands. However, in my experience, just about any convenient radiator and feed-line length will be "match-able". If a system refuses to comply on a certain band, the addition (or subtraction) of perhaps 1 m of line (or antenna – same each end) should allow a match to occur.

The best line is probably home-made from electrical earth wire (or similar, with or without insulation), with a perspex spreader about every 1 m. Hold in place with a copper tie-wire through small holes drilled in the spreader. Line spacing is not critical. In my experience, this line is the least affected by rain and moisture, and that only to a very small degree, not usually requiring the coupler to be re-adjusted after rain.

Black or brown 450 ohm ladder line comes next. The earlier line used hard-drawn copper, but new line is of copper-clad steel, which makes it a bit awkward to handle. However, it can be routed past window frames and so on. Hint; with scissors or knife, remove alternate webs, which renders the line less affected by moisture. It should be taken down and washed yearly (dust traps moisture making the line more susceptible).

Low-loss "dog-bone" or "dumb-bell" TV type is very good line if available. No longer manufactured, but turns up at hamfests etc. Also needs yearly washing.

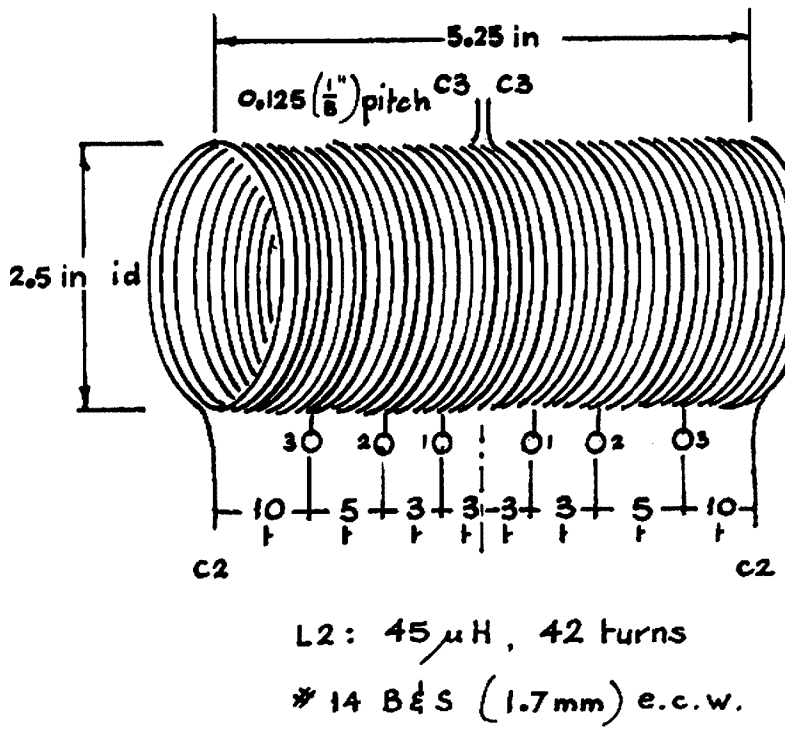


Figure 3

Ordinary 300 ohm slotted TV line is the least suitable line (most lossy), but quite good in an emergency, or for short runs inside a building or in awkward applications. Significantly affected by moisture.

Operation

Connect your radio to the coax connector of the coupler using a convenient length of 50 ohm coax cable-SWR meter-cable. Tap settings rather depend on individual antenna configurations. As a rough guide

Continued on page 10

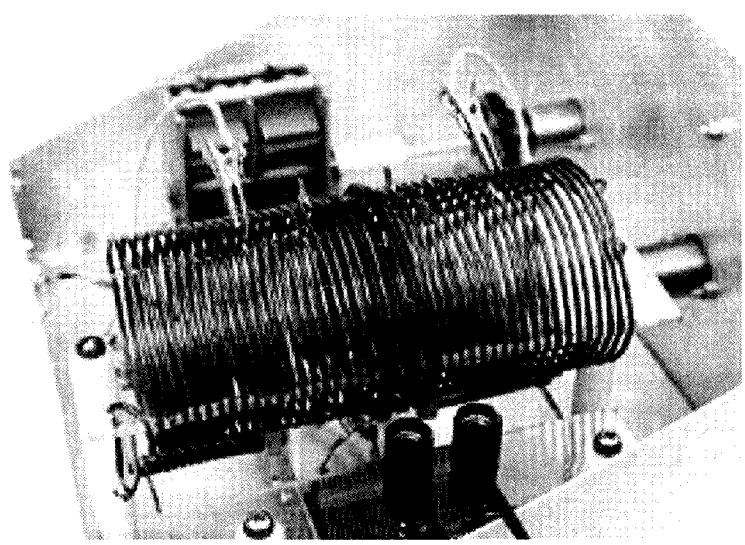


Photo 3: Coil detail.

Morse Code Practice Generator

Alan Gibbs VK6PG
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Email: vk6pg@tpg.com.au

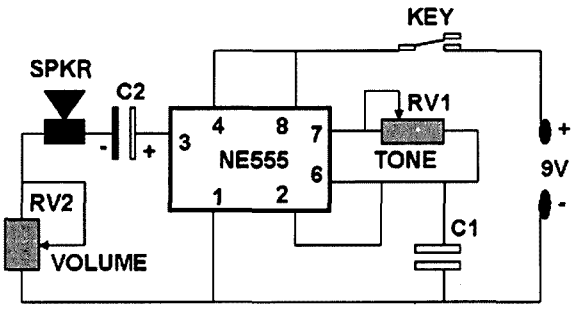
Every Radio Amateur will find this little gem very worthwhile. From the aspiring newcomer struggling to learn the Morse Code to the seasoned operator who kindly donates time to helping others pass the Amateur Radio Morse Code Examinations. Indeed, it is the perfect "first time" constructional project for clubs, schools and individuals, a fine introduction to electronic components, constructional techniques and soldering skills. Every club should have this project on the shelf as "ready-to-go" kits to help introduce newcomers to our wonderful hobby, and promote the use of Morse Code.

For this little project you will need:

IC,	NE555	DSE Z6145	99c
C1,	0.1u	DSE R2360	10c
C2,	10u	DSE R4315	20c
R1,	4K7	DSE R1090	4c
RV1,	50k	DSE R1775	30c
RV2,	2k0	DSE R1769	30c
Strip Board		DSE H5614	$2:80
Mini Speaker		DSE C2208	$2:88
9v Battery plug		DSE S6100	$1:12
Zippy Box		DSE H2853	$4:96
	Total New Cost =		$13:69

A fresh 9-volt Transistor Battery.
Optional Key Terminals, Crocodile Clips, or a 6mm mono Jack Socket and a few short lengths of hookup wire.

There is no need for an ON/OFF Switch because the key connection does the job for you. The project is constructed on a small section of perforated printed circuit board trimmed to fit tightly inside the box. Small 4mm holes are placed on the underside of the box to allow screwdriver adjustment of the two preset variable resistors, RV1 (Tone) and RV2 (Volume). On the aluminium faceplate, drill a small circle of 3mm holes to allow the sound from the speaker to be clearly heard when the key is closed. Adjust RV1 and RV2 to your personal liking - then to complete the project, fill the spare space inside the box with "bubble wrap" to hold the speaker, battery and printed board in place so everything doesn't rattle when shaken by hand. Construction time should take about one hour including drilling the speaker holes in the faceplate. No doubt, most of the components can be found in the Shack Junk Box, but if all components are bought new – the total cost will be less than $15:00. However, the outlay will be recouped in just one Morse Lesson or when used to find a wiring fault in your garden trailer etc.



MORSE CODE PRACTICE GENERATOR
VK6PG

The circuit is attributed to Jim Burney, WA5YFL and published in the July 1974 edition of the ARRL Journal *QST Magazine*, and has been in use by the writer for over 25 years without failure. The output volume is more than enough to fill a very large room with an audience of 20 people and the perfect low-cost solution when running Morse Code classes. Other applications include: A Continuity Tester, Door Bell, Vehicle Reverse Indicator, QRP Transmitter Sidetone Generator, Security Mat Alarm, Remote Alarm for the garden Shack, Battery Tester and many more.

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WIA Comment *continued*

Conclusion

The Federal WIA meeting held at Paramatta was a significant step in the preparation of the WIA response to the ACA discussion paper. There remains consider work to be conducted in attending the ACA public meetings and in discussions that need to be held with the whole amateur radio community. I do however believe that there is a general consensus on a way forward at this time. I note with interest the similarity between the Federal WIA proposals for an Entry level licence and those being discussed in other forums. The best hope for the future of the hobby is to get as many people behind a common position and then present this position to the ACA. As further developments occur I will keep you informed about them.

As always I look forward to hearing your views on the these matters. All the best in amateur radio and 73s de Ernest Hocking VK1LK

Ernie Hocking VK1LK

Continued from page 7

however, on 3.5 MHz the full inductance of L2 will probably be required, so clip C2 to the ends of L2. On 7 and 10.1 MHz, clip to taps 3-3, 14 and 18 MHz try taps 2-2. 21 through 28 MHz will probably need taps 1-1.

Experiment with all four variables for maximum received band noise/signals, until you feel the coupler is near peak adjustment. Now, on a clear frequency, apply the smallest tuning signal that your SWR meter will properly respond to (say 10 W). Again carefully adjust C1, 2 and 3 for best SWR (do not touch the coil when transmitting). If it cannot be made less than about 1.1, switch off and try a new pair of taps. When a satisfactory match is obtained, log the settings for that band on a suitable look-up table. Do the same for every band of interest.

A pair of RF thermocouple ammeters, about 2 or 3 A f.s.d. (for 120 W) is the most ideal line current indicator (for balance and comparison- perhaps with other couplers). But these are now rare items, so if you are not the fortunate owner of a pair of meters, consider making a twin-lamp current indicator as described in Ref. 12.

For single-wire feed type antennas, a good earth ground must be connected to the coupler chassis. Adjustment is similar to that described for the balanced feeder. A neon lamp, placed near the line will glow for voltage feed, and a lamp current indicator (Ref. 12) will glow for current feed. Disconnect the feed-line from the coupler when not in use.

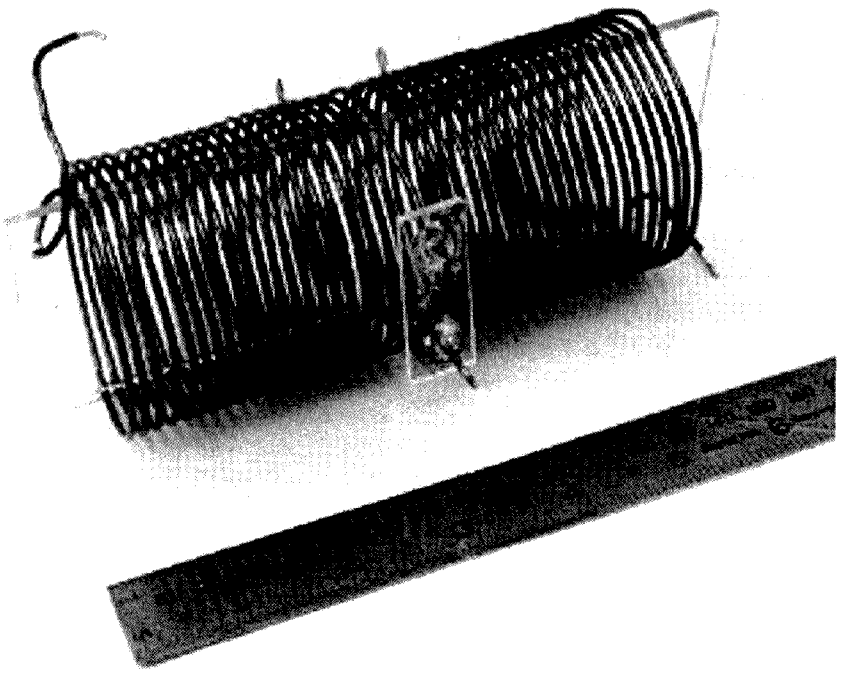

Photo 4: Coil assembly.

Summary

In order to operate a wire dipole or loop over several or all HF bands, we need some kind of coupler. The benefits of low radiation from, and pick-up into the feed-line of a balanced doublet or loop may be lost if the coupler is not also precisely balanced. However, most patterns of popular and/or convenient "ATUs" are inherently unbalanced, and therefore do not properly address this task. Nor are they always efficient when used to match into difficult loads.

Amateurs everywhere have been re-discovering the suitability of some truly balanced coupler circuits used by earlier radio workers to match transmitters into open-wire fed antennae. Drawing largely on this material, described here is a practicable improved model, constructed from procurable parts, for use with open-wire and single-wire fed antennae.

References and Further Reading:

1. "Using Open-Wire Feeder"; In Practice, I. White, G3SEK, RadCom Aug. '00.
2. "A Balanced, Everyday Approach to All-Band Bliss"; K. Kleinschmidt, KT0Z, QST Apr. '02.
3. "Balanced Line ASTU and Current Indicator"; Garrott, G0LMJ, RadCom July/Aug '98 (Reproduced in Backyard Antennas; by P. Dodd, G3LDO- RSGB Publications, p54).
4. "ATU Power Ratings"; In Practice, I. White, G3SEK, RadCom June '97.
5. "A Balanced-Balanced Antenna Tuner"; R. Measures, AG6K, QST Feb. '90.
6. "ATUs for Balanced Tuned Lines; Technical Topics, P. Hawker, G3VA, RadCom Aug. '99.
7. "Balanced-Fed Large Loop Antennas"; Technical Topics, P. Hawker, G3VA, RadCom, Sep. '02
8. "Wide-Range Coupler for Any Antenna"; ARRL H'book, 42nd (1965) edition, p354.
9. "Coupling the Transmitter to the Line"; ARRL H'book, 32nd (1955) edition, p313.
10. "A Swinging Link Antenna Coupler"; Diamond, AR July '00.
11. "Making Air-Wound Transmitting Coils"; Diamond, AR June '00. (copies available from the writer).
12. "A Current Indicator for Open-Wire Transmission Lines"; Diamond, AR Jan. '99.

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A Weekend at Barrenjoey Lighthouse

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This year, the Manly-Warringah Radio Society activated Barrenjoey Lighthouse for the first time.

Barrenjoey Lighthouse at Palm Beach in Sydney had been closed to the public following a legal battle that ended in 1998. This year, however, the National Parks and Wildlife Service (NPWS)re-opened the lighthouse to mark International Lighthouse Day on Sunday 17th August.

Meanwhile, the Amateur Radio Lighthouse Society had been running the International Lighthouse and Lightship Weekends for a number of years; each year the event occurs on the third weekend of August, when Amateurs around the world set up shop at a lighthouse or lightship. This year, some 360 stations in about 40 countries (including VK2, VK3, VK4, and VK6) planned to take part.

With Barrenjoey Lighthouse being open to the public, it was too good an opportunity for the Manly-Warringah Radio Society to pass up! It was also a good excuse to enter the club station in the Remembrance Day contest on the same weekend.

In the preceding weeks the club was a flurry of activity, organising the establishment of a portable station on Barrenjoey headland. The site is inaccessible by road, being about 800 metres from the nearest car park, and with a steep 113-metre climb up the headland. The NPWS typically delivered equipment by helicopter. We *did* have access to a helicopter that weekend, but using it to transport Amateur Radio gear was not an option!

Dom VK2JNA met with the local ranger and evaluated the limited facilities; we could set up near the lighthouse, but not inside. There was no mains power or water. Everything would have to be lightweight, and because we would be on battery power, QRP was the order of the day. We settled on Yaesu HF portables (two FT-897s and an FT-817), plus a couple of handle talkies. The antennas were a Spiderbeam portable tribander for 20, 15 and 10 metres, plus a 40-metre band wire dipole. The latter was christened the "Gordian Dipole", as it had managed to tangle itself into an almost impenetrable knot!

Finally, on that bright sunny winter morning, with rigs, antennas and masts, batteries, furniture, and provisions in hand, we set off down the beach toward the headland, and within half an hour we lay panting and gasping atop the hill, in the shadow of the lighthouse, ready to start the real work.

Bernd had promised we could be on air in about an hour, though it was nearer to three. The Gordian Dipole won us a few contacts on 40 while some of us struggled with the brand new Spiderbeam which had been only partially assembled once before by Bernd VK2IA and Dom VK2JNA. At times, the effort was reminiscent of that famous wartime image of the US marines at Iwo Jima, but we got there in the end, with a slight tilt to the east.

While we worked to knock the Spiderbeam into shape, curious passers-by asked us what we were doing with a few wags asking how we were going to get our washing up on our thirty-foot high Hills Hoist, was it a hang glider, etc. Quite a few seemed surprised to learn that Radio Amateurs still existed! Anyone even remotely interested was given one of the PR leaflets we had prepared, introducing the hobby and inviting the reader to the club. Some people had read the club's news release in the *Manly Daily*, the local newspaper.

The lighthouse itself received numerous visitors. At one point, people had to wait for up to an hour and a half to get inside. This was an excellent opportunity to talk to people about our club and our great hobby!

VK2MB/portable managed a modest total of about three hundred contacts, mainly due to the limited power of the batteries, and having to operate QRP to make them last! Already the club is discussing alternatives for next year's event. Still, all continents – except Antarctica – made it into the log, and perhaps most importantly, everyone had a great time.

Mainly lessons were learned from the exercise, which will contribute to making next year's Lighthouse and Lightship Weekend bigger and better than ever. Will the Manly-Warringah Radio Society be in it? Try to stop us!

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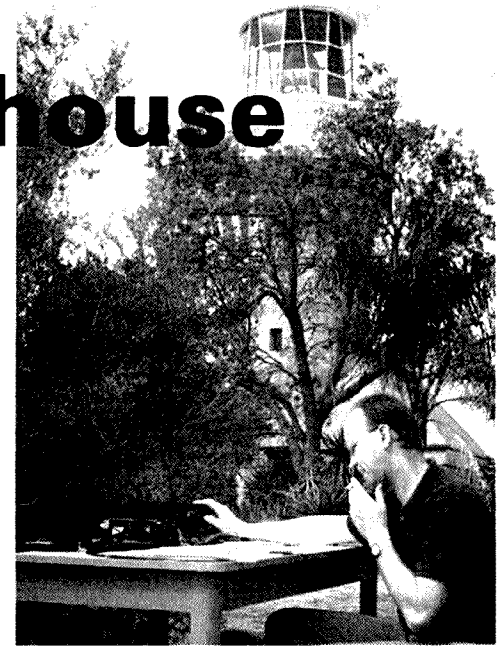

Peter VK2IT at the mic. More pictures of the Manly-Warringah Radio Society Lighthouse Weekend on inside back cover

Web links:

Manly-Warringah Radio Society:
www.mwrs.org.au

Spider beam antenna
www.qsl.net/df4sa/index_spider.htm

Association of Lighthouse Keepers' International Lighthouse Day page
www.lighthouse.fsnet.co.uk/events/intlighthouseday.html

The Amateur Radio Lighthouse Society
http://arlhs.com
http://vk2ce.com/arlhs.htm

Official International Lighthouse & Lightship Weekend website
http://lighthouses.net.au/illw/

Barrenjoey Lighthouse info -
www.lighthouse.net.au/lights/NSW/Barrenjoey/Barrenjoey.htm

Gladesville Amateur Radio Club
http://welcome.to/TelevisionGladeville

A stepped range control for the 80 metre Foxhunt Sniffer

By Bryan Ackerly, VK3YNG.

Last month an 80 metre foxhunt receiver was presented. This article provides a refinement to the design that allows the attenuation level to be discretely stepped.

Why use stepped ranges?

The 80 metre sniffer shown last month used a simple variable potentiometer to provide all the attenuation required. While this is the simplest and cheapest way to provide gain control, there are more intuitive ways of doing so.

Most of the sniffing equipment now in use by active foxhunters indicates the amount of attenuation required in discrete steps of around 15 to 20dB per step. It is easier to refer to range numbers as a relative measure of distance than a setting on a potentiometer. A typical sniffer normally uses between 7 and 10 ranges and most modern sniffers on the two metre band insert the required attenuation automatically.

On two metres the receiving antenna is normally large compared to the wavelength involved. A large number of ranges are required to attenuate the signal as you get very close to the transmitter and couple more and more energy into the receiving antenna. Up to 130dB of attenuation can be required on this band. The need for extra attenuation occurs more and more rapidly as you get closer to the signal source, hence many of the more competitive foxhunters now use automatic ranging on this band.

On 80 metres however, the receiving antenna is quite small compared to the wavelength and a lot less ranges are normally needed as you get close to the transmitting antenna. Typically the attenuation required is about 30dB less than that required for two metres. Therefore since the need for range changes occurs less often on 80 metres a manual range control is usually quite adequate for use on this band.

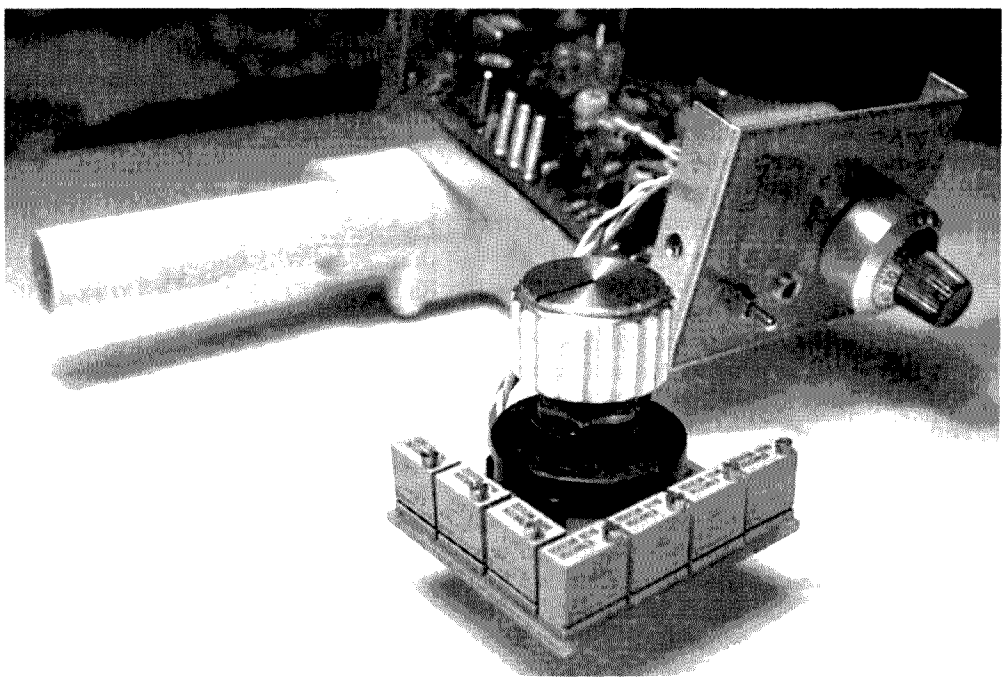

Photo - 80m sniffer stepped range control.

Circuit Operation:

This circuit basically replaces the attenuation control (RV5) on the 80m sniffer. R2 (or R1) provides full 5V supply to the gain control line when the range control (SW1) is set to the lowest two ranges. This sets the sniffer to maximum sensitivity.

For ranges 2 through 8, RV1 through RV7 load down the supply from R2 providing a number of preset voltage divisions. Ten turn trimpots are used, as the levels can be rather difficult to adjust with single turn pots, particularly on the higher ranges. Lower values of resistors for the last two ranges assist with setting these levels. Discrete resistors were not used due to the spread of gain versus

Apology

The Editor apologises to Bryan Ackerly VK3YNG for the omission of his name as author of the first part of this series published in September Amateur Radio on page 4. Further we apologise for any annoyance caused to Ian Stirling VK3MZ who could have been taken as the author of the article. VK5UE

voltage characteristics between sniffers. The multiturn pots are more expensive but result in a simpler solution.

When SW1 is set to the lowest range ("A"), current is drawn through R4 (or R3) which turns on Q1. The collector of Q1 provides 5 volts to the "Audio Switch" line on the sniffer. This effectively overrides the sniffer's tone switch and forces it into audio mode. For ranges 1 through 8, R6 (or R5) ensures that Q1 remains off and the sniffer returns to the mode selected by the mode (Tone/Audio) switch on the main board.

Construction

Construction is straightforward. There are no coils to wind or otherwise special components. There is one surface mount component. Mount Q1 as shown in figure 3. A good pair of tweezers and a small soldering iron is all that is needed to mount this device. The orientation is fairly obvious.

Next mount the fixed and variable resistors as shown in figure 2. If preferred, 0805 case surface mount resistors can be used instead of through hole parts. Note the orientation of the multi-turn trimpots.

Mount the rotary switch next. You may need to cut the shaft to a more suitable length. The top of the switch also contains a ring that determines the number of positions the switch has. Set the switch fully counter-clockwise and remove the ring. Set the tab of the ring into the "9" position.

Finally mount the wiring to connect the range control to the main board. This board replaces sniffer gain control RV5. A fourth wire connects to TP7 that is located immediately below U4 on the sniffer main board. A right angle header can optionally be used to allow the board to be removed if this is desired. If this is done, make sure the header, plug and cabling clear all components on the main board when the box is assembled.

The metalwork drawings for the sniffer assume the stepped range control will be used so there should be no need to drill any additional holes to fit this board.

Alignment

The easiest way to align the range control is with the assistance of an RF signal generator with a calibrated attenuator. Otherwise a 3.5MHz signal source with a low resistance pot (about

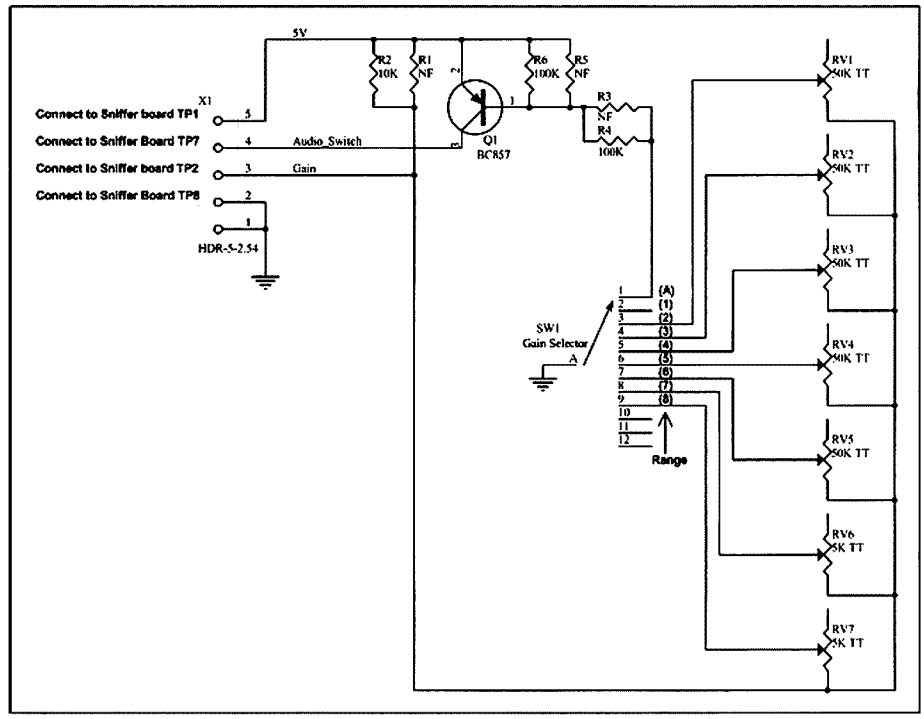

Fig 1 – 80m sniffer stepped range control.

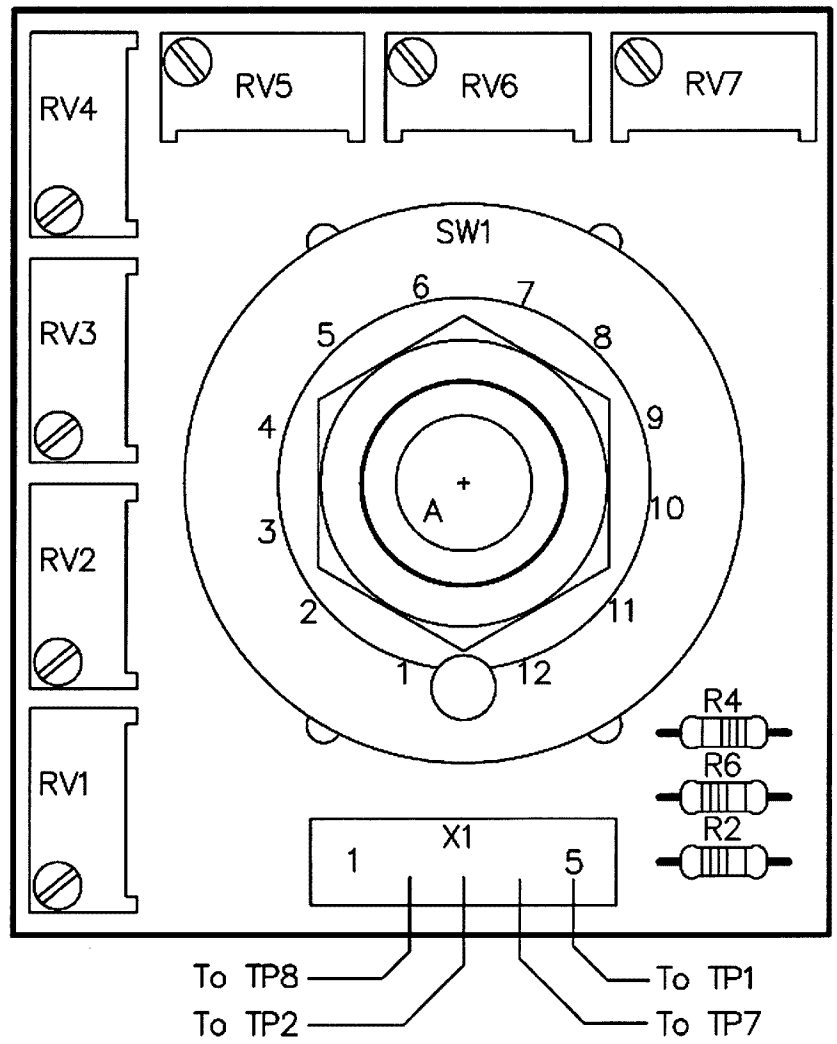

Fig 2 – PCB top assembly.

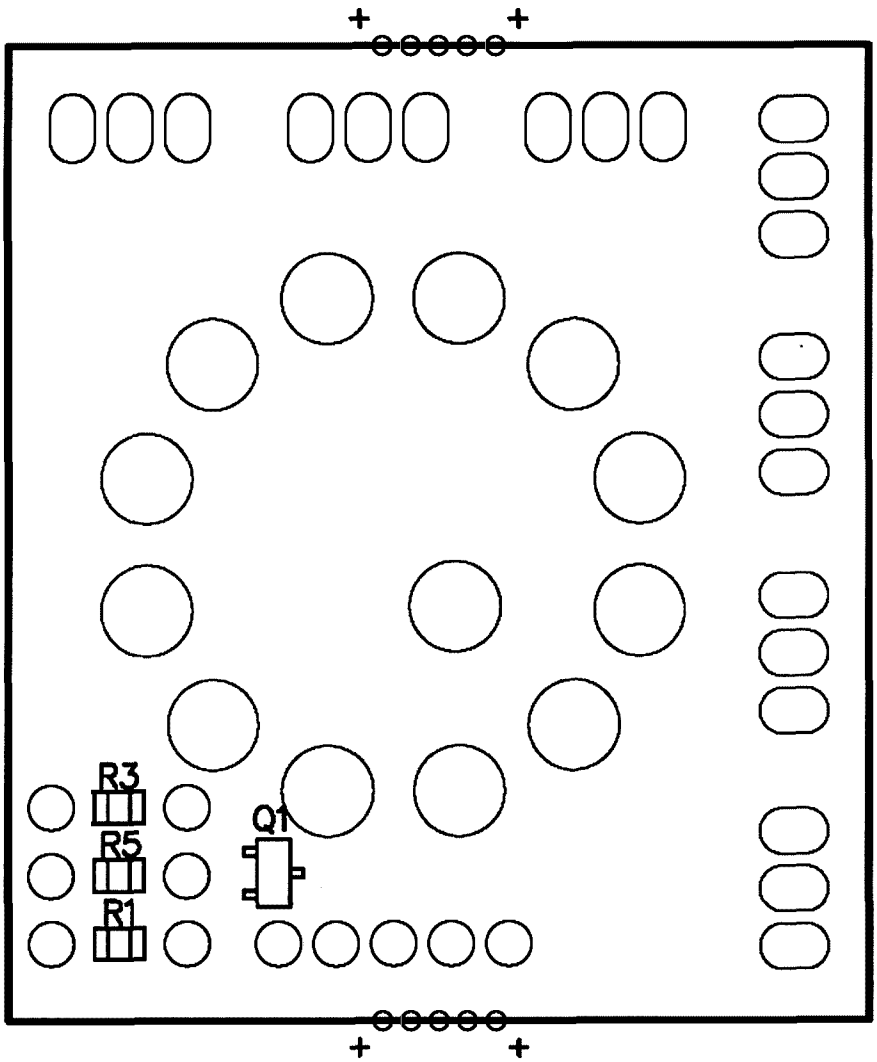

Fig 3 – PCB bottom assembly.

1k to 5kohm) configured as a voltage divider may do.

Connect the signal generator to the antenna port of the sniffer and set it to 3.58MHz with a signal level of about –115dBm. Switch the sniffer to the "Tone" position. Select "A" on the range control and tune the sniffer to ensure the signal is tuned "mid band". Select range 1 and ensure the sniffer reverts to Tone mode. Take note of the pitch of the tone. Set the sniffer to range 2 and increase the level of the signal generator by 15dB. Adjust RV1 until the same tone pitch is heard as on range 1 with –115dBm. Switch the sniffer to range 3 and adjust RV2 for the same tone pitch again. Continue this for RV3 through RV7 until all ranges have been aligned.

The exact signal level is not that important as the main idea is to make sure that there is some overlap between the ranges. The job is just made a bit easier with a proper signal generator, but it is by no means compulsory.

Use the signal generator to step by 1dB steps and verify check that the ranges provide a reasonable amount of overlap. The sniffer should be able to handle levels up to about 0dBm. This should be adequate for normal ARDF foxhunting and should allow you to take bearings right up to the transmitter antenna.

Operation

The range control is set up to effectively allow one-handed operation on an ARDF foxhunt without the need to fiddle with any extra switches. The tone mode does not normally function when signals are very weak. In this case, setting the sniffer to the "A" position will switch the receiver to the Audio (LSB) mode without the need for changing the mode switch. This allows very weak signals to be tuned and rough bearings can be determined. For this to work the mode switch should normally be left in the "Tone" position.

As the signal gets stronger the range control is stepped up through the ranges from 1 through 8. Tone mode is automatically selected when any of the numbered ranges are used. If Audio mode is ever required with attenuation, setting the mode switch to "Audio" will force the sniffer range control to function in audio mode only.

With a bit of practice you will be able to get a good idea of the distance to the transmitter for each range. You will find this much easier and more intuitive than trying to use a continuously variable range control, especially if you are used to hunting on 2 metres with an auto-ranging sniffer.

Continued next page

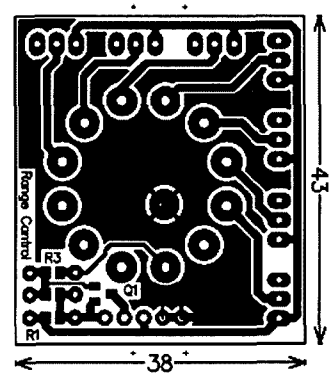

Fig 4 – PCB artwork.

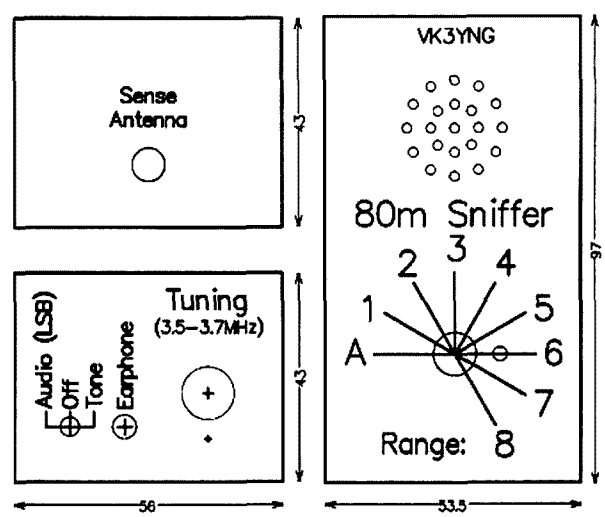

Fig 5 – Front and side panel artwork.

Davpil@midcoast.com.au

Political involvement

Last month QNEWS had an interesting story sent by Jose Jacob, VU2JOS, about how Amateur Radio is promoted in India. The story is quite large and was written by Radhika Sachdev and published in the Hindustan Times newspaper.

It speaks of the world's most fun loving, scientific club of three million licensed 'HAM' operators, of our around 40 earth satellites and of Earth-Moon-Earth (EME) links. The current boom in digital technologies has only fired their appetite more says the article. In India, primarily due to the personal initiative of the late Prime Minister Rajiv Gandhi (then an MP and a licensed HAM operator) who persuaded the government to set aside monies to establish a National Institute of Amateur Radio (NIAR) in Hyderabad. Today, although very few are aware of this, MPs get a special budget to establish HAM clubs in schools as a portion of their constituency development funds. For instance, they mention many nets such as a HAM doctor's association that meets every morning at 7 at 14.150 MHz to swap information on the latest medical breakthroughs; then there's an NRI Club, the Charminar Net (for south Indian buddies) all legitimate platforms to exchange greetings with friends and families. It is an excellent article, a real insight into AR not only in India but the world.

(QNEWS 0810)

South Africa elects a new President

At the Council meeting held by teleconference on Tuesday evening 5 August 2003, Graham Hartlett ZS6GJH was unanimously elected President of the SARL. Graham takes over from Hans Potgieter ZS6ALJ who resigned at the end of July. Peter Hers ZS6PHD was elected as the new Vice President of the SARL.

(sari)

Netherlands new prefixes

New prefixes are in effect in the Netherlands. On the HF bands, PA, PB, PC, PF, PG and PI callsigns can be heard with one, two or three letter suffixes, while on VHF and above, PD, PE and PH are the prefixes, again with one, two or three letter suffixes. For example, Peter, formerly PB0AIU, who sent the RSGB this news story, is now PC2A.

BPL problem now a movie

The ARRL has produced a short movie that documents just how bad the problem of Broadband over Powerlines can be. Bill Pasternak, WA6ITF from the Amateur Radio Newsline has the rest of the story. "BPL is the most crucial issue facing Amateur Radio and the one that has the most devastating potential." The words of ARRL President Jim Haynie, W5JBP. And Haynie is not far from wrong. If you have any doubts that this is one of the biggest challenges yet to the survival of ham radio, simply take your web browser to the ARRL website and click on the link to the on-line movie. Then watch and listen for yourself. To again quote ARRL President Jim Haynie, in terms of interference potential on HF and low VHF frequencies, nothing is on the same scale as BPL.

(QNEWS 2308)

Hams injured in Baghdad blast

The Daily DX http://www.dailydx.com reported that three Amateur Radio operators were injured in the August 19 bombing of the UN Headquarters at the former Canal Hotel in Baghdad, Iraq.

It is understood that Ghis Penny, ON5NT, was at the UN Headquarters when the bomb went off. He reportedly suffered a minor head injury and was evacuated August 21 to Amman, Jordan.

Robert Kasca, S53R, was also working at the UN offices when the explosion occurred but apparently was not hurt. It is understood that he plans to continue working in Iraq. It was also reported that Michael Dirksen, PA5M (ex-PA5MD) was hospitalized in Germany as a result of the bombing and was said to be doing well.

(ARRL N/L 2208)

ar

A stepped range control for the 80 metre Foxhunt Sniffer *continued*

Parts List

R2 - 10k, 1/8W or 1/4W axial resistor

R4, R6 - 100k, 1/8W or 1/4W axial resistor

RV1, RV2, RV3, RV4, RV5 - 50k Bourns 3296W PCB mount multiturn vertical trimpot or equivalent (Jaycar RT-4654)

RV6, RV7- 5k Bourns 3296W PCB mount multiturn vertical trimpot or equivalent (Jaycar RT-4648)

Q1 - BC857, SOT-23 SMD PNP transistor (Farnell 300-0709)

SW1 – Lorlin 12-way PCB mount rotary switch (Jaycar SR-1210)

X1 - 5 pin 2.54mm right angle header (optional)

R1, R3, R5 – Not fitted 0805 SMD resistor (optional, replaces R2, R4 and R6)

For more information:

The Victorian ARDF group web page: http://www.ardf.org.au

Joe Moell's (USA) foxhunting web page: http://www.homingin.com

The Author's web page: http://www.users.bigpond.net.au/vk3yng/foxhunt

The Author's email address: backerly@bigpond.net.au

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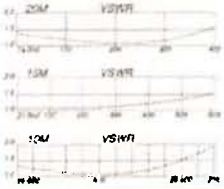

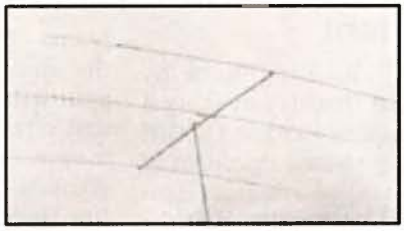

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RF Power output:
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Lo: 0.5/0.5 W El: 50/50 mW
Voltage:
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Weight:
250 gr (with lithium-ion battery pack)

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Mode: FM/FM-N/SSB/CW
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Volt: 13.8 VDC Imp: 50 ohms, SO-239 / N
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GippsTech 2003:

Australia's premier technical conference?

By Jim Linton VK3PC

The program and events that were part of this year's GippsTech undoubtedly enhanced its reputation as the premier technical amateur radio conference in Australia concerning VHF, UHF and microwave bands.

The conference is held by the WIA Eastern Zone Amateur Radio Club at Churchill about 170km east of Melbourne on the first full weekend in July. It includes a conference dinner and a partner's bus tour of local attractions plus shopping spots.

A total of 14 presenters delivered papers on an interesting range of topics including the use of the weak signal software WJST, several on different aspects of propagation, portable and mobile operating, DXpeditioning, and contesting.

The finer details of all presentations can be read in the published proceedings. For more information visit the WIA EZARC website http://www.qsl.net/vk3bez/

Outside the lecture theatre there was a very busy display area and sales tables. The VK5 Equipment Supply Committee were on hand and sold their wares.

The keynote speaker Joe Taylor K1JT gave an hour-long presentation entitled "WSJT, Present and Future". This had been eagerly received by all, particularly the one third present who had already used the WSJT software.

With the use of computer display projection and spectrograms, he demonstrated the four modes:

- FSK441 that uses the scatter from the ionised trails of random meteors to achieve contact distances of 600 to 2,200 km. Those signals typically last only tenths of a second, requiring an extremely high transmission rate and very narrow bandwidths.
- JT44, ideal for contacts over extended distances under most steady propagation conditions. Designed with EME in mind, the software allows extremely weak signals to be added together over successive periods, producing an "averaged" result of decipherable text when each individual 30-second transmission period yields few if any decodable characters. The mode is also useful on long tropospheric paths.
- JT6M is designed for 6-metre band ionoscatter and meteor scatter. This mode can work with signals that are up to 13 dB weaker than those required for FSK441.
- EME Echo – a tool for stations to test their system performance by receiving reflections or echoes of their own signals off the moon.

The VK3KAI rover vehicle in Summer Field Day 2003.
It includes a vertical dual band whip 2/70, vertical Whip for 6 m, 15 m and 40 m, an Alford Slot for 23 cm, Big Wheel for 2 m, Stack of 2 Big Wheels for 70 cm, Offset fed Dish for 10 GHz, and not mounted - offset dish for 2.4 to 5.7 GHz. Can be operational on any band within minutes of stopping at a site!

The WSJT software provides a unique tone or sequence for each letter, figure or character, fixed keying speed, narrow bandwidth, and digital filtering. The coding for each mode is different, based on the requirements for the type of propagation and resulting signal characteristics.

Joe K1JT explained that on average there are 12.7 dits per character in Morse code and all of them have to be received. That results in a loss of up to 11 dB in gain.

Compare this to FSK441 that uses four tones that enable 64 different combinations of tone sequences, and the equivalent of three dits per character. The result is a transmission rate of 147 characters per second, or just under 9,000 letters per minute.

Demonstrated was the software's "birdie zapping" facility that eliminates birdies (unwanted signals) to improve signal copy with only a slight reduction in sensitivity level.

The presentation included discussion on the theoretical limits of the existing WSJT modes. In the United States there is experimentation at 10.3 GHz by two radio amateurs using "Ice-scatter" which is refraction off clouds that contain ice particles.

WSJT was certainly a main theme of the conference. Ron Cook VK3AFW gave two related presentations - one on a better interface between the radio and computer for WSJT, and the use of JT44

as a tool for propagation studies.

Guy Fletcher VK2KU spoke about procedures in Australia for terrestrial use of JT44, while Jim Collins VK3ZYC gave details of the experimental use of WSJT through the VK3RGI 144.434 MHz beacon over the weekend prior to the conference.

Operating temporarily as a weak signal mode beacon for almost two days (46.5 hours) it was logged by 17 stations at distances of up to 805 km in VK2, VK3 and VK7.

With the confirmation that K1JT would be attending the conference, the GippsTech organising committee decided to promote the emerging WSJT theme through a propagation test.

With the approval of the ACA, the WIA Eastern Zone Amateur Radio Club changed the transmission mode of the Gippsland 2 m beacon to JT44 over the weekend prior to the conference.

The beacon transmitted in the first 30 seconds of each minute and "listened" in the second 30-second period.

The computer saved the received audio to hard disk and kept a record of any decoded text. Following the test period, the files were examined to determine which stations had been successful in having their report of the beacon logged by the beacon itself.

At the conference, two prizes were awarded to the most distant stations. No complete reports were submitted for reception only at distances greater than the two most distant stations achieving 2-way exchanges with the beacon – Guy Fletcher VK2KU at 605km and Rex Moncur VK7MO.

Propagation from all angles

A lifetime of investigating radio propagation was the background to an enlightening presentation by Andrew Martin VK3KAQ who spoke on the nature and characteristics of VHF propagation ducts.

While employed at the Telstra Research Laboratories in the 1970s he realised that knowledge of the propagation of radio waves was limited.

In the 1980s he set up his own company, Martin Communications Pty Ltd, and is in high demand in optimising fixed microwave links. In 1999 he received the Clunies Ross National Science and Technology Award.

During his GippsTech presentation, Andrew VK3KAQ explained his findings from the use of a SODAR, or sonic radar, used to measure atmospheric density fluctuations as a function of height up to about 800 metre.

Based on observations made to date at a site near Melbourne, he said elevated ducts in the troposphere usable for radio occur at about 600 metre, and in fact they form and dissipate at that elevation, rather than as some believe change their height above earth.

As far as he can determine, these ducts appear as far south as Mt Gambier and to Townsville in the north. The main duct appears at the 30th parallel running east to west. They dissipate during daytime.

Other ducts are formed along coastline due to temperature inversions created by a convergence of sea and land air masses.

Andrew VK3KAQ said, "A duct acts like a bandpass filter, varying due to its thickness." The changes in its density are correlated with the ability or efficiency of a duct to be useable for some frequency bands at a particular time and not others.

He described why tropospheric propagation can be available say on 2-metre, while not on 70 cm, 1.2 GHz or higher, but as the density of the duct varies so does the optimum usable frequency.

The point at which a signal enters a duct can be important, and a station located higher than the duct is likely to be refracted out of the duct.

There were two other speakers on propagation. Brian Tideman VK3BCZ talked about the mysteries of sporadic E-layer ionisation.

This propagation mechanism has been known to exist since the 1950s, yet it still cannot be accurately predicted. Those interested in this topic are advised to read the paper by Brian VK3BCZ.

In a related topic, Jim Collins VK3ZYC talked about access via the Internet to a useful aid to propagation. The Bureau of Meteorology has some 50 radars that are primarily used for tracking rainfall.

They are also indicators of anomalous propagation, or what is known as the "phantom rain effect". These appear on radar displays just like rain, but where obviously due to weather conditions no rain is falling.

Jim VK3ZYC showed examples of these displays, which are a good indication of enhanced propagation. The radar displays can be viewed by logging into www.weatherzone.com.au

Go hopping and score well

The world of "rover" operation, or grid square hopping during VHF/UHF Field Day contests, was demonstrated by Peter Freeman VK3KAI, who has been a rover.

With images of rover stations pulled from cyberspace, he showed the two basic types – "run and gun" and "stop and shoot".

As their names indicate, the difference between the two is the former does not require the setting up of any antennas because they are all mounted and ready to fire.

The benefit of rover operation is the ability to operate from more than one grid square within short time spans. Peter VK3KAI said, "During six hours is it easy to work from four grid squares and reap the scoring benefit not only for yourself, but also enhance the scores of others."

Theoretically, if a rover selects a four grid square corner, it only needs to move short distances. In practice finding such a corner that is accessible and suitable can be a challenge.

In a separate presentation, Peter VK3KAI gave details of useful mapping software for use by those operating portable or mobile.

The GippsTech program also included:

- Chatham Island DXpedition – Bob McQuarrie ZL3TY
- Update on EMR standards – Doug McArthur VK3UM
- An aircraft luggage compatible portable mast and Yagi for 2 m – Mike Farrell VK2FLR
- VHF/UHF activation of VK9L Lord Howe Island – Rex Moncur VK7MO
- Determinants of receiver sensitivity – Doug McArthur VK3UM
- A forum on VHF/UHF and Microwave contesting.
- A discussion on amateur licence reform.

GippsTech 2004 will be held on the weekend of 3-4 July. Anyone interesting in joining the program as a presenter should contact Peter Freeman VK3KAI, Chair of the Organising Committee, on email vk3kai@qsl.net

ar

The creator of WSJT

A suite of computer programs developed for weak signal working has opened a new chapter for amateur radio experimentation, with a few users eagerly pushing it to its limits.

By Jim Linton VK3PC

Keynote speaker at the GippsTech 2003, an annual technical conference for amateur radio VHF/UHF and microwave techniques, Joe Taylor K1JT gave an insight into the software he developed that has revolutionised weak signal communication.

His personal interest in amateur radio started as a novice operator in 1952, when along with his brother Hal, in New Jersey, he began exploring the world of VHF communications.

Among their achievements was winning a VHF contest through the use of collecting multipliers by ionospheric scatter, a weak signal technique that was not widely understood.

Joe's initial amateur radio interest led into his professional life as an astrophysicist where he applied special techniques to extract extremely weak signals from the stars.

Ultimately he gained the Nobel Prize in Physics in 1993, shared with Dr Russell A Hulse, ex-WB2LAV, for the discovery of the first binary pulsar. That discovery sparked research into astrophysics that puts Albert Einstein's theory of relativity to the test.

Return to amateur radio

Inactive in amateur radio for several years due to his professional endeavours, he returned in 1999 to the hobby he readily credits with his success in physics.

In 2001 he released free software known as WSJT for VHF meteor-scatter communication. It is a computer program that makes it possible to communicate with very brief signals, commonly referred to as pings, which require special techniques to enable the transfer of meaningful information due to the short duration of the signal burst.

Joe later released a second mode which allows reception of very much weaker signals than would be possible using the traditional methods of SSB or CW.

Today WSJT, with four propagation modes, is known to be in use by a large number radio amateurs in the Americas, Europe, Africa, Japan, Russia, New Zealand and Australia.

Software development is continuing with some changes being promised soon. Joe K1JT explained: "I normally first implement proposed changes in a simulator, which I have just developed in software."

"It enables me to test out the new protocols and do transmission and reception tests between one computer and another with some generated noise to simulate the real electromagnetic propagation mechanism."

At GippsTech 2003 he described one proposed protocol that would use coherent or synchronous signal detection. That is known to be extremely effective for very weak signals based on the results of limited on-air testing.

It was obvious from Joe's presentation, and spending some time with him during the two day conference, that he very much enjoys what he's doing, and his enthusiasm is infectious.

"The main purpose is for fun, and the kind of fun that makes amateur radio so enjoyable," said Joe K1JT.

Impressed with GippsTech 2003

In praise of the organisers and the presenters, Joe K1JT said, "I am extremely impressed. This is a group of people much like radio amateur clubs and groups I've mixed with in the United States and elsewhere."

"But they're a relatively sophisticated group. These people are more than just dabblers. They are extremely interested in the details of what makes radio work, propagation mechanisms so varied and interesting.

"The details of honing an amateur radio station to the very highest level of capability are all represented in the papers delivered by the presenters."

When asked if he personally learnt anything by attending the conference, Joe K1JT replied, "I certainly did. Some fascinating results."

He (and all who attended) were particularly struck by Andrew Martin VK3KAQ's presentation on the acoustic probing of the atmosphere, and its findings in relation to tropospheric duct propagation.

Joe Taylor K1JT, Keynote Speaker at GippsTech 2003

Joe K1JT spoke to Andrew after his presentation to discuss in greater detail his findings about the mechanisms involved in tropospheric propagation. He also obviously enjoyed chatting with those who had home-brew equipment and antennas on display.

Future of amateur radio

The topic of the WIA's proposal for a new entry level licence was discussed at the conference. During a session led by the author of this article, there was clear support for the WIA initiative.

Later Joe K1JT was asked his view on the discussion session. He replied, "We were all discussing the question that concerns many of us that we may not be replenishing our ranks at the level that would be healthy for society and our own national interests.

"Amateur radio has traditionally been a mechanism for getting young people involved with science and technology."

However, these days "We are not interesting enough youngsters in these kinds of things," he said. It was interesting to hear that Australian radio amateurs share the same concerns as those in the United States.

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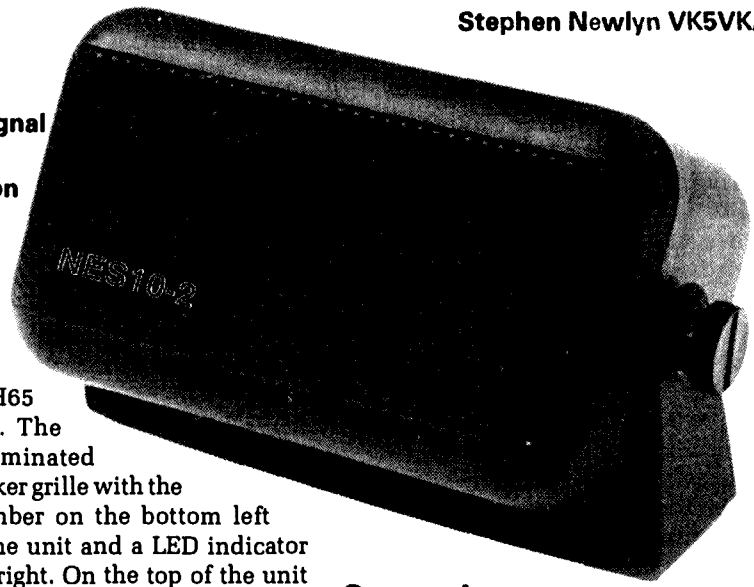
Product Review

The bhi NES10-2 DSP speaker

Stephen Newlyn VK5VKA

Since the demise of VNG (Australia's HF Time Signal Service) I have been trying to work out a way to receive time signal station WWVH from Hawaii on 15 MHz with a clearer signal during the Australian daytime. Most days WWVH starts to fade into South Australia around 0300 UTC but the signal is noisy from natural noise as well as some local electrical interference.



In late 2002 I saw a review of the bhi (http://www.bhinstrument ation.co.uk) NES10-2 DSP speaker in the UK publication "Shortwave Magazine" which gave the product a good review and then finally I saw a review in the Australian publication "Radio and Communications" March 2003 edition.

I've heard about DSP on high end receivers and transceivers but because of the cost I was not prepared to buy one of those (well at least not until the DRM receiving mode is provided for, but that's another story!). Well; I decided to buy a NES10-2 speaker and spent $AU339 (including postage within Australia) from the official dealer, Andrews Communications in Sydney. They can be found on the Internet at (http://www.andrewscom.com.au/).

The speaker arrived double boxed so there was very little chance of damage during transit from Andrews and it was sent registered post.

The United Kingdom manufactured bhi NES10-2 is small in size, coloured black, rectangular in shape and its size is W110 x H65 x D55 mm. The front is dominated by the speaker grille with the model number on the bottom left corner of the unit and a LED indicator on the top right. On the top of the unit there is a "Sensitivity Control" and a "On/Off Noise Cancellation" switch.

On the rear of the unit are "Dip Switches", a printed "Noise Cancellation Selection Table", "Audio Input Lead" and a "DC Power 2.1mm socket".

On the left side of the speaker is a "Headphone" socket. On both sides of the unit you have support for the supplied and fitted "Mounting Bracket".

Accessories supplied (for the Australian Market) include a Mounting Bracket, 2 Fixing Screws, 4 Small Self Adhesive Feet, 24 Page Operating Manual and a 2m DC Power cable.

Setting Up

After a good look at the manual, which is well written (Yes! I am one of those who reads the manual first!). I proceeded to hook up the unit to DC power, unfortunately due to how my radio shack is laid out the DC supply was 3 metres away so I had to make my own cable, as the supplied cable was 2 metres long.

I then connected the supplied 2 metre long speaker cable to the test receiver (in my case a Drake R8A Communications Receiver which needed a 6.5mm adaptor as the supplied cable uses a 3.5mm plug).

Operation

There is no actual on/off power switch for the speaker, so you just turn on any 12-28 volt dc power supply to operate the unit.

As power is turned on the LED light glows. The LED indicates which position the "On/Off Noise Cancellation" switch is set. If the LED is glowing red it indicates that DSP function is off and if it's coloured green it indicates the DSP function is on. If you are colour blind though the intensity of the LED changes with mode so you can easily see the mode change.

There are two controls which once set rarely need to be adjusted (unless of course you change the connected receiving equipment or encounter a signal that needs extra processing). They are the "Sensitivity Control" and the "Dip Switches".

The "Dip Switches" by default are already set to Level 6, this setting appears to be well thought out as I found pretty much that this is the optimum setting for general use. However you may find a lower or higher setting to be more suited to your situation.

The operating manual says that the "Sensitivity Control" is set at first, by turning it fully anti-clockwise and then turning it back a quarter of a turn." Further adjustment may be necessary

Stephen Newlyn VK5VKA has had an Amateur Licence since 1991 and has been Shortwave Listening for about 30 Years. For a number of years he was Chief Editor for "DX Post" of the now closed Shortwave listening "Southern Cross DX Club", and has written articles for "CB Action" and "Two Way" magazine during the 1980s.

Gil Sones VK3AUI
30 Moore Street, Box Hill South Vic 3128

PA0FRI's S-Match Antenna Tuner

An interesting antenna tuner appeared in the *Technical Topics* column of Pat Hawker G3VA in *RadCom*, March 2003 and also in *Electron*, June 2003. The author was Frits Gearligs PA0FRI who presented an Antenna Tuning Unit which he had developed to provide a symmetrical and universal ATU system.

The development of the S Match is shown in Fig 1(a). The final design is shown in Fig 1(b)and Fig 1(c) where one and two toroid versions are shown. The transformer is part of the tuning system and a ferrite toroid is not suitable for high power and the windings need high voltage insulation. With some antenna systems a better match can be obtained when the antenna is connected as shown by the dotted line shown in Fig 1 (b) and Fig 1 (c).

The single toroid version , shown in Fig 1(b), uses a T200-2 toroid for powers less than 400 watts or a T200A-2 for powers over 400 watts. The winding of the T200-2 toroid is 2 x 8 bifilar turns of Teflon covered wire. Note that this gives 4 windings of 8 turns as shown in the diagram. The T200A-2 toroid is wound with 2 x 6 bifilar turns of Teflon covered wire.

The double toroid version , shown in Fig 1(c), uses two T200-2 toroids for powers greater than 400 watts. The winding of each of the T200-2 toroids is 11 bifilar turns of Teflon covered wire.

For both Fig 1(b) and Fig 1(c) if any imbalance occurs interchange connections to a and d (and/or b and d).

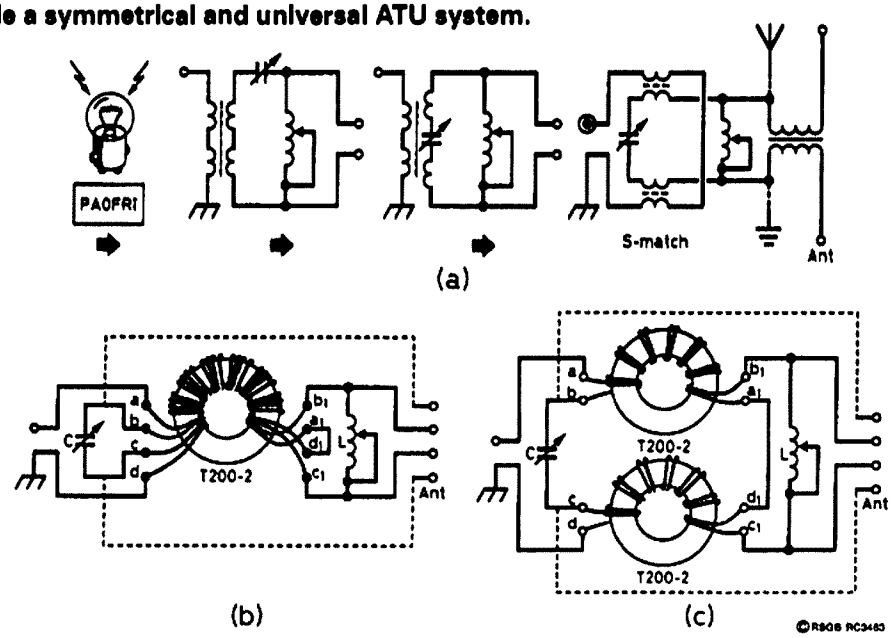


Fig 1.(a) Development of PA0FRI's S match symmetrical and universal ATU. (b) Single toroid version. (c) Double toroid version.

For 10 to 160 metre operation the roller inductor L should have a maximum inductance greater than 20 microhenries. Capacitor C should have a maximum capacitance greater than 200 pF and a minimum capacitance less than 15 pF. The inductance a-a_1 + d-d_1 is about 3 microhenries. For 10 - 30 metres a-a_1 + d-d_1 is less than 3 microhenries and for 30-160 metres a-a_1 + d-d_1 is greater than 3 microhenries.

As both input and output are isolated the system can also be used for single wire antenna systems working against ground.

Product Review:The bhi NES10-2 DSP speaker *continued*

but most modern equipment will accept the settings mentioned in the manual. By the way the "Sensitivity Control" is designed so that it cannot be easily changed (accidentally bumped etc).

Well the next thing to do is to switch "On/Off Noise Cancellation" off and then find a signal which has a bit of noise. Then switch on the "On/Off Noise Cancellation" switch. It may take a couple of seconds for the DSP to work when you will notice a distinct improvement in audio quality with less noise and in most cases a much more listenable signal.

I've tried it on all types of signals including AM Shortwave Broadcast, Long Wave Beacons, SSB and Morse Code signals. Audio quality is improved substantially.

On some signals there is a "Robotic" sound on some voice type signals but actual clarity is better than listening to the noisier unprocessed signal.

Leaving the "On/Off Noise Cancellation" switch on sometimes make you wonder whether the radio is actually working because it makes background noise almost disappear as the usual crackle and pop is virtually gone.

Conclusion

Some products when released, arrive with a lot of hype and fanfare and turn out to be not as expected; however in the bhi NES10-2 speakers case I believe that this is not the case. I would thoroughly recommend this product to any one wanting to improve their reception of radio signals without spending a huge amount of money on a new DSP based receiver or transceiver.

Notes

This product was bought outright by the reviewer and is not a free review unit. The unit was not tested with any test equipment apart from my ears and comparing signals. For USA based readers this product is sold as the GAP HEAR-IT. Please check the website at *http://www.gapantenna.com/*.

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The protector

A device to protect your transceiver from over-voltage or reverse polarity was described in *QST*, June 2003 by Mike Bryce WB8VGE. The device is designed to be placed between the radio and the power source and it will provide protection against a reverse connection to the power source as well as protection from the power source rising to an excessive voltage. A delay circuit helps protect against turn on transients.

The circuit of the device is shown in Fig 2. The power source is connected to the radio by a relay which is a high current 12 volt relay. The resistors in series with the coil are to reduce the current drain and allow the relay coil to run cooler. The relay used was a 40 amp contact device with a 12 volt coil. The relay drops out when the power source falls to around 9 volts providing a low voltage disconnect.

The delay start is provided by U2A and Q1. U2A provides the delay and Q1 holds the drive off to the relay until the delay has elapsed. Q1 also removes the drive to the relay when an over-voltage is present. An over-voltage is detected by the voltage drop across D2 which is a 14 volt Zener together with the voltage drops across D1 and D3. The over-voltage trip point is in the region of 15 volts. Adjustment is by using a different Zener voltage.

A low voltage warning is provided at approximately 10 volts prior to the relay dropping out in the region of 9 volts.

One addition to the original circuit is D8 which is placed across the reverse polarity LED to protect it from reverse voltage which may damage it in normal operation. Most LEDs only have a fairly low reverse voltage rating.

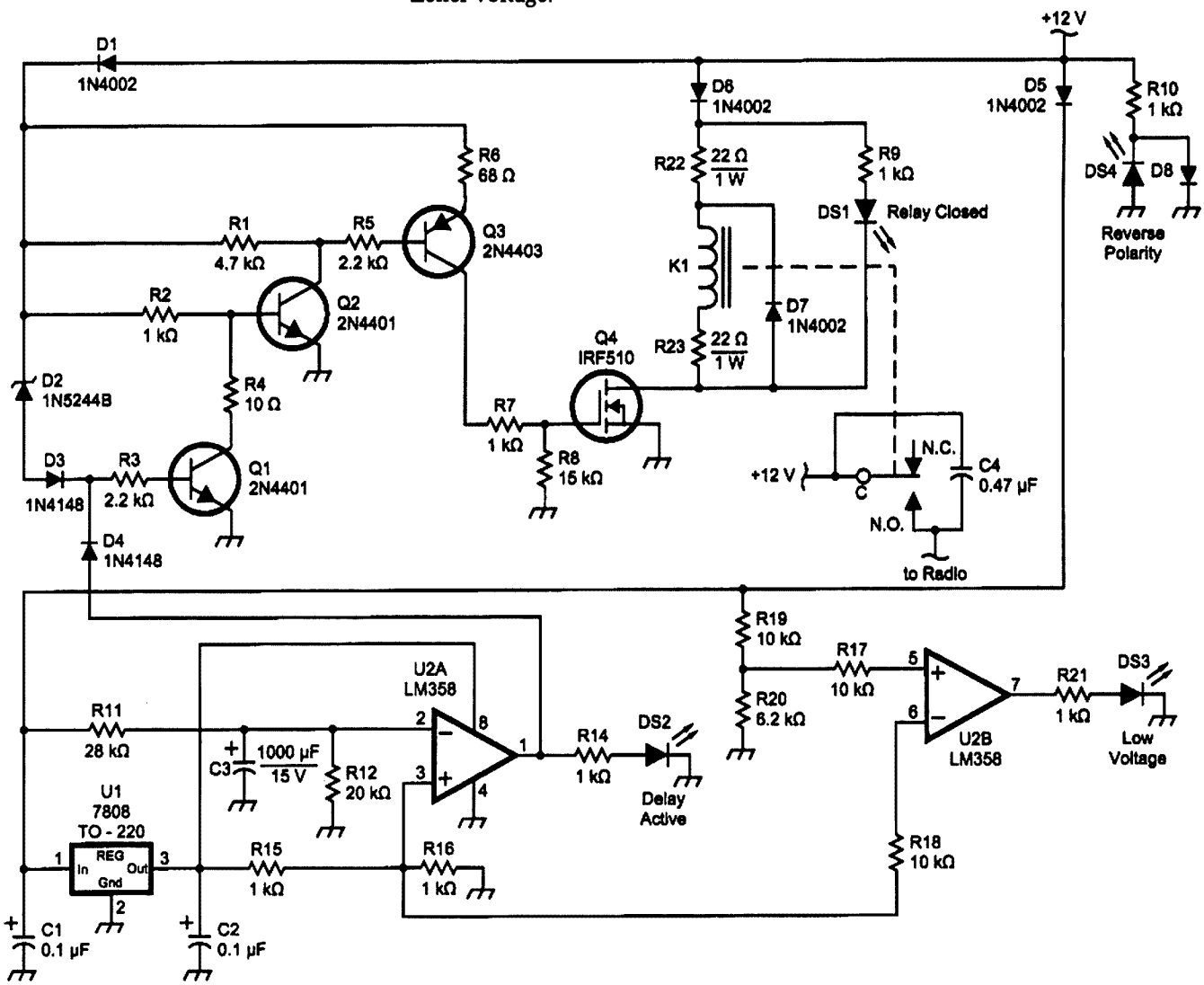


Fig 2. The protector DC input watchdog and shutdown circuit.

Hanging wires flexibly from trees

An interesting method of hanging wires from trees appeared in the *Hints and Kinks* column of Bob Schetgen KU7G in *QST*, July 2003. The idea came from Jack Schuster W1WEF who has several antenna wires strung through a wooded area around his home. To minimise wire breakages when branches fall Jack developed a means of flexibly hanging the wires.

The wire hanger is shown in Fig 3. All Jack's antenna wires are #14 or #12 AWG insulated stranded wire. The wire hanger is made out of an 8 inch piece of #14 AWG solid insulated wire. The hanger is made by winding close to 4 inches of the hanger wire around the antenna wire each side of the loop of rope, used to support the antenna wire, which is looped around the supporting branch. This leaves plenty of opportunity for the supporting branch to move. Should the antenna be struck by a falling branch the tie wire can unravel and leave the antenna wire unbroken. The antenna can then be repaired by clearing the fallen branch and redoing the wire wrap.

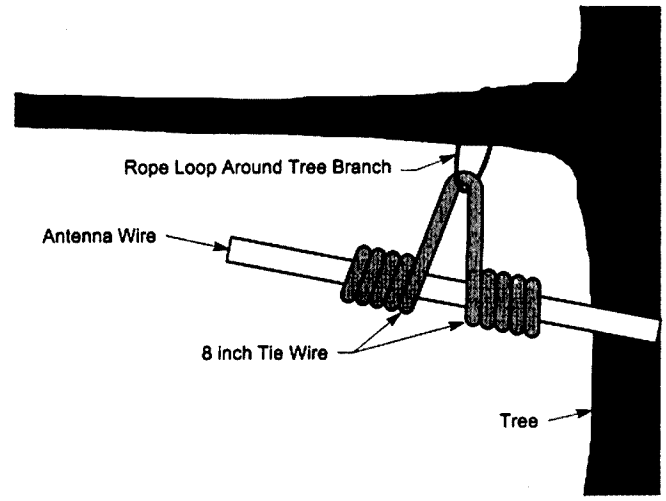


Fig 3. Wire wrap used by W1WEF when hanging antenna wire in trees. A falling branch causes the wrap to unravel and release the antenna wire before it breaks. The repair is then simply to clear the fallen branch and redo the wire wrap.

Amateur Television in VK5

By Barry Cleworth VK5BQ

This article is intended to give a general overview of Amateur Television activity in South Australia, and to provide an information base for interested hams to set up a station on 1250 MHz FM or above. ATV is a fascinating mode that goes beyond just basic communications, but provides limited entertainment, and self instruction in the art of building equipment through the medium of vision.

There may be a perception by some amateurs that programme material may be restricted to perhaps test patterns or colour bars with little interest but let me assure you that this is not the case. Whilst copyright provisions obviously preclude the transmission of commercial broadcast material including tapes, there are many hams ready to play their holiday videos over ATV, and when well taken, these can be quite interesting and entertaining. Public shows such as speedboat racing, processions, ham conventions, barbecues and parties given by AR friends are always interesting to see. Radio club lectures have also been televised.

One of the most interesting activities is the display of our shacks and equipment, including new ATV transmitters and allied equipment being built.

Another interesting use for ATV is the connection of the home computer via a suitable video card in the computer to your transmitter. When the video card in the computer has a TV output capability and can be switched to a 50 Hz frame rate, the pictures or text can be fed to the transmitter with flicker free results. Personally, I found this particularly valuable several years ago when I had purchased a new computer and had to learn how to use it. Lee VK5YLE being very computer literate viewed my signals from over 70 km away giving me valuable tuition on the computer that was appreciated.

Requirements to build a station

There is no doubt that it is far easier to set up an ATV station now compared with the 60s and 70s when people like Maitland VK5AO and others made their own cameras and sync. pulse generators, in addition to receivers, transmitters and antennas.

Perhaps the first and most expensive item to obtain may be the video camera, but these may be obtained fairly cheaply second hand. A shack camera doesn't have to be the latest digital wonder. Many stations use cameras such as the early CCD Panasonic M7 cameras or similar which may be considered too bulky for the family holiday, but are ideal to start an ATV station. The next commercial items to look for would be TV sets and satellite receivers. Receivers for FM ATV (on 1250 MHz and above) up to the mid nineties were usually home built, from front end converter to IF and video and audio output stages. Since the introduction of digital satellite TV, the availability of surplus analogue Satellite receivers has made the receive requirement very much easier.

Satellite receivers have been sometimes obtained for as low as $50 or even less (for example the "Ward" brand), but prices may range up to $100 and beyond, some being new and others secondhand. When looking for Satellite receivers and TV monitors it is advantageous, but not essential, to find a make which has no blue screen video mute system, or a mute system that can be switched off via the menu. The reason for this will be apparent when searching for weak signals. When the sync. pulses become very weak or disappear, the blue mute is triggered making it difficult to peak up your antenna from a noisy picture. Most of the latest TV receivers have this facility but fortunately it can be switched off. Old TV receivers will not have the blue mute system but some of these will also not have AV connections which are a distinct advantage, if not a necessity. However, sometimes older TV sets may be used by connection to the RF out socket of a VCR. The old analogue computer monitors such as the Commodore 1084S are also very satisfactory for use instead of a TV set, if in good condition.

Since the tuning range of most satellite receivers is about 900MHz to 2150 MHz depending on the make, the connection of a suitable antenna to the receiver followed by video and audio output connections to a TV receiver, will enable

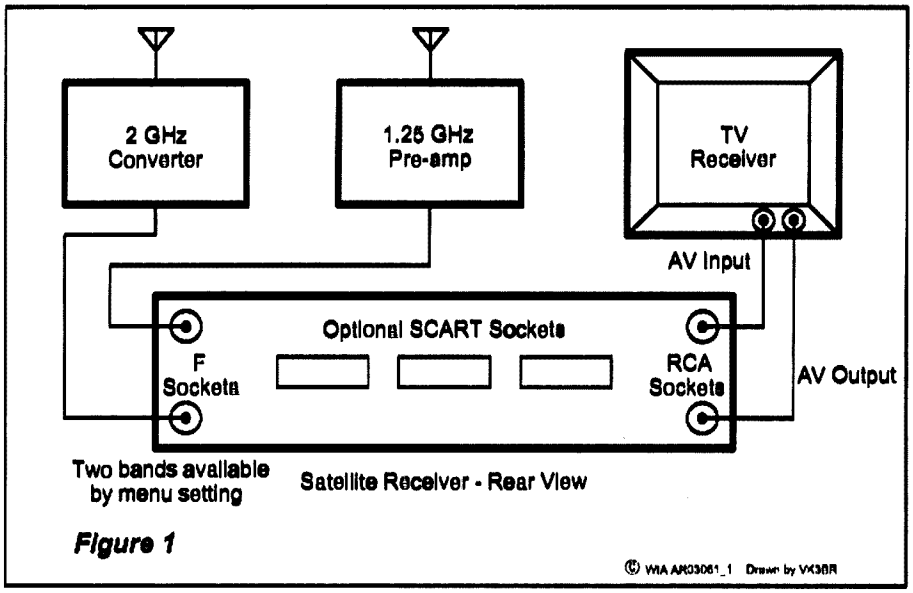


Figure 1

the viewing of most 1250 MHz ATV signals, providing the path between the respective locations is reasonably unrestricted. However there are many variables to be considered and sometimes trees, when wet may cause a problem, but should not always be blamed. I have regular daily contacts with Graham VK5JD on 1250 MHz looking through a several hundred metres long stand of large Eucalypts, with a total path distance of over 80 km Rarely is the signal much less than noisefree.

To increase the range of reception on 1250 MHz, a preamplifier may be employed, but if reception of 2 GHz 5 GHz or 10 GHz is contemplated then the addition of a converter preceding the Satellite receiver will be necessary. In this case a preamplifier is not usually required for good sensitivity.

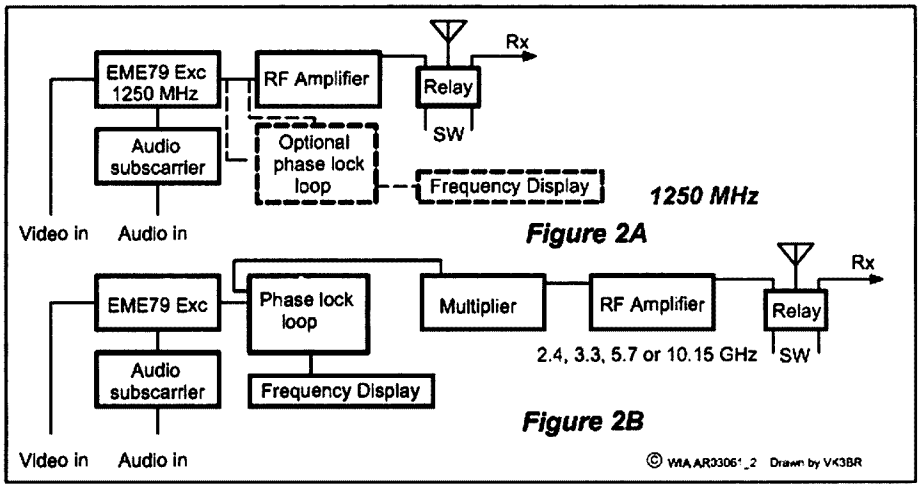
Figure 1 shows some simple hookups to form a receiver for two bands.

Most satellite receivers have two 'LNB' inputs that can be entered into the memories of two separate channels to facilitate band switching.

The transmitter

Complete commercially built up amateur transmitters for 1250 MHz FM and above are not normally available, at least in Australia to my knowledge, with the result that this phase of the project is still in the realm of the "home brewer". However, the project becomes relatively easy and quite interesting with the use of kits being available for the various sections of the transmitter. One of our early ATV pioneers on wideband FM ATV, Mark VK5EME, designs and markets excellent kits under the name of Minikits. Details of these kits are readily available on his website, www.minikits.com.au

Prices for the kits are very reasonable, particularly when compared with overseas products. A particular advantage in the use of kits is that the various sections of the transmitter can be purchased and built up over time as your budget permits. Comprehensive instructions are included with every kit and providing care in construction is exercised the results will be excellent. The block diagrams in figure 2a - 2b illustrate how a particular transmitter may be assembled from built up kits. The kits are subsequently mounted in a box, after which they are interconnected



to form a complete transmitter .The exciter and audio subcarrier board kits can be used as the basis for a switched band ATV transmitter, but I have opted for separate exciters for each band.

Some of these kits are intended for experienced constructors, and although adequate instructions are included with the kits, I will make a couple of extra points. Since most of the components are of the surface mount (SMD) variety and are very tiny, they may be a problem for some constructors with eyesight deficiencies. However, this usually is easily overcome with the use of optical aids (e.g. various types of magnifiers) to allow the work at hand to be viewed at very close distances which is very important.

Another consideration is the soldering iron. It is important to use a suitable low voltage, anti static iron with a very fine tip and sufficient heat. The joint must be made quickly and precisely with a steady hand, otherwise some types of PCBs may be damaged by prolonged heat, and the possibility of short circuits from solder 'dags' will be a problem where the boards cannot be examined clearly at close range. Also be very careful not to mix up component values, as the surface mount chip capacitors, for example, are not individually marked with their value. All these tips will be readily obvious to experienced constructors but I feel it should be mentioned for the sake of newcomers to small SMD components.

From the various kits on offer it will be seen that there are choices available. For example the EME79 kit can be used as a 1250 MHz exciter, with free running oscillator, followed by an RF power amp of up to 18 W output, and when combined with a 5.5 MHz audio subcarrier kit, it will be a complete transmitter, ready for connection to a video camera and antenna. This is illustrated in Figure 2a.

The stability of the free running oscillator is quite satisfactory, particularly for strong signal paths when any frequency drift up to a few megahertz is just not noticed, but if it is desired to improve the drift factor, and also be able to accurately know and vary the frequency, a phase locked loop kit can be added, as an option, shown in figure 2a. Multiplier kits are also available to enable operation on the higher bands, for example 2.4 GHz, 3.3 GHz, 5,7 GHz, and 10 GHz, as shown in figure 2b, and the inclusion of the phase locked loop kit for these frequencies is really essential. For correct alignment on frequencies above 1250 MHz, it is desirable to have access to sophisticated test equipment, e.g. A spectrum analyser and microwave power meter.

Full details of all kits are available on Mark's website.

Deviation used in amateur television is approximately plus and minus 3 MHz giving a total channel bandwidth in the order of 18MHz or greater, which is more than adequate for amateur purposes, Wideband FM easily produces good quality transmissions and is still used in broadcast stations in some OB, and other applications. For amateur television the weakest link is normally the video camera which will determine the vision quality.

The antenna

Antennas for use on 1250 MHz and above vary in size, gain and building difficulty depending on the results required and the frequency of intended use.

The simplest antenna to build is the so-called double diamond or bow tie that has been used on 1250 and 2400 MHz When used with a reflector, the gain of this design is usually approximately 10 dB, and is mainly used on short path lengths of the order of 10 to 20 km. I have seen an antenna of this design situated inside the shack of David VK5KK receive 2.4 GHz signals noisefree from a repeater about 10 km distant. Granted, the path was quite clear but it demonstrated the advantage of such an antenna, particularly for use by amateurs in difficult locations where repeater operation only was possible over a short path length.

Whether transmitting to, or receiving from stations (including repeaters) at greater distances, consideration should be given to the use of higher gain antennas such as the popular loop yagi, or parabolic dish. Examples of distances regularly worked will be described in a following section.

Loop yagis being most suitable for 1250 MHz, and 2.4 GHz, are not difficult or expensive to make, and have been described in various amateur radio text books and magazines. Depending on the boom length that can vary from 6 feet to 12 feet for a 1250 MHz design, the gain may vary from 18 dbi to 20 dbi. Making up the loops from aluminium or copper sheet may be a little tedious when the number required is 40 or more, but the effort is well worthwhile, as the end result is a relatively inconspicuous, but effective antenna for use in sensitive suburban locations. Normal yagis such as the K1FO or DL6WU design should also be considered as they also work very well.

Parabolic dishes however, will require a little greater degree of skill in metal working, with the availability of brazing or mig welding equipment being required, when an open tubular steel framework is employed. Dishes used at my station for 1250 MHz, 2.4 GHz, and 5.8 GHz are home built using a framework of half inch square steel tube formed on a profile, brazed to a center support, and covered with 1/4 inch galvanized mesh. An examples of these are shown in Photo 1. The use of mesh has the distinct advantage of producing minimal wind resistance, resulting in mounting methods being less critical. The size of the mesh varies depending on the frequency of intended use. 1/4 inch mesh is used in my dishes on 1250, 2400, and 5870 MHz, but a larger mesh would be quite satisfactory on 1250, as long as the size is not greater than about 1/10 of the wavelength.

Where operation on 10 GHz is contemplated, 600 mm pay TV type dishes are very suitable, being available commercially and one of these is used at my station for 10 GHz receive. The feed is a modified commercial satellite LNB.

Notwithstanding the extra constructional difficulties involved for a parabolic dish, the extra gain achieved makes it all worthwhile. Depending on the size of the dish with a particular frequency used, gain can vary from 25 dB to 30 dB or more. The sizes of my dishes vary from 2.1 metre in diameter for 1250 MHz, to 1.2 metre for 2.4 GHz and 5.8 GHz

Gain of a dish will increase with the size of a dish used for a given frequency. One of the advantages of microwaves particularly at 5.8 GHz and above is the ease of obtaining quite high EIRP using dishes of moderate size of about one metre or less. Consequently this will require transmitter powers of only a few watt for relatively long distance contacts.

For example, I regularly receive Ben VK5RD on 10 GHz ATV over a path length of 70 km at P5 for about 90% of the time. Ben's TX output power is only 1 watt, with 600 mm parabolic dishes used at both ends. The amazing fact is that we are nowhere near line of sight, both of us being of the order of 33 metre ASL inclusive of antenna height. The path is mainly over water and we are most likely being assisted by an evaporation duct, situated fairly close to sea level. For the purpose of indicating video signal strengths the "P" scale is used, and is described as follows.

Impairment	Video S/N (Unweighted)
P5 imperceptible	41 dB
P4 Perceptible but not annoying	33 dB
P3 Slightly annoying	29 dB
P2 Annoying	24 dB
P1 Very annoying	19 dB (estimated)

The above table is sourced from ITU-R references and lists vision subjective and objective ratings.

Discussion as to the choice of feed type for the dish is beyond the scope of this article, however various types have been tried including waveguide type feeds which are easy to make from various published articles. Usually the choice is determined by the F/D ratio (Focal Length/Diameter) and the frequency in use. The testing of the feeds for SWR etc. however, is not easy for people without special test gear. However, it is possible to make some of these feeds and have a lot of fun without actually knowing exactly what the gain and SWR is, providing duplication of a proven design is accurately undertaken.

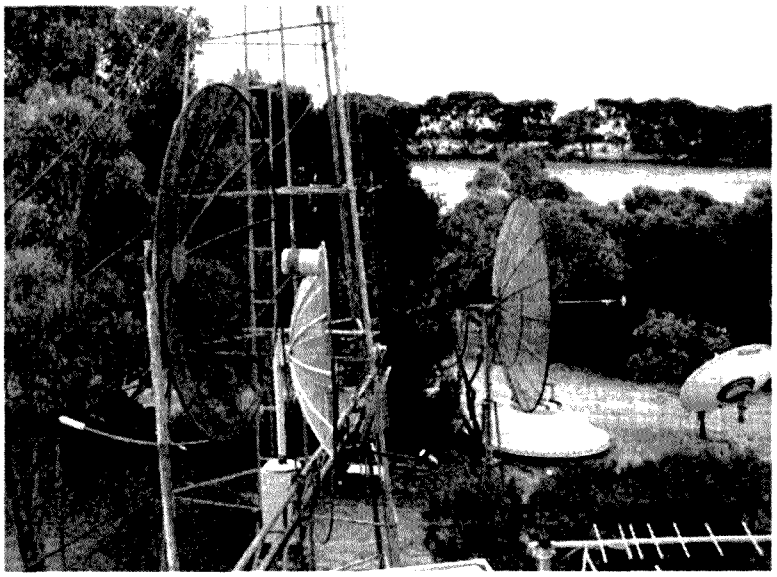


Photo 1

Activity on the various ATV bands

Since the cessation of the AM repeater VK5RTV on 576 MHz, most ATV activity is on simplex FM on 1250 and higher frequencies, examples of which will be described later. However, an excellent repeater VK5RHV, on the frequency of 2.439 GHz has been recently designed and built by Ben VK5RD. This repeater is situated on a hill approximately 200 metre ASL, and has a very extended coverage across Adelaide. It is received at a strength of P5 with plenty of headroom (i.e. dbs above the noise) at my QTH that is approximately 70 km west, across the gulf of St. Vincent, at a height of 33 m ASL. The input frequency is currently 426.25 MHz AM, but may soon be modified to include an alternative input on 3GHz FM.

Another repeater on 1283 MHz (VK5RWH) exists on the same site but with limited coverage mainly to the North and South.

1250 MHz is the most widely used frequency for ATV in VK5, including daily simplex contacts from my station in Stansbury to various destinations near Adelaide. Contacts made are invariably over distances of 70 to 86 km, and sometimes further. Viewers often use prearranged frequencies on 70 cm and 2 m for liaison purposes.

Duplex contacts are also often made involving various combinations including 1250 MHz, 2429 MHz, 5760 MHz and 10.35 GHz. To increase flexibility by including a group of stations, Steve VK5SFA, who has an elevated location, often receives three stations simultaneously on different frequencies, and by adding video from his own station is able to input four video signals to a quad splitter. He also mixes the audio sources using an audio mixer. The outputs are then fed to his 1 watt 10.150 GHz transmitter coupled to an almost omnidirectional antenna covering most of Adelaide. His signals are also received at Stansbury, over 80 km away. This makes possible a very interesting 'round table' contact, an example of which is displayed in one of the attached photos. Each of the participants is able to see and hear the 10.150 GHz signal so they can look and speak to each other in real time. Great fun!

Although the parabolic dishes we use have a relatively sharp pattern, when signals are strong due to enhanced propagation, reception is possible over a wider than normal area. However, to include other stations not being able to see my transmissions for example, it is possible to transmit on several bands simultaneously, e.g. 1250, 2400, 5800,

Continued on page 30

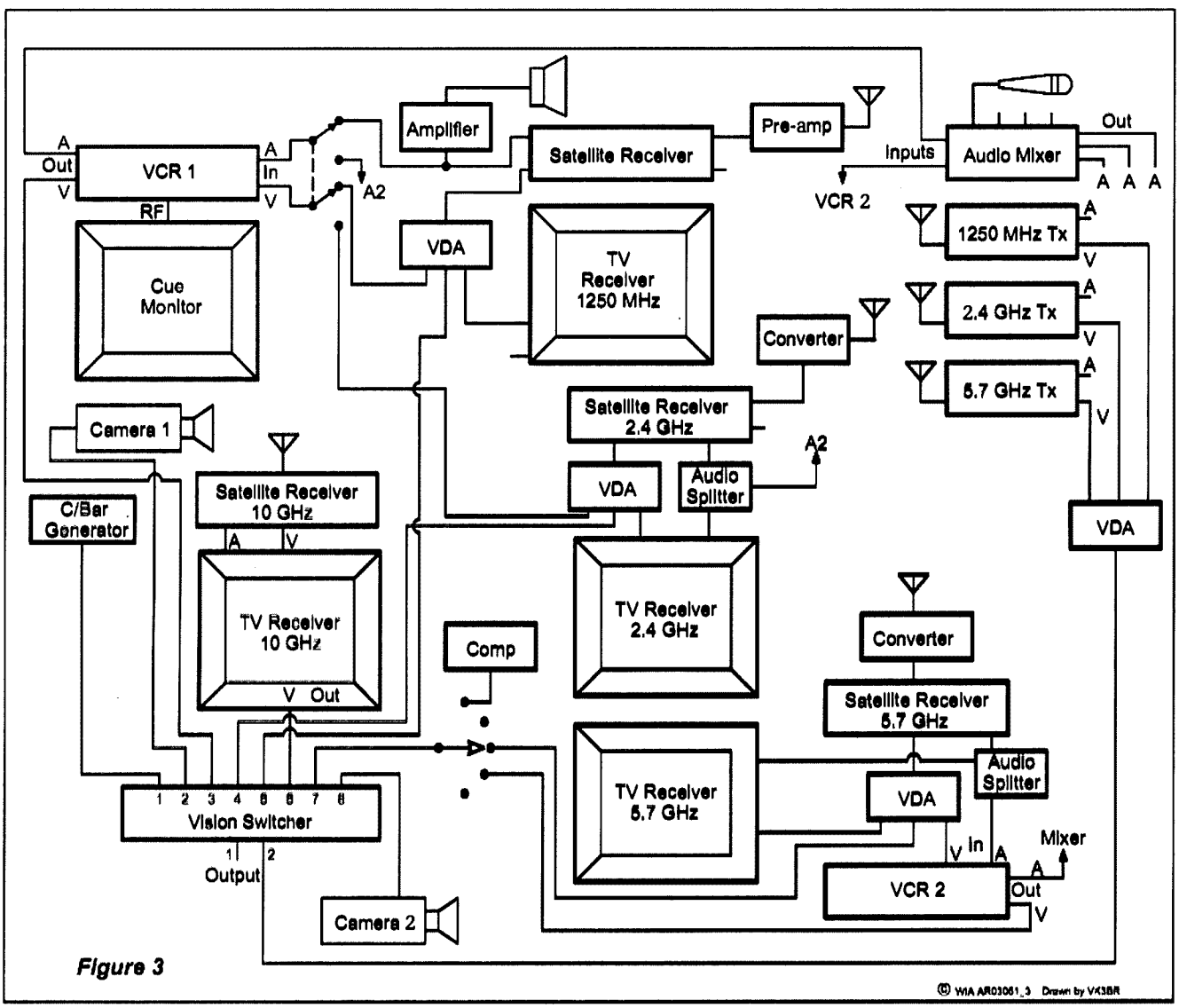


Figure 3

The wonderful world of GippsTech2003

By Jim Linton VK3PC

Photo 1: Thinking of the possibilities is Gavin Brain VK3HY with a potential dish for an antenna.

Photo 2: WIA Federal President Ernie Hocking VK1LK discusses a point with Mike Farrell VK2FLR.

Photo 3: Examining construction techniques are John Patterson VK3ATQ (left) and Ian McDonald VK3AXH.

Photo 4: Plenty of interest and sales at the component tables.

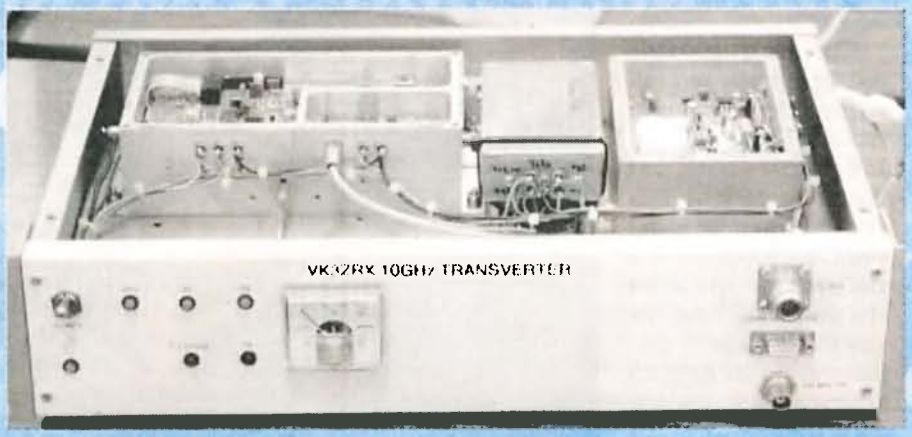


Photo 5: A much admired transverter was one of the homebrew items on display.

Photo 6: Denis Johnstone VK3ZUX (left) hands the published GippsTech proceedings to Peter Elton VK3KG.

Photo 7: A homebrew portable antenna with Rex Moncur VK7MO and Joe Taylor K1JT.

Photo 8: One of those who snapped up an ex-commercial microwave "bargain" was Tom Corrigan VK3XBG with Gilbert Hughes VK1GH looking on.

Amateur television in VK5

Continued from page 27

but of course antennas have to be separately rotatable.

Another variation is to relay a particular station on another band to provide reception to a station out of view of the originating signal.

This is frequently done at my station, for example: Originating transmission received from VK5RD on 10 GHz is received at VK5BQ, then relayed to VK5AO on 5.7 GHz, after which VK5AO may further relay it on 1.25 GHz with his antenna covering a large part of Adelaide. The total distance is about 180 km, providing the quality of waveform including syncs. of the originating signal is very good. There is no problem with synchronisation and /or colour, despite the lack of reconstitution of sync. pulses and other adjustments.

Ancillary station requirements

To pursue some of the above activities it is necessary to split the video and audio signals to simultaneously feed various transmitters as required. In the professional field various types of vision distribution amplifiers (VDA) are in very common use, some using a variety of compensation adjustments, which may be necessary for a variety of reasons. However for amateur use it is possible to use very simple VDAs such as a particular design featured in an article in the BATC 'ATV' Compendium.

This design is incredibly simple, using a video switching IC (TEA5114) selected not for it's switching capabilities but to obtain signal amplification and isolation for the three video outputs obtained from one input. Apart from the inexpensive IC required there are only five resistors, four capacitors, and four sockets used to build the unit, which is powered from a 12 volt supply.

Another essential item is of course an audio mixer to distribute a variety of audio sources to various transmitters as required. The design of a suitable audio mixer may vary, but in my case a couple of microphone inputs are used in addition to four or five line level inputs, plus about four line level outputs. The line level inputs will be required to relay the audio from incoming ATV signals on other bands, liaison channels, outputs from VCRs, and possibly output from a touchtone pad for repeater control. In my case this audio mixer is home designed and purpose built, but there are various kits available from the usual electronic suppliers. It is also possible to purchase kits for VDAs from the same suppliers, but these are a little more expensive than the one described in the preceding paragraph.

Vision switching is also a very desirable feature in any TV station, the homebuilt unit in use at my station being designed for ATV by a member of our ATV group. It has eight inputs and two outputs and is fully electronic with pushbutton switching. There are also designs featured in the ATV Compendium mentioned above.

However for amateur purposes it is also possible to use a simple mechanical rotary switch of good quality. Figure 3 shows how the video switcher and audio mixer are used in conjunction with the VDAs, VCRs, receivers, transmitters, etc. being set up to enable quick relays, playing of video tapes etc. The layout shown in figure 3 has evolved over many years and is still changing.

Power supplies

So far I have not mentioned power supplies, and do not intend to go into precise detail here due to the varying requirements of some of the final amplifier stages. However it must be emphasized that the output voltage must be regulated with over voltage protection and the current output capability should be of the order of 10 amp or more. Additionally the usual fuse or circuit breaker facilities are also essential.

Where special bias voltages are used for some final amplifier stages, it is also essential to provide bias fail protection circuits in the supply.

However there have been many articles published in the past, in various magazines, incorporating some of the these requirements.

Three of the low voltage supplies used at VK5BQ have been built from the VK3 Moorabbin and District Radio Club articles featured in AR dated August

Photo 2

1988. This design by the above club is highly recommended, however it would be wise to consult the website of Chris VK3JEG for modifications to the circuit found necessary since it's original conception.

Bias fail protection circuitry is not included in the above supply and is not needed for the 1250 MHz transmitters, whereas some amplifiers used on 5 GHz and 10 GHz will need this extra circuitry.

Propagation Characteristics

Some of the problems with propagation on the above mentioned frequencies are well known to amateurs using other modes, as well as in the professional area. This is already well covered in the textbooks. However, let me say that there are many surprises for those venturing on to frequencies of 1250 MHz and above, especially when you receive 10 GHz TV signals in pouring rain on a non line of sight path, over a distance of 70 km, as I have from Ben VK5RD.

My QTH is well positioned for the reception of signals from broadcast TV, and at certain times of the year I have seen TV programmes which I am reasonably sure are emanating from Ballarat or Bendigo, which are approximately 300 to 400 kilometre South East of my location. If there are any well set up ATV stations in that direction including Mt Gambier, I would be delighted to take part in some test transmissions.

I hope that the information in this article will help encourage newcomers to the fascinating world of Amateur Television.

ar

VK1 News

Forward Bias

Peter Kloppenburg VK1CPK

National Science Week, August 15 to 24, 2003 had something on offer for almost everyone here in Canberra. Of particular interest to radio amateur telegraphists and other users of the Morse code was the demonstration of a German "Enigma" cipher machine that was used so extensively during the Second World War. The venue for the demonstration was the 'Holy Grail Café' in the city, which was packed with scientists, students, computer experts, and radio amateurs on the evening of Wednesday, August 20.

Looking casually at the machine, it resembles an old switchboard, with its plugholes; lit-up letters display, QWERTZU keyboard and what looks like an overgrown odometer with three rotors. Each rotor is engraved with the 26 letters of the alphabet around the outer perimeter instead of numbers. One operator would set up the machine according to a pattern or code by setting the rotors in a predetermined sequence. This could be TXG or JFS. From then on, every time the operator pressed a key, the right most rotor would advance one step, and one of the letters on the display would lit-up. The second operator would note this letter, and when all the words of the message were typed in, the second operator transmitted the encrypted message using Morse code. The transmitted message included the same code, TXG or JFS, for setting up the machine at the receiving end, where deciphering was performed in reverse order.

A cumbersome way of sending a coded message, but it worked for a while, at least until the code was broken, first by the Polish army in the early Thirties, then the French and the British. A more permanent opportunity to view an Enigma machine is provided at the National War Museum right here in Canberra. It is located in the "1939 - 1945 Word War" section. There, the machine is on show with its hinged covers in the open position showing the mechanisms. While inside the museum, you can inspect exhibits of clandestine radio receivers and transmitters that were built by Australian prisoners of war (POW) in Timor. As there were many radio amateurs in the services, this is not surprising. The equipment was put together higgledy-piggledy with screws and nuts instead of soldering. One transmitter appears to have a push-pull output stage with two 807s. An interesting clue of how they were able to power the equipment, was a bayonet light socket plug that terminated the power cable. It seems possible that the POWs were staying in barracks equipped with electric light. One other exhibit is the SCR-602 RADAR unit from 1942 equipped with a bedstead type of antenna. This unit operated at 200 MHz with a 20 microsecond output pulse of nearly 50 kW. The receiver used 954 acorn valves and had an IF bandwidth of 140 KHz. The RAAF gave John Moyle, editor of Radio and Hobbies, a scoop, by giving him the details of SCR-602 for publication in the April and May issues of R and H in 1946.

The long-awaited discussion paper from the ACA has now become available. Every licensed radio amateur is urged to read it and respond to the questions. Drastic changes to the regulatory environment are envisaged by the ACA, and we should all try to let the ACA know how the amateur radio service should be changed

This month, on Sunday, the twenty-sixth, at 12 noon, there will be Trash & Treasure sale in the compound of the Parks & Garden Depot, Longerenong St., in Farrer. Buyers and sellers are welcome. A sausage sizzle and soft drinks will be on sale. Items on sale will include antique broadcast receivers, radio test gear, antique transmitting valves, 12-volt vibrators (remember?), communication receivers, and lots more. All proceeds to the Division!

The next general meeting, will be held at 8.00 pm on Monday, 27 October, 2003

Silent Key

Harry Williamson VK2JHW

It is with regret that we announce the passing of Henry Lee Williamson, better know as Harry VK2JHW. Harry was first licenced as VK2VVZ in 1979 or 80, having lots of trouble with cw. In 1984 Harry obtained the call VK2JHW.

Born in Melbourne on 8th December 1919, he and his family moved to England in the late 1920s, so Harry had all his schooling in England. When trouble started in Europe, the family moved back to Australia in mid 1936 and settled in the Canterbury area of Sydney.

Harry moved to the Wollongong area in the early 1970s. Harry had not been in good health for over twelve months and died peacefully in his sleep in hospital Sunday 14th September.

A private cremation was held Tuesday 16th September.

Harry will be sadly missed by all those that knew him.

Submitted by Brian VK2BUF
Hon Secretary
Illawarra Amateur Radio Society.
vk2ubf@fishinternet.com.au

VK4 News

Qnews

By Alistair Elrick VK4MV

Callbook calling

There will be a Callbook issued later this year and QTAC would like the listing of all Repeaters and Beacons to be as accurate as possible. Accordingly, QTAC are requesting all Groups and Repeater officers to have a look at the VK4 listings on http://homepage.powerup.com.au/~qtac or you can find it from the link on the WIAQ page. http://www.wia.org.au/vk4.

So if you see any items that have changed, or even blanks in the listings, then please advise Bill and Len your QTAC men of those changes.

Reply to qtac@yahoogroups.com or by mail to WIAQ PO Box 199 Wavell Heights, Qld 4012

Repeater calling

Len VK4ALF has a plan to establish an extended UHF repeater network in QLD. Those Amateurs, who are interested, can reply to the address of the group, which is: vk4-uhf-repeater@yahoogroups.com.

Sunshine Coast Amateur Radio Club and the demised Gympie Club (with some improvements in battery and solar cells) have the repeaters to kick off such a network. Where else to spread it to, somewhere on the Gold Coast?- somewhere in Brisbane-Maleny-Peregian-Mt Boulder?- somewhere in Bundy?- further north?

If anyone has contacts with clubs in Brisbane, Gold Coast or to the north please mention this concept and get the ball rolling.

November 8 Gold Coast HAMFEST

Well it is getting towards that time of year when the activities at the Gold Coast Amateur Radio Society get a little busy. These are some of the activities coming up.

The Hamfest will be held at the Albert Waterways Hall on the 8th November. The JOTA weekend will be getting underway in October and we will be giving all the details in the near future. Exams can be taken at any time to suit the candidate and you can contact Kath VK4KU our Education Officer on 5539 3530. Also the clubhouse opens every Saturday afternoon at approximately 1pm for amateurs to meet in a social environment.

Mornington Island to get connected

Eight specially modified shipping containers packed full of telecommunications equipment have reached Mornington Island. These innovative bright yellow containers will provide the backbone for the Mornington Island community's telecommunication needs. They hold radio transmission equipment, solar power generation panels, banks of high capacity storage batteries, and provide for diesel back up generators and tamper-proof fuel tanks. This also contains FM radio and television broadcasting equipment, as well as two-way radio equipment that can connect to outstations.

OH! and no doubt these containers running on solar power will not fall into the trap that one VHF radio tower has. The owner just received an account to pay the new VK4 community ambulance levy! Ag Force Chief Executive Officer Michael O'Neill said the property owner with a tower at Dingo, in Central Queensland, could not believe that the government was serious about making him and his wife pay the ambulance levy on the tower. "The VHF tower is for private use providing contact between vehicles on their property and the homestead," he said.

73s from Alistair

VK7 News

Justin Giles-Clark VK7TW

Divisional Council

Divisional Council met in Launceston on the 16th August 2003 and the following is a summary of the important issues dealt with:

- Council endorsed the proposal by the Southern Branch and Southern WICEN Executive to prepare a register of capability of amateurs willing to operate in emergency situations.
- Council received financial statements, branch reports from the South and North, together with comments by the Divisional education officer on the Federal proposals for amateur education for the future entry system to amateur radio.
- Council resolved unanimously to adopt the "Our Hobby of Amateur Radio" paper. Council resolved to make a paper copy or disc available to new members with their membership certificate, to make it available on disc to existing members on request, and to place it on the Divisional website at: www.wia.org.au/vk7 in PDF format.

Launceston Ham Receives Commendation

Barry Hill VK7BE of Riverside was awarded a special citation by Tasmanian Police Commander P.J. Edwards for his commitment as an independent person under the Youth Justice System Act 1997, for providing support to young people whilst in police custody. Congratulations Barry.

North West Beacons

All amateurs please note that as of Friday 5 October the following Amateur

Beacons located at Kelcy Tier are off air and out of service. The Beacons affected are those on 50.057, 144.474, 432.474 and 1296.470 MHz.

The reason for removal from service is that the property and site of the beacons has been sold and the Branch is actively looking for a new home.

On behalf of the North West Branch and all amateurs utilising the beacons, we take the opportunity of saying many thanks to Ron, VK7RN for providing his property and hosting the site for the Beacons over the last 10-15 years.

It is much appreciated as low cost sites for Repeaters & Beacons are becoming difficult to find these days. Thanks again Ron.

Branch Meetings

North

September's Northern Branch meeting was a lively discussion about the ACA's discussion paper on the review of the amateur service regulations. There was much concern expressed about some of the proposed changes and especially the "No Interference" policy proposal. There was also good discussion about the Foundation Licence proposal and definite support for the concept.

North West

We've got two new amateurs in our region - Congratulations to Rob Williams from Queenstown and Dion Bramich from the coast on passing their AOCP Theory and regs. We sincerely hope you have a great time in amateur radio.

South

Low Frequency Tests

Robert, VK7ZAL/AX2TAR has been conducting low frequency experimental transmissions test on 181.4 kHz. Robert transmits CW using one kilowatt into a 35 foot mast from his QTH in Moonah. The callsign used is AX2TAR. Skeds can be found on the VK7 Divisional Broadcast on a Sunday morning or on the internet version on the Divisional web page

Robert comments he can get a ground wave into Melbourne during the daytime and has worked two-way LF CW into New Zealand. He has also been heard in VK5. Robert hopes to receive reports from hams who hear his signal. Robert can be contacted QTRH.

Grote Reber

Our September meetings were something special. The following is a short summary of the talk given to the Southern Branch by Dr Raymond Haynes who has recently retired from the Australia Telescope National Facility of CSIRO and is a commentator on science on radio and television. He was chief author on "Explorers of the Southern Sky - The History of Australian Astronomy" published in 1996 by Cambridge University Press (UK).

Ray's talk was on "Grote Reber, the person (1911-2002)". Ray was Grote's only student during the early 1960s and did his honour's year experiment using Grote's Bothwell phased array for studying "Z mode echos" from the Ionosphere.

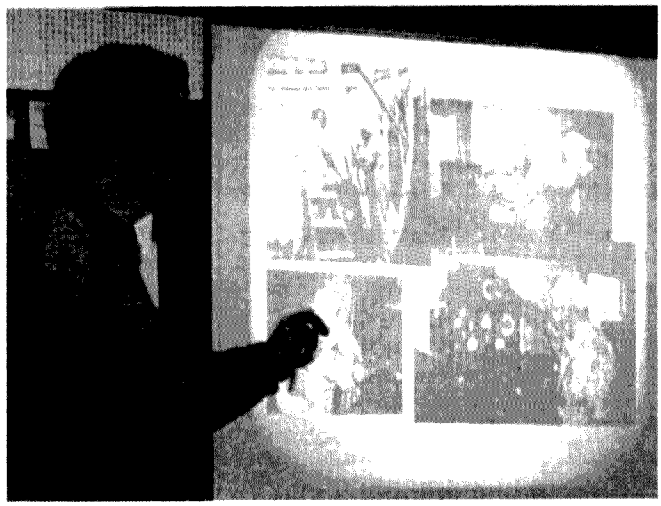
Grote was very bright and at 14-15-year-old he built a receiver and transmitter from scratch. He was self-taught, had one brother and a very dominant mother and was raised in a highly disciplined household. In 1938, Grote got a Diploma in Electrical Engineering and worked for the Radio Corporation building valve radios and this proved to be a good source of valves and components for his own experiments. He was dedicated to engineering science.

He was taken by an article in the NY Times on May 5, 1933 by Karl Jansky who was investigating how to overcome static for a transatlantic radio telephone service. Jansky experimented with planar arrays in the 20-100MHz range and repeatedly mapped the emission over a sidereal day and detected what was later realised to be the emissions from the Milky Way.

Grote was very interested in these experiments and wrote to universities to raise some interest in funding experimentation to no avail. This was the start of his cynicism about politicians and the scientific community and he decided to build his own antenna in his back yard in Wheaton, Illinois. This proved to be the first

Grote Reber

parabolic dish antenna ever made. It was 30ft in diameter, was steerable N-S and was made primarily of 4x2" hardwood. He designed and built the dish and the electronics. The frequency initially tried was 3300MHz, yes 3.3GHz and this meant that the surface of the dish that was fine chicken wire needed an accuracy of 1/8 of a wavelength! All valves ran on DC voltages. He designed the first DC-DC converters and this was all done for about $1,300. He observed nothing for 2-3 months and realised that he had to come down in frequency but feared that signals would be harder to detect. He was wrong and in fact the relationship was reversed and at 100MHz the passing milky way emitted the equivalent of 1 million degrees of black body non-thermal radiation. Grote then settled on 140 & 288 MHz. This antenna was used up until 1944 and was



Dr. Raymond Haynes presents his illustrated talk on Grote Reber, "the man", at the Southern Branch's afternoon and evening meeting.

relocated to the Greenbank Observatory, West Virginia as a Museum piece in 1994.

Grote had a fear of AC power creating noise and designed everything to use DC. This fear lasted his whole life and valves were the only devices that he built equipment with. He was never interested in transistors. During the war many radio physics labs and bright personnel were employed to develop radar to defend their respective countries and much research and development was done. In Australia after W.W.II these labs became the radio physics group of the CSIRO and in Raymond's words it was an exciting time to be in radio physics as discoveries were being made all the time. Grote's obsession with DC cost him a lot of money when he tried to setup a sea interferometer in Hawaii and the DC generator was unreliable.

At this stage many awards were flowing in for Grote from his original experiments in Wheaton. He lost more money and came to the conclusion that going up in frequency meant loosing more money so he decided to go down in frequency. Grote chose Tasmania as one of two optimum locations in the world to study radio astronomy where the ionospheric F0/F2 minimum penetration frequency reached a minimum in times of minimum solar activity (sunspots). He wrote to Bill Ellis at the ionosphere prediction lab in Tasmania in 1955 and they set-up two dipoles across a valley at Kempton and received the first emissions from space ever detected at a frequency of 980 kHz.

Some years later Grote searched for a valley with a flat floor to house his 1 MHz antenna and was not initially successful failing to find a big enough valley. So he settled on an observing frequency of 2.1 MHz and a smaller array. This was built north of the township of Bothwell. This was about a mile in diameter with 192 poles all 86 feet high. The array was fed by a Christmas tree feed so all dipoles were in phase with every other dipole and was steerable N-S. In Ray's word it was totally over engineered however this was Grote's way. He was primarily an engineer not a scientist.

Grote observed from 1961 to 1966 and built up a transit map at 2.1MHz. What Grote didn't realise, but was later explained in a paper by Bill Ellis and Fred Hoyle, was that the map showed that the Milky Way was totally in absorption proving that at low frequencies around 2MHz there is thermal absorption due to the presence of neutral hydrogen. Grote toured the world with the map and gained many ideas that he put into a paper but the paper was rejected due to the ideas not being correct. The paper ended up being published in an obscure journal called the Journal of Franklin Institute. The paper, poorly interpreted was almost completely ignored by the scientific establishment. The map did however demonstrate absorption by neutral hydrogen along the Milky Way.

Grote also played with genetics of beans and did many experiments on his Bothwell property. He created the first solar passive house complete with solar hot water transfer system that would heat a underground rock heat bank that would reverse heat the water that was circulated and heated the house at night. He designed a 3 wheel electric car as he hated the use of fossil fuels. He even spent time with Anthropologist Rhys Jones using carbon dating techniques to date Tasmanian Aboriginal artefacts. Grote just didn't get on with anyone, was a dogged fighter, wasn't prepared to listen to anyone who didn't have his view of the world and was anti-establishment but, his contribution to the science of early radio astronomy cannot be disputed.

He died in an Ouse nursing home on December 20, 2002 aged 90.

We thank Ray for giving us these talks, it was a fascinating insight into a very bright individual.

73, Justin Giles-Clark VK7TW

Silent Key

Pat Geeves VK7GV

We were sorry to hear of the death of VK7's oldest amateur, Pat Geeves, VK7GV. Pat was 94 and active until just before his death. Pat was involved with the opening of the first Broadcasting station in Hobart in 1924, but Pat did not obtain his amateur licence until 1960. With a yachting background, high masts were no problem for Pat and he was soon making friends all over the world. At the age of 83 he bought a computer and set about writing his memoirs and using it with his amateur radio gear for slow scan television. Amongst the other tools in Pat's well equipped workshop was a small printing press and he produced QSL cards for many Hobart amateurs. Another of his interests was collecting old clocks and Richard, VK7RO remembers visiting him one day soon after he had spent a whole day winding them all up and setting them to the correct time. But of course some ran too fast and some too slow and within a week there were clocks chiming at odd times all over the house. He said that he would never do that again! Vale Pat.

ALARA

Christine Taylor VK5CTY
vk5cty@vk5cty or geencee@picknowl.com.au

The ALARA Contest

For most of us this was not a good year. There seemed to be very few YLs around, even on 80 metres. 80 metres was very noisy on Saturday but quite good on Sunday but it made no difference. During the daytime the bands were extraordinary quiet. It seems that those of us who were there were on at different times so we missed each other.

Disappointing all round. It is such a shame when this happens, as there is a certain amount of effort put in to run a contest.

Nevertheless, do put your logs in. This is the only way we can really assess what happened and decide whether there are changes we can make in the future.

A change to the VK3 Luncheons

Please note that due to the difficulty with the venue (remember that the usual one was closed earlier this year) and the small attendance numbers, the decision has been made to only hold the VK3 luncheons on the even months from now on. This means there will be no luncheon in November.

If you are intending to be in Melbourne, please do contact Bron VK3DYF or Gwen VK3DYL to confirm these arrangements.

The Remembrance Day Contest and the Lighthouse Stations

Conditions were much better for the Remembrance Day Contest so hopefully you enjoyed it. Remember to send in your logs for this contest, too.

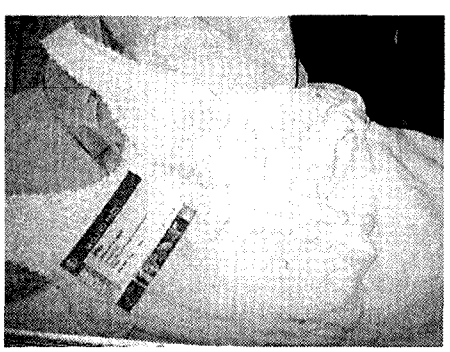
Did you contact any of the Lighthouse stations? These were operating over the same weekend as the Remembrance Day Contest and some stations were active in both fields. Do send those logs to the appropriate places so the organisers know how many people made contact and which lighthouses were manned.

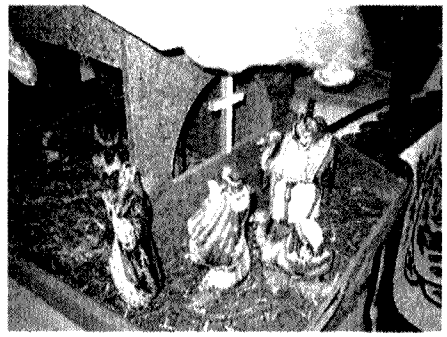
We should encourage all special events if for no other reason than that they help us make use of the bands. We all know the old saying "Use it or Lose it!" We amateurs are decreasing in numbers and will be in danger of losing our privileges if we do not get on the air often enough.

It's Show time!

In many parts of the country springtime is the time for Agricultural Shows. Why not follow the example of some of us and enter your craft work? Recently Sue Mahony won a prize at the Gawler Show at her first entry. Now she is looking for some more local shows. It is fun to win a prize but it is even more fun to see your work on display. If you are there at the right time you will hear nice things said about it, too.

There is no doubt but that very many admiring remarks were made about the lingerie and sleepwear entered each year in the Royal Adelaide Show by Barbara VK3BYK. My admiration has been noted





here for years. This year was no exception. Barbara won at least two first prizes and three second prizes for the items I saw. They are really lovely. I would love to own them but I would be afraid to spoil them by wearing them.

However, this year the very best YL entry was the beautiful Nativity Scene cross-stitched by Maria VK5BMT. All the figures are present, clustered around the cradle, all sewn in three dimensions. There is even a cloud hanging over the manger, done in cross-stitch. Awesome!!

Here are some photographs to give some idea of the beauty and high quality of both Barbara's and Maria's work. Congratulations from us all!!

This time it is the Indian Ocean

Following on their successful YL DXpeditions to Norfolk Island, Lord Howe Island and the Cook Islands, Gwen VK3DYL, June VK4SJ and Elizabeth VE7YL are heading to the Indian Ocean to Christmas Island and the Cocos Keeling Islands. They will operate from Christmas Island (IOTA OC-002) as VK9XYL from October 13-27, and from Cocos Keeling Island (IOTA OC-003) as VK9CYL from October 27-November 10

The XYL suffix for Christmas Island denotes an unrestricted licence as can be seen in the DXCC list.

QSL to VK3DYL as in QRZ.com

They will probably be able to access the YL 222 Net on Mondays from both locations so YLs will have an extra opportunity to find them on Mondays. They will possibly also operate on the ANZA Net mentioned in the September AR. This net is on Thursdays, Fridays, Saturdays and Sundays so it gives us even more chances to catch the DXpeditions.

October is JOTA month

Although we don't know them all, many YLs operate radio stations for JOTA. It is a great opportunity to show both boys and girls that amateur radio is a hobby for men and women. If we are asked to help this scouting activity we should do so if we can. There are many current amateurs who were introduced to amateur radio through JOTA.

We can be fairly sure Norma VK2AYL, Mary VK5AMD and Jeanne VK5OQ will all be helping at JOTA stations, but I am sure there are many more. Please listen out for them and any others, operated by YLs or OMs during the third weekend in October.

Please, ALARA members, if you are intending to participate in any amateur activity, let your publicity officer (and your newsletter editor) know and maybe even send us pictures. We can only tell others about it if you tell us.

Silent Key

Neil Gough VK2NG

We have been advised of the passing on Monday 15th September of Neil Gough VK2NG, formally of Lane Cove and recently of Gladesville. He is survived by his wife Molly.

Neil was a long time member of the WIA and had received a certificate of 70 years of membership.

Details of Neil's passing are to be found in Friday 19 September 2003 Sydney Morning Herald notices.

To his wife – Molly & their family our thoughts are with you at this time.

Vale Neil, VK2NG

Submitted by Ray Taylor via VK2 Division

Now is the time of the year for the 222 Net

At this time of the year the European stations are coming in much more often than usual. On a recent Monday stations from ZL, VE and the US were heard, as is the case for most of the year, but also there were two SM, two D and two M stations. WOW!

Sometimes we could hear them better than they could hear us, but there is usually someone to relay if necessary.

It is great to have June VK4SJ running the nets again. It cannot be easy but it is certainly one way to get your life back on track. Welcome back, June, from all your amateur radio friends.

ar

Bill Magnusson VK3JT

Encouraging news on VUSAT

Nagesh VU2NUD recently reported on the latest developments regarding AMSAT-VU's forthcoming satellite, "VUSAT".

VUSAT is a 40kg micro-satellite to be launched onboard PSLV (Polar Satellite Launch Vehicle) from Sriharikota launch range. It will be a co-passenger along with another remote sensing satellite, most likely IRS-P6 to be launched on the same vehicle. VUSAT is cubical in structure of about 630 mm x 630 mm x 550 mm size. It has body-mounted solar panels on the four sides. Antennae for communication are mounted on the top, the bottom portion interfaces with the launcher. It will be spin stabilised and placed into a sun-synchronous polar orbit of about 917 km. The bus electronics performs the functions of attitude control, telemetry, telecommand and data acquisition and is controlled by a single microprocessor. Satellite Telecommand(TC) and Telemetry(TM) will be performed on the VHF band. There will be two transponders: Indian and Dutch which will fulfill main and redundant system roles. Both of them will be operating in Mode-UV configuration with UHF uplink and VHF downlink. They are linear transponders designated to operate in CW/USB/FM modes of amateur radio communication. Since they are linear transponders they may be tried in other modes of operation too. They will have an output power of about 1 watt. They will share common turnstile antennae for input and output along with satellite mainframe TC/TM systems. Typical link calculations are as follows:

UHF up link (435.25 MHz centre frequency)

Ground station power :	40 dBm (10 watt)
Antenna gain :	12 - 18 dBi
EIRP at max.ant.gain :	56 dBm

VHF down link (145.90 MHz centre frequency)

Antenna gain: 1	6 dBi
Received carrier power (at ground station)	107 dBm (1uV)

Notes: Both the transponders will have 60 kHz bandwidth. Transponders may be differentiated by their respective beacons; Indian transponder will have an unmodulated carrier on 145.940 MHz whereas the Dutch transponder will have modulated information on 145.860 MHz.

VUSAT will have a periodicity of about 7000 sec and is likely to be visible for about 10-12min maximum during a good pass. Flight versions of the transponders were tested "on-the-air" on 27 August 2003. Both the transponders worked satisfactorily in CW/SSB/FM of mode-B (UV) operation. Hams VU2LX, VU2POP, VU2IR, and VU2WMY/URC participated in this important test. With this testing the packages are ready to go on to the VUSAT deck. Up to date news and additional information is available at the AMSAT-India web site. http://www.amsat-india.org

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000 UTC with early check-ins at 0945 UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900 UTC with early check-ins at 0845 UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034
Graham's email address is:
vk5agr@amsat.org

More precise antenna pointing with Yaesu/ Kenwood AZ/EL rotators

A year or so ago some-one made the suggestion that it would be desirable to devise a method of slowing down the speed of operation of the Yaesu/Kenwood AZ/EL rotators, particularly the azimuth rotator.

This was taken up by several people and it was soon realised that an additional advantage of slowing down the speed would be more precise pointing of the antennas. For most amateur radio applications the rotators have quite sufficient pointing accuracy but the slower movement was a desirable feature for those using larger VHF arrays. It sounded particularly attractive to Oscar operators using auto-tracking where the antenna system was being moved as frequently as every few seconds and often in small increments. Antenna sway can become a problem. I have watched, apprehensively, as my own 145/435 MHz auto-track system oscillates back and forth when the whole structure sometimes gets itself into mechanical resonance with the tracking pulses. Fortunately this situation only lasts for a few seconds at a time. But I can remember thinking as I watched that a slower rotation rate might help. Michael, DB6NT described a design to achieve this in VHF Communications Q2 - 2002 pg 66-68. It uses pulse motor control and a semiconductor relay. You can see it in his catalogue available at: http://www.kuhne-electronic.de/. I have placed this project on my wish list and hopefully it will come to the top one of these days. The Kuhne web site is worth a visit anyway. It contains heaps of good information on everything VHF/UHF and a good sprinkling of satellite gear too. Catalogues are downloadable although rather large. The pricelist indicates that the PCB for the rotator slowing project is available at very reasonable cost. The kit is also available from "VHF Communication" magazine. See www.vhfcomm.co.uk for details. "VHF Comms" is a great specialist magazine with a long established and well earned reputation. It is a feast of information relevant to AMSATers. These web sites will certainly whet your appetite.

Birthday Celebrations for AO-40

A third anniversary celebration of the launch of amateur radio satellite AO-40 is planned for 16th and 17th November 2003.

AO-40 was launched on 16th November 2000. AMSAT is encouraging as many amateurs as possible to operate on AO-40 on the above dates to help celebrate AO-40's third birthday. AO-40 has been providing some of the best satellite operation ever for those who are equipped with 70 cm or 23 cm transmit and 13 cm receiving gear. Please give some thought to getting up and running on this wonderful bird. It's not as difficult as many people imagine. Small antennas, low power requirements and heaps of international activity make AO-40 operation a pleasure. Remember too that AO-40 is a high altitude satellite. At apogee it moves very slowly across the sky. It is quite possible to hand-aim your antennas in this situation. Many operators have their entire antenna array mounted on a tripod. The array can be aimed for best receive signal and will only occasionally require re-aiming during a QSO. There's plenty of help available on the AMSAT-NA web site and via the AMSAT e-mail bulletin board. Lots of VK amateurs are already enjoying regular AO-40 QSOs. There is even a large following of "DX" operators who look for new call areas or zones or prefixes - even IOTA (Islands On The Air), DXpeditions and events like Lighthouse weekends seem to be exciting more and more interest world wide. Do try to work AO-40 on the 16-17 November and help swell the ranks of VKs celebrating its third birthday.

AO-40 3-axis Stabilisation

Plans to implement 3-axis stabilisation of AO-40 have been put on hold for the time being.

Every now and then the question comes up "When is AO-40 going to be put into 3-axis mode?" AO-40 is at present spin stabilised. That is to say the spacecraft spins slowly on its axis like most OSCARs and this results in widely varying 'squint' angles during each orbit. The orientation is 'juggled' by the control stations to give the best possible 'squint angles' for this type of stabilisation and take into account eclipses and the effects of solar cell illumination on the power budget. This stabilisation system has proved very workable and has served us well with the early days of AO-10 and AO-13. AO-40 is the first OSCAR to carry a means of 3-axis stabilisation using momentum wheels. Some time ago the system was given a short test run and proved OK. However ...the full deployment of 3-axis stabilisation is tied in with the final unfurling of the solar panel arrays and exposure of the HF antenna system. These last two operations are non-reversible. It has been decided that the process is too sensitive to risk at present while AO-40 is the only high orbiting amateur radio satellite in reliable operation. It will remain spin stabilised until such time as Phase-3E becomes a reality. This way, even if something unthinkable happens during deployment of the 3-axis system, all will not be lost.

Latest Happenings on UO-22

Following up on last month's report of the possible return of UO-22, I made contact with Rob VK3KOS - another regular - and we set up a listening watch. Sure enough UO-22 did return as Chris G7UPN had promised. The signal was strong, at times very strong but it was not constant. In its heyday UO-22 provided the strongest and most constant down-link signal of any amateur satellite I'd ever encountered. Since its return though, UO-22's strength varied during each pass indicating that all may not be well with the stabilisation. The up-link was closed for some days after the return, as was the BBS. Then suddenly UO-22 appeared to be working as normal. The BBS was open and I was easily able to up-link messages to Chris and the Surrey gang, and of course to Rob. Lots of activity started to appear and the usual batch of automated packet sat-gate stations were still there. It was encouraging to see UO-22 working even when close to eclipse. Since then Chris reported that the satellite had again been switched off except when in range of the ground station. The controllers were sorting out the scheduling of available power between attitude control and transmitter operations. This announcement tallied with our observations regarding signal variations. As this column is being written UO-22 appears to be back to normal - except during eclipse periods. The BBS is operating and the usual flurry of messages is again evident. Looks like a lot of people were waiting for the return of this popular satellite. UO-22 is the last of the original batch of 9600 baud 'store-and-forward' birds. It has served us well. Thank you to Chris and the gang at Surrey for their work in giving us back this satellite. More information on UO-22 and all the University of Surrey activities is available on their web-site. http://www.sstl.co.uk/

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Silent Key

Ron Reynolds VK2AFR

We have just been advised of the passing last Monday evening of Ron Reynolds VK2AFR of Westmead.

His funeral was conducted at Pinegrove last Tuesday 2nd September 2003 .

He was in his 90th year. Ron was a long time member of the WIA.

Submitted by Ray Taylor

Ron Smith VK4AGS
Federal Education Co-ordinator

Project the Future

The future

There is much interesting discussion about the future of amateur radio in Australia. This gives an excellent opportunity to think seriously about upgrading the education and assessment system that is used. When you look at educational history we are actually using educational methods from about fifty years ago, although we were late starters. Much has happened in education over the years and there are far more modern and much better educational methods now available. If we are looking to the future we really should not be dwelling in the distant past.

Ahead of the world

Around the world at the moment, *Project or Problem Based Learning (PBL)* is leading quality education. I am indeed fortunate to actually do my real professional work where an international delegation told us not so long ago that we were not the best in the world, but rather that we were the target the best were trying to catch up with. We were just so far ahead!

Be careful

Some readers like to search academic literature and web sites. PBL in its modern, and by far the best, implementations is developing so quickly that any references more than about two or three years old are substantially out of date. Another warning to readers is that some literature actually makes a distinction between Problem Based Learning and Project Based Learning. This distinction is artificial and not really necessary when really good PBL is looked at.

Open the thinking mind

While on the subject of warnings, be warned that to appreciate PBL you need to be a good observer of learning and be open-minded enough to make the paradigm shift needed in educational thinking to implement it well. If you do not make this shift, then you only do an acceptable educational job, rather than a high quality job. Where I work has been there and done that. We have made the mistakes but have moved on past them with great success.

The project

Simply PBL is where learning is done by completing a project, or projects. This is not an assignment or even a science, mathematics, or technology problem to solve. The project is the learning environment. It is not the learning. It is the environment. The full realisation of this is just so fundamental to the successful implementation of PBL.

There are many implications of having the project as the learning environment. The success or failure of the project is irrelevant to the success of learning. The project has to meet certain minimum requirements to ensure enough learning has taken place but the project does not have to 'work'.

A beginner's trap

It follows on that the results of the project are not assessed. The report on the project is not 'marked'. This is the mistake we made initially. It is interesting that whilst reading recently some research done by another Australian university into PBL in engineering in the past year or so that they reached a conclusion that it was a very successful learning approach. They however, assessed the projects. If they had really appreciated the full implications of the projects as the learning environment then the learning results would have be just so much more spectacular. It is just so easy to fall into this trap. It is when the projects are not assessed that PBL really shines.

Widescreen multi-channel

Another feature is that the projects are holistic and not specific. There is no need for all students to do the same projects. However, the range of projects a particular student actually attempts provides more than ample opportunities to meet all the learning outcomes and reach the appropriate standards. In the amateur radio context any single project is likely to involve a combination of electronics, regulation, safety, and operation. By good project design it is just so easy to meet more than adequately our ITU obligations regarding knowledge and skills for amateur operators.

Learning outcomes – know your target

You can almost guess the next step. PBL is impossible without clear specifications of the learning outcomes expected and the standards to be reached for success. The current approach we have in amateur radio of having a syllabus which is essentially a list of topics with the standard hidden in sample questions is not good enough. Although having foundations much earlier, this approach was certainly common educational practice thirty years ago. Education has moved well past this, although some parts still cling to the past. There is a pressing need to have our syllabi in education terms for the twenty-first century.

Learning in 21st century

Any education can only be successful if best aspects of educational psychology are applied. Research in this area in the past twenty years has focussed on the behaviour of students in different learning environments. One of the key findings which fits PBL better than any other method is the quality, life long, authentic learning best takes place in a collaborative environment.

Assessment

A begging question then is how is quality PBL assessed? There is nothing in the PBL concept that argues that traditional assessment methods, eg exams, should not be used. However, experience around the world amongst the world

leaders in PBL shows that using traditional, after the event, assessment methods actually limits the quality of learning quite substantially. The best implementations actually include assessment as part of the learning.

There are a few different implementations but the world leaders use a system something along these lines. There are published learning outcomes and standards. Students work collaboratively on the agreed projects with the assistance of a facilitator. As the students work on the projects they look to the learning outcomes and standards to keep on track. Students keep records of their learning. Some examples include a journal or a workbook. Some implementations actually have some specific questions to be answered along the way. At the end students make a submission claiming they have been successful in meeting the outcomes at an appropriate standard and produce evidence of this. In some implementations students in a team also write grade assessment of their peers, again producing evidence. Claiming success is not enough. Evidence is needed.

The cheats

Every assessment system concerns itself with ensuring it is "the student's own work". In places, including the current amateur radio system in Australia, there are organisationally complex, costly, and slow systems in place. Under best PBL practice security is easy, as the whole process is open. Dishonest practices cannot hide and are easily seen. There is no need for elaborate procedures.

Accuracy

Another pressing question is accuracy of assessment, particularly in a student driven assessment process instead of a system driven assessment process. Is a pass a genuine pass? Under the best style of PBL accuracy is far higher than exams. If you look at the history of exams, going back about a century in Australia, you will find exams are not very accurate as indicators of individual student learning, although they are quite good at ranking average performances of groups. The best evidence I can cite for accuracy is experience where I work. We have done some research and made comparisons with future learning success of our students in later years of study. We have used both our old system before PBL, and our PBL claiming the grade system. The correlation between PBL and future success is very high, far, far higher than the correlation with traditional assessments.

The accuracy is not dependent on the opinion of the student alone. The facilitator who has been working with the students has the role of validating the claim of grade. Usually those students heading for a fail are identified early and guided to improve their learning. This is true learning. It is too hard to be dishonest here. Overarching is a moderation process. This is usually a review by facilitator peers. Again since marginal pass/fail, ie the 68% or 70% students in the current system are rare the moderation process is relative easy. Successful grades are easily confirmed, as there is usually more than substantial evidence.

That's almost all

While it is possible to fill this magazine many times with the features of PBL as implemented in the world's best practice, this short summary should give you some ideas to focus on. I am unashamedly fully supportive of world's best practice in PBL. I see it in practice every working day. When I conduct seminars in PBL for professional educators they are highly supportive. It is a different but exciting learning environment to be part of.

Next time I will outline a simple PBL project which could well be one of say four suitable for a beginner's level licence in amateur radio.

They blew my socks off

I am writing this a few days after watching some local Year 11 students working with local scientists and engineers from industry and university as facilitators on some PBL tasks. There was no assessment in this case as no award was involved. They reported their activities which lasted three days using multi-media to a large audience that filled a five hundred seat lecture theatre, consisting of parents, professionals, their teachers, the media, and the general population. It was easy to see that they had learnt just so much. The quality was something to be admired. I could not help but think PBL leading to a beginner's level licence would fit wonderfully into this scene of scientific and technological challenge. I could also see how traditional teaching and assessment would totally destroy the quality of the three days.

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Over to you

"Marconi's Magic Box"

I've just read a most interesting book entitled "Marconi's Magic Box" which I recommend to all Hams! It's the story of Wireless and the remarkable man who invented it! As the book's jacket states,

"On a winter evening in the East End of London in 1896, an unassuming young Italian gave the first public demonstration of a device he had created in the attic of his family home near Bologna.

It consisted of two wooden boxes, one of which could apparently transmit messages to the other. Many of those in the audience suspected that they were witnessing a mere conjuring trick. None of that audience could have guessed that Signor Marconi's magic box would be regarded as the most remarkable invention of the nineteenth century".

This hard cover publication is full of facts to keep the reader interested. As well as a story of a remarkable amateur radio inventor, it is the history of the colourful early days of wireless. The author, Gavin Weightman, is a professional writer and filmmaker. A Harper-Collins publication with an ISBN 0-00 713005-8

73 Max Morris VK3 GMM

Contests October - December 2003

Oct	4/5	Oceania DX Contest (SSB)	(Sep 03)
Oct	4/5	TARA PSK Rumble	(Oct 03)
Oct	5	RSGB 21/28 MHz Contest (SSB)	
Oct	11/12	Oceania DX Contest (CW)	(Sep 03)
Oct	18/19	JARTS WW RTTY Contests	
Oct	18/19	Worked All Germany Contest (CW/SSB)	
Oct	19	RSGB 21/28 MHz Contest (CW)	
Oct	25/26	CO WW DX Contest (SSB)	
Oct	25/26	CQ WW SWL Challenge	
Nov	1/2	Spring VHF+ Field Day (CW/SSB/FM)	(Oct 03)
Nov	3	High Speed Club Contests (CW)	
Nov	2/3	Ukrainian Contest (CW/SSWB/RTTY)	
Nov	9/10	OK/OM DX Contest (CW)	
Nov	16/17	LZ DX COntest (CW)	
Nov	23/24	CQ WW DX Contest (CW)	
Nov	23/24	CQ WW SWL Challenge (CW)	
Dec	5/7	ARRL 160 Metres Contest (CW)	
Dec	6/7	MDXA PSK31 DeathMatch (PSK31)	
Dec	6/7	TARA RTTY Sprint	
Dec	13/14	ARRL 10 Metres Contest (CW/SSB)	
Dec	20	OK DX RTTY Contest	
Dec	20/21	International Naval Activity (CW/SSB)	
Dec	26	Ross Hull Memorial VHF Contest (CW/SSB/FM) (Nov 03) *(—to 11 January, 2004)*	
Dec	27/28	Original QRP Contest (CW)	
Dec	27/28	Stew Perry 160 Metres Distance Challenge (CW)	

Results CQ/RJ WW RTTY DX Contest 2002

VK/ZL only

Call	Category	Score
ZL2AMI	SOABHP	1,174,057
ZL3JT	SOABLP	448,200
HS0/VK3DXI	"	29,250
VK5LA	SO 15 metre	29,841
VK6GOM	SO assisted	750,774

Rules PSK Rumble sponsored by Troy ARA

Saturday, October 4th, 2003. 0000z - 2400z PSK only. 80, 40, 20, 15, 10, 6 metre.

Work stations once per band. Exchange name, state/province/DX send dxcc prefix. Operate 1 of 5 categories:*Normal* 100 W max.; *Great*,20 W max.; *Super* 5 W max.; Novice or SWL.

Final score is QSOs (W + VE + JA + VK call areas + 1 point per DX incl. your own). Mults. count once per band. To be valid, scores must be received via our online score submission form found at "http://www.n2ty.org/seasons/tara_rumble_score.html" or email.

Check-Logs to *rumble-manager@n2ty.org* by the last entry date 1st. November 2003. Logs must be available for review if requested. Please read web rules for details on "http://www.n2ty.org/seasons/tara_rumble_rules.html"

Rules – Spring VHF-UHF Field Day 2003

From John Martin (VK3KWA), Contest Manager

1/2 November, 2003

0100UTC Sat. - 0100UTC Sun.

The Spring VHF-UHF Field Day will take place on the weekend of November 1 and 2, 2003. Logs will be due on November 24 and entrants are also invited to include any comments or suggestions about the rules.

Dates: Saturday and Sunday November 1 and 2, 2003.

Duration in all call areas other than VK6:

0100 UTC Saturday to 0100 UTC Sunday.

Duration in VK6 only:

0400 UTC Saturday to 0400 UTC Sunday.

Sections

A: Portable station, single operator, 24 hours.
B: Portable station, single operator, 6 hours.
C: Portable station, multiple operator, 24 hours.
D: Portable station, multiple operator, 6 hours.
E: Home station, 24 hours.

Single operator stations may enter both Section A and Section B. If the winner of Section A has also entered Section B, his log will be excluded from Section B. The same applies to the winner of Section C if the station has also entered Section D.

General Rules

A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Operation may be from any location, or from more than one location. You may work stations within your own locator square. Repeater, satellite and crossband contacts are not permitted.

One callsign per station. If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other. Stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make any contest exchanges using callsigns other than the club or group callsign.

No contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for any contest activity. Suggested procedure is to call on +0.150 on each band, and QSY up if necessary.

Contest Exchange

RS(T) reports, a serial number and your four digit Maidenhead locator.

Repeat Contacts

Stations may be worked again on each band after three hours. If the station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Scoring

For each band, score 10 points for each locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time, frequency, station worked, serial numbers and locator numbers exchanged, points claimed.

Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table. In this example the operator has operated from one locator and worked four locators on each band:

Band	Locators Activated (10 points each)	+	Locators Workad (10 points each)	+	QSOs (1 point each)	x	Multiplier	=	Band Total
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
					Overall Total			=	680

A sample cover sheet has been posted on the VK-VHF e-mail reflector, and copies can also be obtained from the e-mail address given below.

Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to jmartin@xcel.net.au. The following log formats are acceptable: ASCII text, MS Office RTF, DOC, XLS or MDB. If you use Office 2000, please save the files in Office 97 format.

Logs must be received by Monday, November 24, 2003. Early logs would be appreciated.

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Over to you

More info please!

Some of us oldies and/or computer illiterates are griping about the fact that we are increasingly being kept in the dark regarding new products and developments re Ham Radio! The Call-Book contains nothing more than our Call Signs. The last Call-Book to provide us with repeater frequencies etc was back in the year 2000. In essence it was a YearBook! Many of us are paying top dollars to buy the British monthly magazine Practical Wireless, just to see what is happening with new gear! With only A.R. available, we are increasingly reliant on this publication to keep with the latest. So, how about including Repeater Listings, TV frequencies, Beacons, C.B. frequencies and so on. Information such as this need only be printed, say twice a year! And while on the soapbox, we need advertisers of the latest in equipment available in this country. Sales are being lost due to a lack of adverts in A.R.

M. Morris, VK 3GMM, VK3AWM, QTHR

Adelaide Hills Amateur Radio Society

The October meeting of AHARS drew a large crowd. The topic, refilling cartridges for your inkjet printer, is one that causes many discussions.

The speaker is an expert in the field and had many interesting stories to tell.

He does not recommend doing the refills yourself, in most cases, because the refill ink generally available is inferior. However he says there are no cartridges that cannot be refilled.

There are certainly many traps put there by the manufacturers to stop anyone refilling your cartridges but the experts are constantly working to overcome these barriers.

Do not believe your printer repairer when he tells you that you have voided your guarantee by having the cartridges refilled. This is against the law. If you ask for this voiding rule to be put in writing your will find the repairer backing down.

Remember, printers are very cheap. Cartridges are expensive. That is the way the manufacturers make their money. Make your cartridges last as long as possible by having them refilled by an expert.

Anyone visiting Adelaide is welcome to come to an AHARS meeting. Contact Geoff VK5TY or Paul VK5PH for information about the forthcoming topic. The meetings are held at the Blackwood High School at 7.30pm on the 3rd Thursday of the month

Southern Group Luncheon

The October luncheon was very well attended with some new faces. Trevor VK5ATW and Helen and John VK5JR from Mount Gambier, also with his lady, were present for the first time.

As usual the company was pleasant and the food good. After the lunch most of us had coffee at the QTH of Garry VK5ZK and Cecily. Garry's shack was given a good inspection after its recent modification. The view over the river there is magnificent.

All in all a pleasant outing with pleasant people.

Push Button Memory Antenna Adjustor

A simple way to make a dipole wire antenna adjustable to a number of bands appeared in the *Hints and Kinks* column of Bob Schetgen KU7G in *QST*, April 2003. The idea came from Terry Schieler W0FM who had the idea to use cord stoppers to hold the excess wire folded back along the dipole in the adjustment process. The cord stoppers are the spring loaded barrel devices commonly used to hold drawstrings on clothing or travel goods. They are available relatively cheaply from sewing supplies shops and from travel and outdoors suppliers.

The end of the adjustable dipole is shown in Fig 4. The wire used in the original was flexweave antenna wire but a multi strand wire should be suitable. The main requirement is for the wire to be similar in size and flexibility to the cords which the stoppers are designed to work with. The antenna should be built for the lowest frequency of interest. Then the wire can be folded back along the dipole to produce dipoles on higher frequencies. The band positions can be marked to allow speedy retuning. In the field the antenna can be fine tuned by adjusting the length for best operation which allows you to compensate for the different situations a portable antenna is set up in. Terry W0FM used the antenna on 20-17-15-12-10 metre when on vacation. The antenna can be light and easy to setup and adjust.

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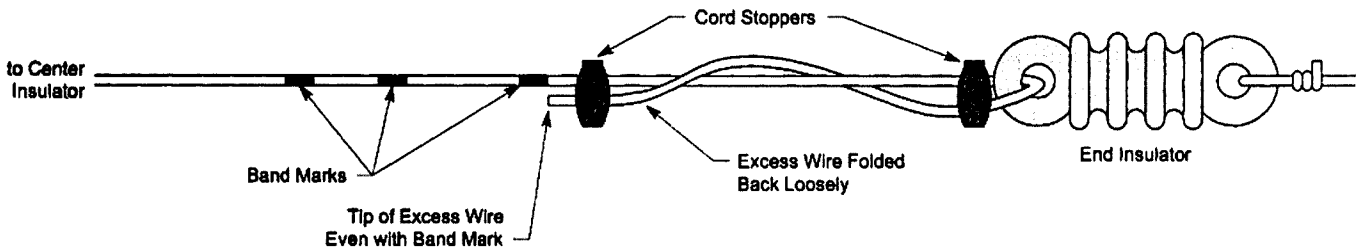


Fig 4. W0FM's push button tuned antenna.

Ham Shack Computers

Alan Gibbs VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 30

Icom IC-Q7 Tweaking

It's amazing how much technology can be bought for the Aussie Dollar these days. The spin-offs extend into the fields of Amateur Radio in the shape of digital technologies, surface mounted components, and mass circuit integration significantly reducing the size of completed items. Hand-held receivers and transceivers are now manufactured with a myriad of options from the key players like Alinco, Icom, Kenwood and Yaesu. Multi-band handheld transceivers covering 6 metres through 23 centimetres, with up to five watt output on transmit, and receiving capabilities that extend from 100 kHz to 3G Hz - AND about 1,000 memory channels. Add other options like 25/12.5 channel spacing, CTCSS, DTMF, pocket beep, 1,750 Hz tone burst, TV channel selection (with pictures in colour!), FM broadcasting - the list seems endless. These devices can not only be purchased to MIL specs, are waterproof, fit in the palm of your hand, run off two AA cells - BUT the total size is less than a mobile phone!

On the down-side, these "handies" are so small it becomes difficult to operate and program because of the multi-function, tiny buttons and miniature liquid crystal displays that are impossible to read when wearing Polaroid sunglasses! Fortunately, most of these devices are computer programmable.

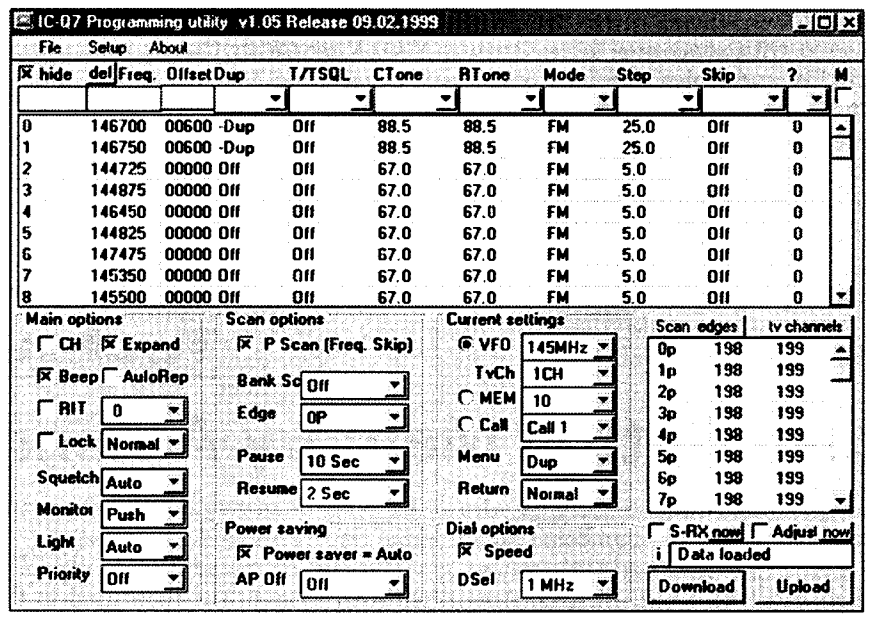
Lets assume you are going to the UK (New Zealand, the USA or wherever) on holiday and you'd like to program all your favourite Australian channels PLUS all the key channels needed while on holiday. Trying to dump all that little lot into memory (without errors) can take weeks of fumbling around with the little buttons. Most modern "handies" are computer programmable making the task easy. The hard part is collecting the list of all the channels you want to access, both at home and on holiday, before the programming starts.

The RSGB, NZART and the ARRL all have web sites where the channelling and locations can be listed. Once done you are ready to start programming the "handie" the EASY WAY.

Icom IC-Q7A/E

Whilst the Icom IC-Q7 is an early example of our selected "handie", it reveals most of the ethos of this article. The device comes in two types:

1. US version (IC-Q7A) covering 144-148 MHz on 2 metre, and...
2. UK version (IC-Q7E) limited to 144-146 MHz and not much good in VK-land or the USA!



The computer is connected via the headphone/microphone socket on the top of the transceiver. The socket uses three contacts, one for the mic/headset, another for PTT and the last for communication port access. None of this is detailed in the Icom handbook! The truth being that the IC-Q7 is actually an Icom R5 receiver with a multi-band transmitter added. Icom don't tell you this either!

Programming the Handie

Like most AR rigs these days, all the software is available in the Internet - and it's free. If your AR retailer stocks proprietary software, it's usually expensive, so use the Internet.

The Digital Laboratory, by Goran Valaski (2) has all the software (and hardware) for Icom, Kenwood, Yaesu, Alinco, AOR. and others at competitive prices. The IC-Q7 software is free.

The interface for the Icom IC-Q7 is a bi-directional TTL to RS232 converter built inside a DB-9 com-port plug, and constructed on a tiny PCB with surface mounted components. However, these can be easily constructed with conventional components from the extensive number of circuits previously described in this publication. Icom don't advertise these items but your dealer might be able to help if you are not into constructional projects.

Version 1.05 of the Icom IC-Q7A/E software was released in 1999 yet still remains a powerful option for programming your "handie". The illustration shown on the previous page offers just about every feature you'd wish for in such a tiny rig. Start at 0 (the first entry) and work through each channel one by one from the channel data listed from your research. Note that different countries use differing parameters like channel spacing from 25 kHz through to 12.5 kHz on some UK repeaters. Tone squelch, CTCSS, mode and the likes are entered as required. Once a few entries have been made, the file is saved to your computer with the file extension as .Q7. The writer has saved the file as ADJ-6PG.Q7 and other files now exist for the UK and US calling and working channels.

The clone option

Setup only requires the com-port to be identified so that your computer can "talk to" your transceiver. Once done, click on Upload (bottom right hand corner of the screen). You should see the data being loaded into the memory of the "handie". Pull out the clone cable from the top of the transceiver and select the first memory channel – it should coincide with your entry, and your handie should work as required. Add more channels to the computer interface, and include divisions for 6 metre, 2 metre, 70 centimetre and 23 centimetre. Upload as often as you like to include new channels and to update the "handie".

Add special calling channels, regular repeaters, simplex local chat channels and the likes. Remember you can include FM broadcast stations, AM aircraft frequencies and television channels that are outside the transmit limits of the handie. So, next time you fly out on your international holiday, you'll be able to hear the flight instruction from the control tower, and the responding chatter from the Jumbo pilot including the QNH and QFE, Hi

With 200 channels in the Icom handie, the problem will be to remember which is which! Some more modern handies are now sporting 1,000 channels or more. It's enough to drive any assertive RA nuts trying to find a useful working channel from memory! However, the scanning options in the software might be for you, or you might want to listen to the local FM news whilst in bed.

There are so many uses for handies these days. The writer took his to the UK, with the entire UK channels pre-programmed before leaving Perth. In addition an Icom IC2000H mobile rig and mag-mount antenna were stored inside the hand luggage. On landing at Heathrow, a hire car was fitted with the IC2000A with BIG crock clips clamped to the battery and the mag-mount 5/8-wave whip dumped on the roof. With the two rigs (mobile and handie) the holiday was magnificent. Rallies became a dream, friends were located, talk-in stations abounded, and when visiting old mates - the ultimate talk-ins were a delight.

Other options

Climbing towers with a handie makes life easy. Being able to talk to your mate on the ground is essential. Beam direction settings, spanner sizes, wind problems, gin poles, clamps, feeder and rotator connections and other instructions can be relayed to the ground crew without bawling into a megaphone and announcing to the neighbours that they are in for trouble with the new installation! Even on holiday, leave the XYL in the car while you go looking for something or someone. However, when you do this, don't use a National FM Calling Channel to upset the natives!

A Big Secret!

The writer mentioned that the Icom IC-Q7 was based upon the Icom R7 receiver. Indeed, the IC-Q7 innards has the capacity to extend the receive capability down to 100 kHz covering the entire HF spectrum. Not only can you listen to short wave and AM broadcast stations, just think how useful this can be on holiday! Also, use your handie as a faultfinder, TVI locater, and excellent for running tests with friendly co-operative neighbours minimising any strife that might lead to stalemate situations. To extend your IC-Q7 for full HF coverage, just select the little S-RX check box on the lower right of the screen, then Upload again and Save to a new file. Starting with a pre-programmed handie, try the Download button to retrieve settings from the handie - many of the other options are at your fingertips.

Summary

A light-hearted approach to programming a hand held transceiver (HT) has been discussed, but there are many users with other makes and models, most of which can be enjoyed in a similar manner. If you are curious then look to The Digital Laboratory (2) for starters. Links are available on the Ham Shack Computer Web Site (1) including the popular HSC CD with all the articles and software in this series. In brief, if you can't program it, flog it at the best price and get a new programmable rig!

Ham Tip No. 30.

If you are considering buying a new receiver or transceiver, NEVER buy one that cannot be computer programmed or controlled. Even if you don't want these facilities personally, it will maintain the value of your new rig should you decide to trade-in later on.

Ham Shack Computers, Part 31 next month- discusses "Internet Trading" for Radio Amateurs. A controversial topic that might get local dealers fidgeting in this country, but with distinct advantages for progressive AR operators.

(1) Ham Shack Computers Web: www2.tpg.com.au/users/vk6pg

(2) The Digital Laboratory at http://www.digital-laboratory.de/

73's de Alan, VK6PG/G3PHG

ar

VHF/UHF - An Expanding World

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Leigh Rainbird VK2KRR - vk2krr@talstra.com

Weak Signal

Spring is here and the mind turns to ... Field Days of course (what were you thinking?). The first, and usually best attended, of the VHF/UHF field days is the Spring VHF/UHF Field Day over the weekend of November 1 & 2 this year. Last year, according to the logs submitted by participating stations, a large contingent of VK3 stations participated, but very few from the other states. For example, on 2 m, 76 different VK3 stations were logged, whereas only 15 VK5, 9 VK2, 8 VK4, 6 VK7 and 2 VK1 stations participated. On 23 cm, there were 20 VK3 stations, 2 from VK7 but none from any other states. No VK6 stations were logged on any bands. So, let's get some activity going. Dust off that portable setup, find yourself a mountaintop and plan to be out, at least on the Saturday afternoon. Tell everyone where you plan to be via the VK-VHF mail list both to avoid unplanned multi-op siting and to encourage others to participate. You're sure to find other stations to work.

Those who have home-brewed VHF/UHF gear and even those who have delved into the innards of commercial VHF/UHF gear have no doubt come across the Mitsubishi series of RF Power Modules (e.g. M57762). These provide an easy and convenient, although not so cheap, means of obtaining power on 2 m, 70 cm and 23 cm. Unfortunately, Mitsubishi has announced that production of all of these modules will be wound down to zero by March of next year. However, all is not lost. They will be replaced by the RA series of modules fabricated using MOSFET technology. The packaging will be much the same but higher gains and better efficiency will be obtained. No idea on pricing at this stage however. So, if you are contemplating a project using one of the Mitsubishi modules, have a look at the RA series.

Digital Modes

Rex Moncur - VK7MO

Guy VK2KU introduced an improved procedure for terrestrial JT44 at Gippstech and this is now recommended for use in VK-ZL. The example below is for a sked between VK2KU and VK3XYZ. For more complete information on the procedures go to the NSW VHF DX Group web site at www.vhfdx.oz-hams.org then to Digital Modes and to JT44 operating procedures

Messsage Sent	Station Transmitting
VK2KUVK3XYZVK2KUVK3XYZ	VK3XYZ
VK3XYZVK2KU 1919191919	VK2KU
RRRRRRRRRR 2020202020	VK3XYZ
RRRRRRRRRRRRRRRRRRRR	VK2KU
7373737373737373737373	VK2XYZ

The reports in the format 19 or 20 above represent the signal level in dB below the noise with the minus sign omitted. Thus 19 indicates -19 dB in a 2.5 kHz bandwidth which is indicated on the WSJT program when using JT44.

The procedure allows one to take best advantage of the multiple averaging techniques built into JT44. In the first line both callsigns are repeated in full and one can average these by pressing the "Fold" button to give an extra 1.5 dB improvement. In the second line the callsigns are in the exact same position as when starting the contact so the call sign average in the bottom JT44 window can build up giving a 1.5 dB improvement for each doubling of the averaging time eg 3 dB after four cycles. The report in the second line is averaged in the double letter average to the right in JT44 giving around a 3 dB improvement and the RRR in the third line is averaged in the single letter average to the right in JT44 giving around 7 dB improvement.

Only send a report when you have received both call signs correctly. This tells the other station that you have both callsigns so the other station can move to line 3 as soon as they have both call signs. Only send RRRRR when you have received both call signs and a report correctly.

In this example it is possible to send both call signs twice in the first line and gain the averaging advantage of 1.5 dB in a single line. In cases where both stations have three letter callsigns it is not possible to include both in full and one cannot gain this advantage. In the case of two three letter calls the first line is as follows:

VK2ABC VK3XYZ VK3XYZ

2 m & 70 cm FM DX

Not a great deal of activity for FM DX through August with a few smaller openings and one good duct opening in the South East, plus a good opening along the VK4 coast.

On the evening of Friday 1st, confined enhancement was noted from here to the Grampians devices, Otways and Geelong area. Otways VK3ROW noted at S9 (486 km), Grampians 70cm VK3RWU noted at S9+10dB at 471 km.

The following evening David VK2AYO in Dubbo was noted working into the 146.950 repeater in Canberra speaking with VK2ZSZ, a distance of 341 km.

On the 3rd, enhancement still noted around central VK2 and northern VK3.

On the morning of the 13th of August, a duct was workable along parts of the VK4 coastal area. Felix VK4FUQ in Ingham, 100 km North of Townsville, was able to work into the Gladstone repeater at Amy's Peak on 146.900 VK4RGA. Distance involved for Felix is 805 km, Felix was in contact with Gary VK4TGB in Bundaberg and also Alan

Robin Harwood VK7RH

Seasonal momentum

Spring has certainly arrived at this location after a rather wet winter for northern Tasmania. Already I notice that the higher frequencies are starting to propagate for longer into the evening hours.

Of course, this month sees the re-introduction of Daylight Saving in NSW, the ACT, SA and Victoria on the 26th of October, which also happens to be the date when the Northern Hemisphere reverts back to their respective standard timezones. This has been deliberately chosen as the date when a massive frequency shift occurs to take account of these seasonal changes. It is also the date of programming changes and alterations. I believe even fewer international stations will be broadcasting to Australasia and the South Pacific from that date.

There also has been a lot of recent discussion about DRM and I believe the first commercial receiver should shortly be available. However I do not think there will be too many buyers as the price I have seen quoted is approximately 750 euros. The majority of listeners using shortwave are in the developing world with limited incomes. I know that a software package is available for downloading but it too is rather high and requires a decoder to go between the receiver with a 12 kHz wide IF strip and the computer soundcard. There are few stations broadcasting DRM to this region and I believe that they have been almost exclusively concentrating on Europe and North America but with so few equipped with the right gear, it remains a rather open question whether DRM will survive. I also noted that the proponents of DRM and the DAB, also known as Eureka 147, would be working together. The IBOC system in the US is still regarded as experimental and again depends on how quickly receiving modules will be in the market place

Radio New Zealand International was silenced by a failure of their sender near Taupo early in September. Their Internet audio feed was unaffected but they quickly had to hire airtime over Radio Australia between 1700 and 2115 on 9580. I imagine that they will be back from their own senders by now. They were planning to broadcast and extend their operational hours to 24 hours as from September 7th.

There has been no news on the fate of Radio for Peace International in Costa Rica. Mediation talks between the University and RFPI were stalled at last report. The University wants the station off the campus and for them to vacate their buildings and studios. If they are forced to relocate they will have to apply to the Costa Rican government for a licence, as they would no longer be considered to be in "International territory".

I believe another Australian domestic shortwave station commenced recently, broadcasting from Humpty Doo in the NT. Information is that it is running less than 500 watts and provides spoken word programming in aboriginal languages. It is on 5050 yet is difficult to copy here in the evening hours due to the presence of several Chinese senders also on channel. I believe that this station is temporarily on shortwave until they get funding to put low power senders on the extended MW allocation or on FM across Arnhem Land.

The death of Boris Belitsky was announced on the Voice of Russia on 3rd September. He was the presenter of "Science and Engineering" on Radio Moscow' and the VOR's English programming. His diction and pronunciation were excellent, as was his incredible ability to explain difficult scientific and engineering terms in simple English. He was 82.

Well that is all for this month. Don't forget you can email your news and comments to me at vk7rh@wia.org.au.

73 from Robin VK7RH

VHF/UHF – An Expanding World *continued*

VK4EAB in Gympie, 150 km and 270 km respectively to the device. Felix was also accessing another unusual repeater on 146.950 but could not get any I.D Morse from it. I would think it could have been the device at Blackwater VK4RBD.

Very early morning on the 16th of August, a duct extended across to VK5 from southern VK2 and VK3 call areas. This appeared to hang in there all day and was gone some time after the sun went down in the evening. Many of the more easily accessible 2 m repeaters were workable from the east, including the likes of Murray Bridge, Lobethal, Crafers and Port Augusta.

VK3KYF, Garry in Mildura had an interesting day, not only working into VK2KRR near Wagga simplex, but also making the Wagga 2m repeater, Murray Bridge in VK5 and also Mt. Macedon in VK3. Some good distances there from Garry and around 480 km into Wagga. Terry VK3TCM again in Mildura was also working into Mt. Macedon, as was Brian VK5ZMB, a good signal from Gawler S.A. Barry VK5KBJ south of Adelaide was able to work simplex into VK2KRR on 2 m, a distance of 701 km with a 5/4 signal.

Thomas VK3HFZ was noted as working portable from the snow on Mt. Buller, providing contacts for those who were in range. Thomas was a 5/6 signal here near Wagga.

Finally, the Mt. Baw Baw repeater VK3RWG was brought back to life on the 9th of August and is putting out a good signal on 147.225.

The new repeater servicing the Echuca area, VK3RCA, is up and running on 146.675. Although running a borrowed mobile whip on transmit due to antenna problems, the device is still getting out OK and a new antenna is on the way. Well done to VK3JGL and VK3EME for the work on the project.

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HF Predictions

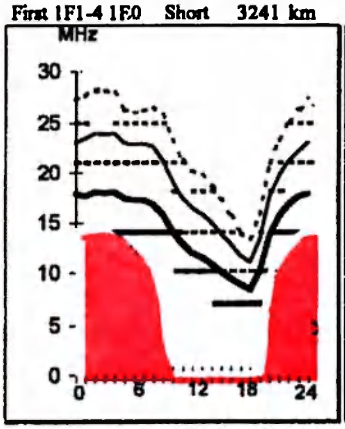
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

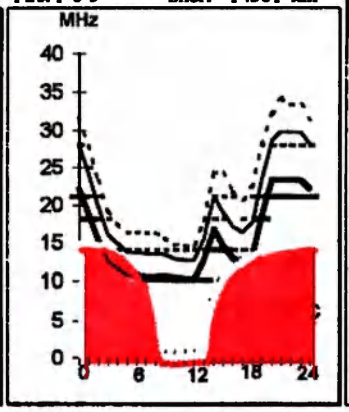
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

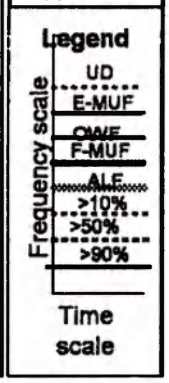
Adelaide-Auckland 104
First 1F1-4 1E0 Short 3241 km



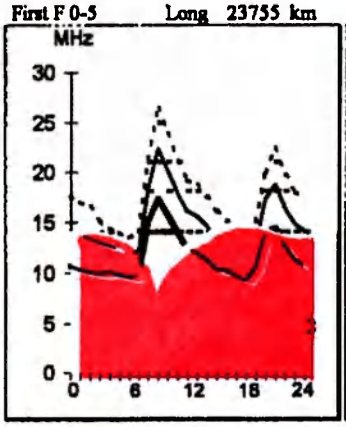
Brisbane-Chicago 57
First F 0-5 Short 14361 km



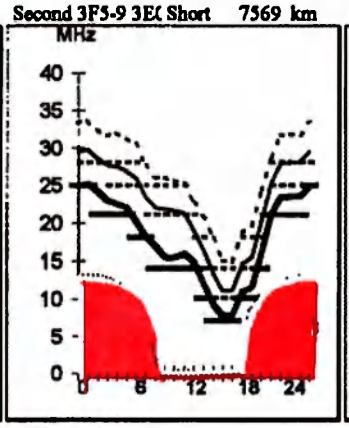
October 2003
T Index: 53



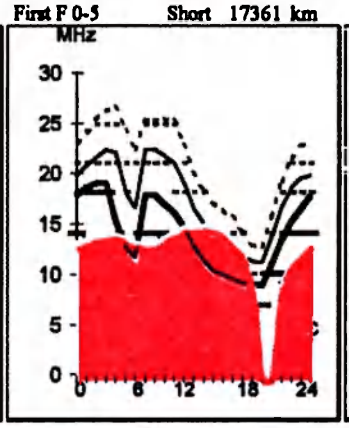
Adelaide-London 132
First F 0-5 Long 23755 km



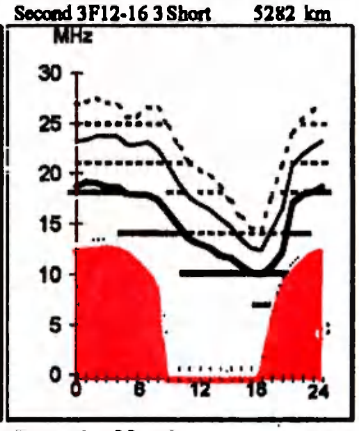
Brisbane-Honolulu 49
Second 3F5-9 3E(Short 7569 km



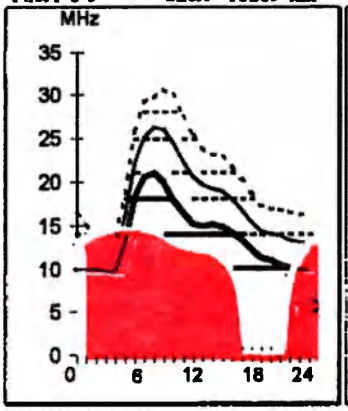
Canberra-Dakar 214
First F 0-5 Short 17361 km



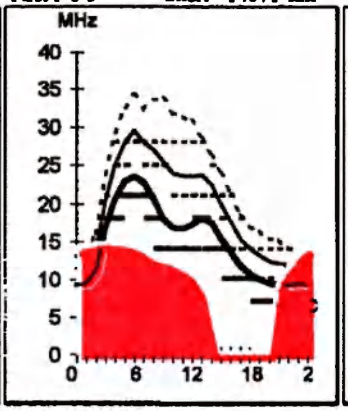
Darwin-Christchurch 139
Second 3F12-16 3 Short 5282 km



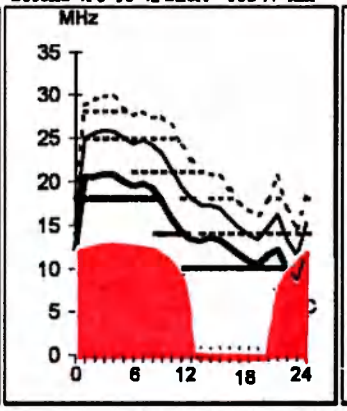
Adelaide-London 312
First F 0-5 Short 16269 km



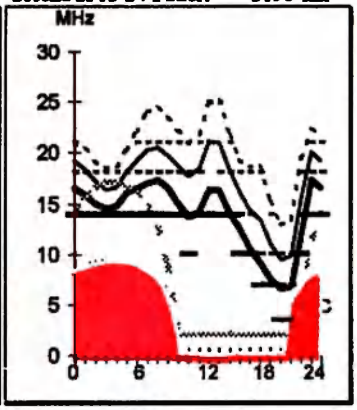
Brisbane-Moscow 321
First F 0-5 Short 14071 km



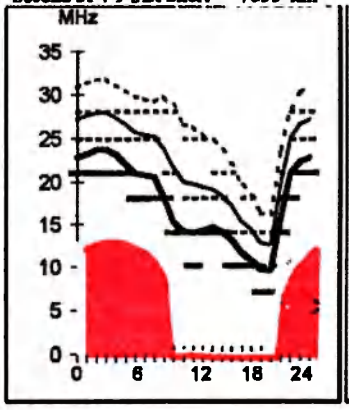
Canberra-New Delhi 303
Second 4F5-10 4E Short 10347 km



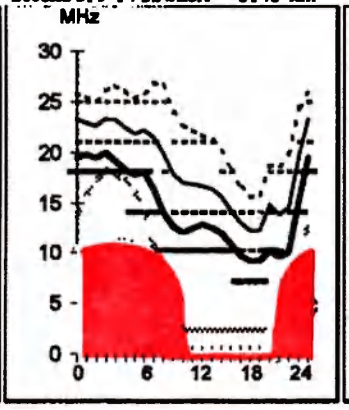
Darwin-Manila 340
Second 2F13-24 2 Short 3196 km



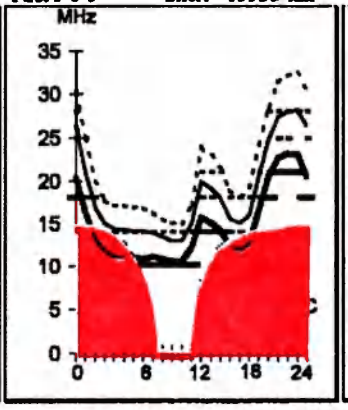
Adelaide-Tokyo 1
Second 3F4-9 3E(Short 7855 km



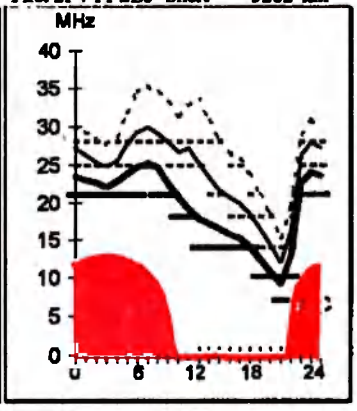
Brisbane-Singapore 293
Second 3F9-14 3E Short 6146 km



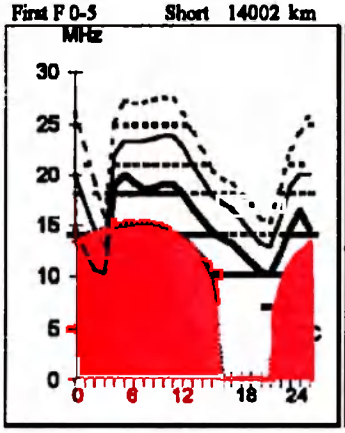
Canberra-Washington 70
First F 0-5 Short 15938 km



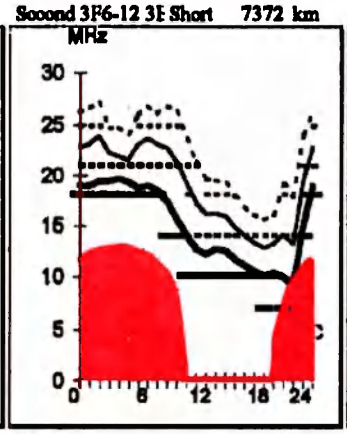
Darwin-Osaka 5
First 2F4-11 2E0 Short 5262 km



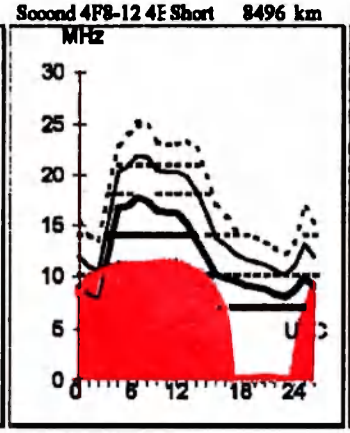
Hobart-Amman 283
First F 0-5 Short 14002 km



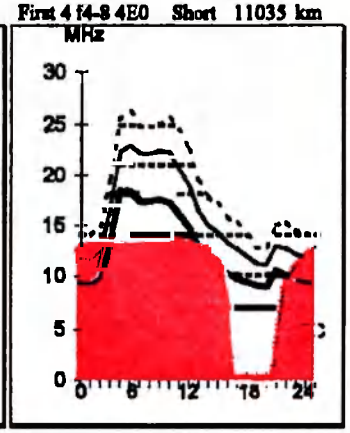
Melbourne-Bangkok 312
Second 3F6-12 3E Short 7372 km



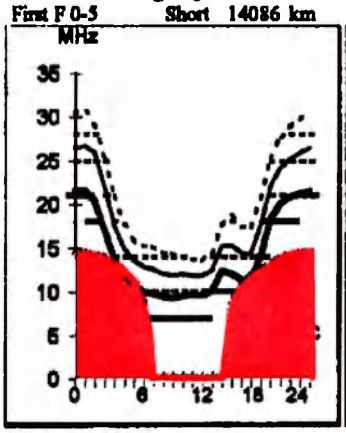
Perth-Harare 257
Second 4F8-12 4E Short 8496 km



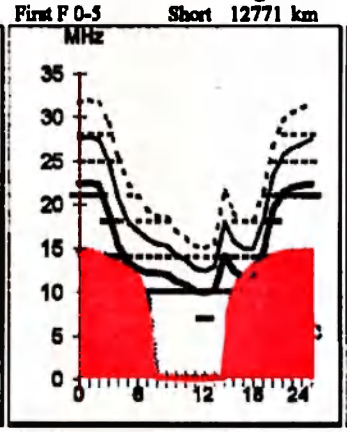
Sydney-Johanneebur 230
First 4 f4-8 4E0 Short 11035 km



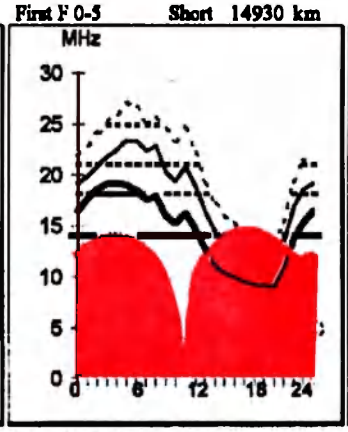
Hobart-Calgary 51
First F 0-5 Short 14086 km



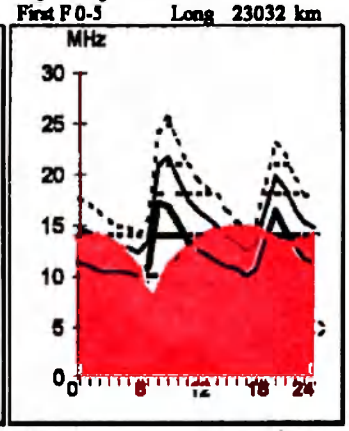
Melbourne-Los Angel 65
First F 0-5 Short 12771 km



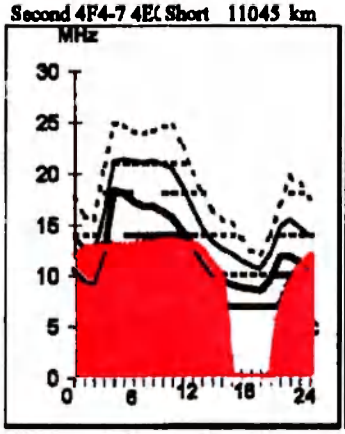
Perth-Lima 162
First F 0-5 Short 14930 km



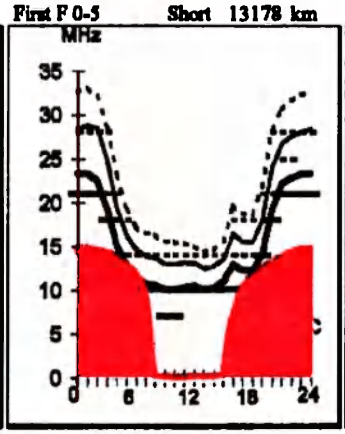
Sydney-London 139
First F 0-5 Long 23032 km



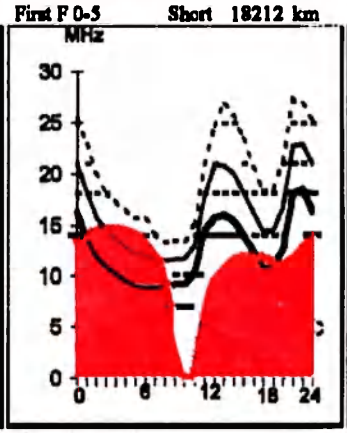
Hobart-Lusaka 239
Second 4F4-7 4E(Short 11045 km



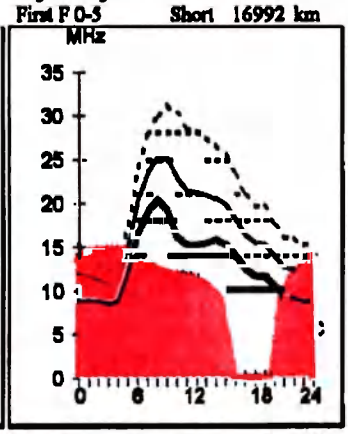
Melbourne-Seattle 50
First F 0-5 Short 13178 km



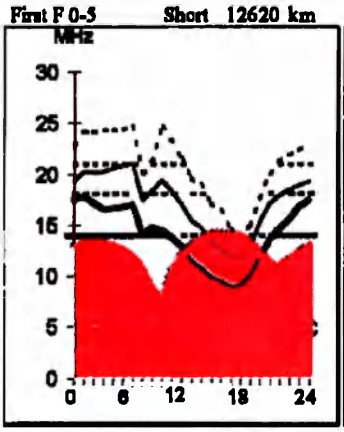
Perth-Ottawa 30
First F 0-5 Short 18212 km



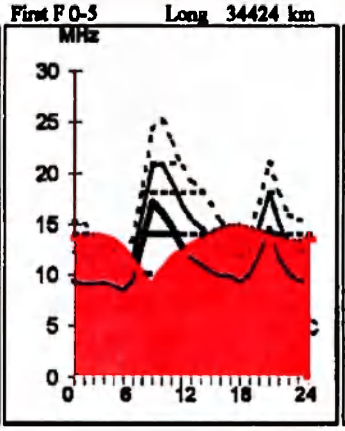
Sydney-London 319
First F 0-5 Short 16992 km



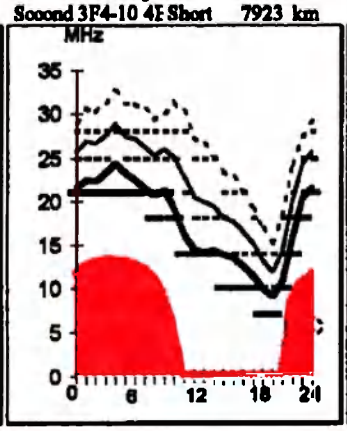
Hobart-Rio de Janeir 169
First F 0-5 Short 12620 km



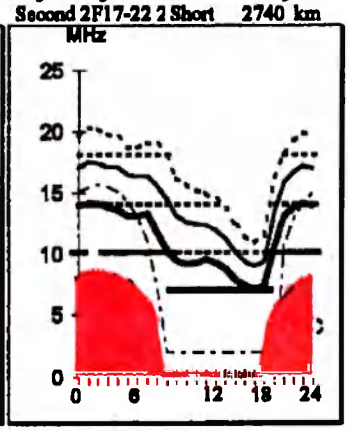
Melbourne-Stockholn 140
First F 0-5 Long 34424 km



Perth-Tokyo 20
Second 3F4-10 4E Short 7923 km



Sydney-Port Moresby 351
Second 2F17-22 2 Short 2740 km



Gridsquare Standings

at 27 August 2003

144 MHz Terrestrial

VK2FLR	Mike	107
VK2KU	Guy	100
VK3FMD	Charlie	82
VK2ZAB	Gordon	75 SSB
VK3BRZ	Chas	68 SSB
VK2KU	Guy	67 SSB
VK3EK	Rob	62 SSB
VK3KAI	Peter	62
VK2DVZ	Ross	60 SSB
VK2EI	Neil	54
VK3XLD	David	54 SSB
VK3TMP	Max	53
VK3CY	Des	52 SSB
VK3ZLS	Les	51 SSB
VK3BDL	Mike	50
VK2KU	Guy	47 Digi
VK7MO	Rex	47
VK3BJM	Barry	45 SSB
VK2TK	John	44
VK3KAI	Peter	44 SSB
VK3WRE	Ralph	44 SSB
VK2DXE	Alan	43
VK3CAT	Tony	39
VK3KEG	Trevor	39
VK4TZL	Glenn	38
VK4KZR	Rod	33
VK7MO	Rex	30 SSB
VK2TK	John	29 SSB
VK3HZ	David	28
VK3KME	Chris	28 SSB
VK6HK	Don	28
VK2KRR	Leigh	26 FM
VK4DFE	Chris	26 SSB
VK3ZUX	Denis	25 SSB
VK7MO	Rex	24 Digi
VK3YB	Phil	23
VK2TG	Bob	22 SSB
VK3KAI	Peter	21 Digi
VK6KZ	Wally	20
VK3BBB	Brian	19
VK3TLW	Mark	19 SSB
VK3AL	Alan	18 SSB
VK2TK	John	16 Digi
VK6KZ/p	Wally	16
VK3ZYC	Jim	14 SSB
VK3DMW	Ken	13
VK2CZ	David	12
VK2EI	Neil	11 Digi
VK2DXE/p	Alan	10
VK3ANP	David	10
VK7ZSJ	Steve	10
VK2TWO	Andrew	5
VK3ZDR	David	5 SSB
VK2AKR	Neil	3 Digi
VK3BG	Ed	3 SSB
VK2AKR	Neil	1 SSB

144 MHz EME

VK2FLR	Mike	110
VK2KU	Guy	73
VK3CY	Des	66 CW
VK3KEG	Trevor	4
VK3FMD	Charlie	3
VK2DVZ	Ross	2
VK7MO	Rex	2

432 MHz

VK2ZAB	Gordon	52 SSB
VK3BRZ	Chas	48 SSB
VK3XLD	David	46 SSB
VK3FMD	Charlie	41
VK3ZLS	Les	40 SSB
VK2KU	Guy	37
VK3EK	Rob	34 SSB
VK2KU	Guy	33 SSB
VK2DVZ	Ross	29 SSB
VK3BJM	Barry	29 SSB
VK3BDL	Mike	26
VK3KAI	Peter	26 SSB
VK3TMP	Max	25
VK3WRE	Ralph	25 SSB
VK3CY	Des	23 SSB
VK3KEG	Trevor	21
VK3HZ	David	18
VK7MO	Rex	16
VK3CAT	Tony	14
VK4KZR	Rod	14
VK2TK	John	13 SSB
VK3TLW	Mark	13 SSB
VK3ZUX	Denis	13 SSB
VK6KZ	Wally	13
VK4TZL	Glenn	11
VK3AL	Alan	10 SSB
VK3ANP	David	10
VK3YB	Phil	10
VK2TG	Bob	9 SSB
VK4DFE	Chris	9 SSB
VK3BG	Ed	8 SSB
VK3KME	Chris	8 SSB
VK6KZ/p	Wally	8
VK2KRR	Leigh	7 FM
VK3BBB	Brian	7
VK2FLR	Mike	6
VK2KU	Guy	5 Digi
VK3ZYC	Jim	4 SSB
VK2CZ	David	3
VK2TWO	Andrew	3
VK7MO	Rex	3 Digi
VK2DXE/p	Alan	2
VK3KAI	Peter	2 Digi
VK2AKR	Neil	1 SSB
VK3DMW	Ken	1

432 MHz EME

VK4KAZ	Allan	14 CW

1296 MHz

VK3XLD	David	32 SSB
VK3BRZ	Chas	31 SSB
VK3FMD	Charlie	31
VK2ZAB	Gordon	26 SSB
VK3ZLS	Les	26 SSB
VK2KU	Guy	21
VK3EK	Rob	20 SSB
VK2KU	Guy	19 SSB
VK3KWA	John	19
VK3WRE	Ralph	16 SSB
VK3KAI	Peter	15
VK3KAI	Peter	14 SSB
VK2DVZ	Ross	13 SSB
VK3BDL	Mike	12
VK3BJM	Barry	12 SSB
VK3TMP	Max	11
VK4KZR	Rod	10
VK7MO	Rex	10
VK2TK	John	8 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK3HZ	David	6
VK2CZ	David	5
VK6KZ/p	Wally	5
VK3BVP	Shane	4
VK3YB	Phil	4
VK3ZYC	Jim	4 SSB
VK6KZ	Wally	4
VK2KU	Guy	3 Digi
VK3BBB	Brian	3
VK3BG	Ed	3 SSB
VK3KEG	Trevor	3
VK2DXE/p	Alan	2
VK2FLR	Mike	2
VK3CY	Des	2
VK3KAI	Peter	2 Digi
VK3KME	Chris	2 SSB
VK3DMW	Ken	1
VK3ZUX	Denis	1
VK4TZL	Glenn	1
VK7MO	Rex	1 Digi

2.4 GHz

VK3BRZ	Chas	11 SSB
VK3XLD	David	11 SSB
VK3FMD	Charlie	8
VK3WRE	Ralph	8 SSB
VK3KAI	Peter	7 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	4
VK3BJM	Barry	3 SSB
VK3KAI	Peter	2 Digi
VK4KZR	Rod	2
VK3TLW	Mark	1 SSB
VK4TZL	Glenn	1

3.4 GHz

VK3FMD	Charlie	8
VK3WRE	Ralph	6 SSB
VK3KAI	Peter	5 SSB
VK3XLD	David	4 SSB
VK6KZ	Wally	4
VK3EK	Rob	3 SSB

5.7 GHz

VK3FMD	Charlie	10
VK3WRE	Ralph	9 SSB
VK3KAI	Peter	7 SSB
VK3XLD	David	5 SSB
VK6KZ	Wally	4
VK3BJM	Barry	2 SSB
VK3EK	Rob	2
VK6BHT	Neil	2
VK3KAI	Peter	1 Digi

10 GHz

VK6BHT	Neil	9
VK3FMD	Charlie	8
VK3WRE	Ralph	8 SSB
VK3KAI	Peter	7 SSB
VK3XLD	David	7 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	5
VK3TLW	Mark	3 SSB
VK3ZYC	Jim	3 SSB
VK2EI	Neil	2
VK3BJM	Barry	2 SSB
VK7MO	Rex	2
VK4KZR	Rod	1
VK4TZL	Glenn	1

24 GHz

VK6BHT	Neil	3
VK2EI	Neil	2
VK6KZ	Wally	2

474 THz

VK7MO	Rex	1

Additions, updates and requests for the guidelines to Guy VK2KU, vk2ku@hermes.net.au, or by mail (QTHR 2002).

The guidelines (and the latest League Table) are also available on the website of the NSW VHF Dx Group at www.vhfdx.oz-hams.org - click on Gridsquares.

Next update of this table will be in November 2003.

Stations who do not confirm their status for more than 12 months may be dropped from the table.

Charlie or Canada?

Probably Peter Cossins has not been around for as long as many of us and so his remarks re Poor Communications Vocabulary are understandable, if not indicating a knowledge of past history of phonetic alphabets.

In spite of the inference in Peter's letter, the amateur operators' phonetic alphabet of America, Boston, Canada through to Zanzibar is very much older than the present Alpha, Bravo, Charlie alphabet. It was used long before I got my licence, and that is nearly 50 years ago. I rather suspect it dates back to the 1930s. In support of this "countries" phonetic alphabet, it is universal, and the phonetic difference between the countries and cities used is quite marked. It is easy to follow no matter what country the amateur belongs to. It is not dependent on a knowledge of the English language. Tokyo is Tokyo all over the world and so is Zanzibar. The alphabet is certainly international, and it has been in place for a very long time - well over 50 years.

In the matter of phonetic alphabets, there have been several changes made in the official standard alphabet. In 1941 we had Ack, Beer, Charlie, etc which was later changed to Able, Baker, Charlie. Then later came Alpha, Bravo, Charlie. Charlie stood alone, unchanging. I remember the hilarity among the troops when the Don Rs (despatch riders) of the earlier phonetic alphabet in 1941 became Dog Rogers in the 1940s.

Peter, I think you are a voice crying in the wilderness. America, Boston, Canada, have been with us for a very long time, and I can't see it changing among the older amateurs.

Bob Elms VK6BE

Views expressed in the 'Over to you' column are those of the authors, and do not necessarily reflect the policies of the Wireless Institute of Australia.

Send contributions to:
The Editor
Amateur Radio Magazine
34 Hawker Crescent
Elizabeth East SA 5112
or email:
edarmag@chariot.net.au

Circuit Board Manufacture

In AR July 03 VK2COX sought a simple computer program for the design of printed circuit boards. There is none better than Easytrax (which includes Easyplot for printing/plotting the finished design). Easytrax is obsolete in the commercial world but is still excellent for amateur use; it has the added attraction of being freely available at zero cost.

Like VK2COX I have tried other programs; I have Eagle and Vectron and, whilst I'm sure they are excellent tools, they are complex and not intuitive. Easytrax wins on both counts; it runs in DOS (no mouse) and it uses keystrokes which are highly intuitive. for example, to Place a Track you hit PT, to Delete a Pad you hit DP and so on.

The best source for Easytrax is at RCS Radio in Sydney (*www.cia.com.au/rcsradio*). As well as free download of the program plus enhancements (or a floppy disc at nominal charge) you will find Bob Barnes a wonderful source of information and advice (and a delightful man).

This advice may, however, only partly solve VK2COX's problem. The usual photographic techniques for board production are not well-suited to occasional one-off production. These techniques require darkroom facilities and the use of chemicals which have a short storage life; this can be accommodated by those amateurs who are also keen photographers but most of us find converting the laundry to a darkroom a fearful pain.

I produce good-quality boards by plotting from Easytrax/Easyplot directly to the copper stock then etching as usual. This procedure is used to produce normal through-hole boards, surface-mount boards and microstrip boards.

Once laid-out in Easytrax (often very time-consuming and always an intellectual challenge) a board takes about half-an-hour to plot and etch. A mistake or a design change? Edit the design (saved in Easytrax) and plot/etch again; doesn't take very long.

Small plotters are now obsolete, replaced by laser printers. I paid $50 for my first plotter, a HP7550, but was later given two HP7475's (one virtually unused, in original packing with all manuals) for nothing; these are smaller than the 7550 and do the same job; their advantage is that they require less bench space.

Easytrax contains drivers for other brands of plotter, such as Roland, and these should be just as easy to acquire and get going.

I am a recognised computer-illiterate, yet I managed to get my system going; anyone can do it!!

Kerry Power VK2TIL

PC Board manufacture

In the July AR, VK2COX asked about an easy method to produce artwork for home brew PC boards.

Well, I have been making my own PC Boards for about 25 years and almost every board has been for a one-off project. I started by hand drawing my artwork on 0.1" square graph paper left over from my school days. I marked out the board with a Dalo Pen and etched it with Ferric Chloride.

Over the years I have tried more modern methods such as PCBreeze and EasyTrax software. The latter was good once I got to know it, but it lulled me into a false sense of thinking I could do impossible things like running thin lines between IC pads. I also tried the Toner Transfer System of direct transfer of artwork from printer to board, but it produced worse results than my Dalo pen.

I found rub-on transfer patterns were slow and inflexible. The only process I didn't try is the photographic approach, because I considered the materials too expensive for one-offs.

So I have reverted to my hand drawn graph paper artwork, my Dalo pen and Ferric Chloride. With care, I can produce single or double-sided boards of some complexity. If more layers are required for say, a microcontroller board, I use wire wrapping in conjunction with a double sided etched board.

Drilling holes has always been a problem when they have to be in line for a DIL IC socket. I now use a scrap piece of Vero board as a drill guide to accurately position such holes.

Peter Stuart VK2BEU

Over to you

May I add a bit to the CW controversy:

A word for CW.

"Oh, not again!" some will say. First of all congratulations to Drew VK3XU for his fine article on CW in August AR.

Yes, I am an ardent supporter of CW. I lived and worked for long years in S. E. Asia and I think of all the young Ham ops in countries with "difficult" languages, e.g. Thai with some 76 "letters"; or think of Chinese with many dialects, African languages etc. Their spoken English very often is rather limited and to this you add the natural shyness to speak a foreign language for fear of bad pronunciation and you know why they escape to 2m local language "chats". And we miss a good number of QSOs with exotic DX stations. But with CW, good knowledge of Q-code and basic "ham-speak", they can run QSOs with all the world!

In 1977, the beginning of Ham-Radio in Thailand, it was mostly foreigners who were DX-active, but when the 3 of us, HS1WR, HS1BG and myself HS1ALK ran the CW-side of HS0SEA contest station with a stunning result, everybody wanted to get into CW. From just about 100 members of RAST that time, look at the far over 1000 ops now.

Let's keep CW an important part of our hobby to communicate with all the world!

PS I don't have a VK-call as my brain seems too old to cope with the technical side of the exam but I could pass any CW up to 16+ WPM.

Hans Kiesinger L40370 ex-HS1ALK

New Noise Source

Added to the interference we already experience from various domestic appliances, there is a new sound affecting reception on the broadcast and short wave bands. The source is new-fangled "inverter" type domestic reverse- cycle air conditioners.

These machines are microprocessor controlled and use a variable speed motor to drive the compressor.

The controller is active whenever power is applied to the unit, whether or not it is heating or cooling.

The Operation Manual offers a warning that radio and TV units should be kept at least one metre away from the air-conditioner outside unit.

This is, in my experience, insufficient.

My Daiken unit, model FTX35, generates repetitive noise on near-by portable receivers that over-rides broadcast station signals on the low end of the broadcast band. Similar broadband noise is heard on 160, 80 and 40 metre amateur bands as well as around 5 MHz.

Daiken has formal documentation that says one of their units when tested met the Australian Standard" (whatever that might be).

I have been unable to obtain a copy of the test conditions that these units are supposed to meet. Probing around the unit with a dual band portable radio shows unreasonably loud broadband radiation, suggesting that the Australian "Standard" is not sufficiently strict.

A mains filter is not fitted by the manufacturer and a filter at the GP outlet powering the unit is too far from the source to make a difference.

Any attempt to add shielding or ferrite bead filtering will, I was told, invalidate the warranty- as will opening the unit to access the schematic said to be inside.

ACA is aware of the situation but says there is insufficient evidence of a wide-spread problem to warrant investigation.

Would anyone who has faced a similar situation please Email details to me at colharv@hotmail.com.au or phone on (02) 62813607

Col Harvey VK1AU

Silent Key

"Snow" Hodder VK2DV

It is with deep regret that we record the passing of Frederick Alexander "Snow" Hodder VK2DV on Saturday 30 August 2003. "Snow" was born in Edgecliff in May 1917 and joined the Waverly Radio club in the early 1930s. He gained his AOCP in 1935. His first call sign was VK2DV which he held continuously for 68 years. Six years ago, "Snow" received a certificate from the WIA in recognition of 62 years of membership. A short time prior to his passing, "Snow" was awarded life membership of the Oxley Region Amateur Radio Club.

After working for companies including Stromberg-Carlson, Tasma, Weldon, Philips, Kriesler and STC he joined the RAAF as a career in 1937. In 1938, "Snow", now living in Double Bay, added an extension to his Amateur Licence, and gained approval to operate an experimental broadcast station on 1240 kHz. His chosen experimental time slot was from Midnight on Fridays until dawn on Saturdays when he would play music from his collection of recordings. After returning from World War 2, "Snow" undertook study at the Marconi School of Wireless to gain his First Class Commercial Operator's Certificate of Proficiency, and his Broadcast Station Operator's Certificate of Proficiency. This led to a 10 year career as an aviation ground engineer with AWA, mainly stationed at Mascot Airport in Sydney. Opportunity then again beckoned him to the Government where he worked on defence projects, notably the IKARA Anti-Submarine system and anti-tank devices that were developed in the Woomera area. "Snow" retired in the late 70's and moved to Port Macquarie where he joined the Oxley Region Amateur Radio Club and continued to actively enjoy his hobby of amateur radio.

"Snow" is survived by his children, Pat, Carol and Bruce, and their families. His funeral was held at Port Macquarie on Thursday 4 September 2003.

Vale "Snow" Hodder VK2DV

Submitted by Henry Lundell VK2ZHE on behalf of the Oxley Region Amateur Radio Club

The Silent Key Forest Memorial

A living memorial to radio amateurs

A gift of trees is a gift of love, remembrance and deep regard.

The idea of establishing the "Silent Key Forest was the conception of five radio amateurs—Ozzie Oshrin (Zvi) 4X4CW (SK), Shimshon Lotan (Sammy) 4X4GF (SK) (May their memory be blessed); and Shlomo Menuhin 4X1AS, Ahron Kirschner 4X1AT, and Tuvia Gringroz 4X4GT.

It all began in the mind of the late Ozzie (Zvi) Osrin 4X4CW (SK), who wanted to establish a Memorial Forest of trees for all the radio amateurs of the world. He had been a radio man, a captain in the South African Air Force and later served with the Israel Defence Forces. He was also the first officially licensed radio amateur in Israel.

As the years went by, the late Shimshon "Sammy" Lotan 4X4GF (sk), joined him in developing and implementing this idea, accompanied by:

Shlomo Menuhin 4X1AS, Ahron Kirschner 4X1AT, Tuvia Gringroz 4X4GT

In 1983/4, 4X4CW, 4X4GF, 4X1AS, 4X1AT, 4X4GT, and 4Z4ZB (SK), met in Shoresh with the IARC executive, each one of the aforementioned pledging 100 trees, and the project began to take shape.

4X4GF, a real steam-roller, who was known for his monthly motor tours of the country for hams, got things into the implementation stage. Along with 4X1AT he arranged a meeting in Jerusalem with the head of the J.N.F. forestation department, and after a few more meetings, a site was found on the hills between Modi'in and the Tel Hadid ridge.

The Ben Shemen Forest, verdant with more than several million trees, is located halfway between Jerusalem and Tel Aviv. The more than 8,500 acres include pine, cypress and eucalyptus trees.

A project was set up under the joint auspices of the Jewish National Fund and the Israel Amateur Radio Club.

A radio amateur will always look for a great QTH (location) from which signals will "get out" in the best possible manner, and here it was.

On the 22nd of October 1985, with the presence of dignitaries from the Government and the J.N.F., the first inscribed boulder was erected for the first thousand trees. Two more boulders were established later in memory of 4X4CW and 4X4GF respectively.

The purpose of the forest is, to be a place to plant trees in Memory of Radio Amateurs who have passed away, "Silent Keys", as well as in Honor of living amateurs.

The project envisions groves of 1,000 trees contributed by clubs and individuals all over the world - which would be marked by attractive plaques. The first 4 groves in honor of Israeli Radio Amateurs have been dedicated. Donations of individual trees receive handsome certificates. It is a place for events, get-togethers of hams, field days and remembrance.

Field days and radio operations are activated from the "Silent Key Forest" with the special call sign "4X4SKF". Please don't forget that in addition to the special "4X4SKF" QSL card, a certificate is awarded for every donation of trees in the name of the person honored.

We shall remember our fellow amateurs who are no longer with us, their memory will be alive with us.

Individuals planting a tree will establish a living link with those who have filled the airwaves for so many years.

This Forest is unique in the entire World.

POST SCRIPT: Further information on this wonderful memorial forest can be found on www.iarc.org once there look for Silent Key Forest.

Should you like to plant a tree in memory of a friend please send the following information to the President of the IARC

Joseph Obstfeld 4X6KJ,
Post Office Box 873
Kiriat Ono, 55108 Israel

For planting a tree in the SK Forest, the following information is needed:

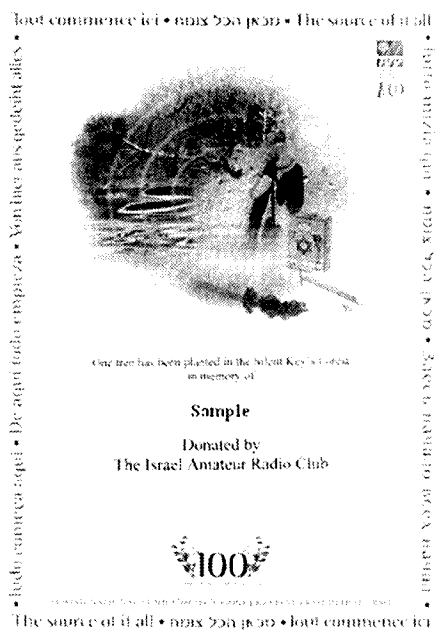
"To plant a tree in memory of... / or in Honor of.....

Name and Call Sign of the "Silent Key" or Name only

Who is to " donor " meaning which name should be filled in under "donor".

The price is 10 (ten) US dollars for each tree. Cheques should be payable to "Keren Kayemet le Yisrael"

After processing the "donor" will receive a Certificate from the Keren Kayemet.



HAMADS

classifieds

Free service to WIA members

FOR SALE NSW

• **Tektronic Storage CRO-7834** + spectrum analyser + accessory trolley & handbook incl. Send offer to gscott@albury.net.au.

WANTED NSW

• **CASIO FX-702P pocket computer.** Claudio VK2DLC Phone 02 6238 0041 evenings.

• **Workshop manual for Yaesu FT-747GX,** all costs defrayed. VK2DJR QTHR, email gbud@dnet.aunz.com

FOR SALE VIC

• **Yaesu VX-IR micro dual band H/H.** Comes with A/C charger. Extras include 30 watt linear, new spare lithium battery, filtered D/C power adaptor, carry case and external ant. adaptor. All in as new cond. $300. Ted VK3KTF QTHR, Phone 03 5367 4439, Mobile 0427 674 439.

• **Geloso VFO and dial, five band** on 19 inch panel and chassis $100. Transformer, very big, 230 to 110V, $10. Scaler unit for 19" rack with seven Nixie tubes, drivers and controls, $20. Collector's item. VK3DS, Phone 03 5332 3226.

• **4CX250BC Pair new Ceramic Tubes** rated 250 watts each up to 500 MHz for home brew Linear Amplifier or for Codan type HF rigs. Price $220.00 the pair. Don VK3KDT QTHR, email vk3kdt@alphalink.com.au

WANTED VIC

• **Circuit diagram for Philips SSWB radio telephone SC-108** Serial No. 3114. Tony VK3PTV, Phone 03 9729 1513.

• **Kenwood R-820 receiver** in top condition, also **SP-820** ext. speaker. Damien VK3RX Phone 03 5427 3121 Email vk3rx@wia.org.au

FOR SALE QLD

• **ATN 13-30 Log Periodic,** 8 element, HF antenna boom, 8 metres, all fittings stainless, in perfect condition $500. **Create RC5A-2** heavy duty rotator, $500. Bob VK4ABR, Phone 0419 964763

WANTED QLD

• **UART IC MM-5303N** or equivalent, also **100 VPS shutted tuning fork** for RTTY restoration project. Price . Gwen VK4CB Phone 07 3202 7137.

• Can anyone scan and e-mail **circuit diagram Sea Com 40c?** Thanks vk4axm@dodo.com.au

FOR SALE WA

• **Magazines for sale:** Electronics Aust 1972 to 1999. Unable to store any longer. 50 cents each. VK6BSS, Phone 08 9941 1993.

FOR SALE TAS

• **Icom 746 HF tcvr** 160 - 2m 100 W output, auto tuner, mint, boxes, manuals, mic. Hardly used, $1980. **Heil Pro-6+8** head set, remote switch wired Icom 8 pin, new $150. **Icom V-8000** Service man new $25. **Icom BU-1** mem backup unit **IC-290, IC-490,** new $15. Allen VK7AN Phone 03 6327 1171 or 0419 755 124

TRADE ADS

PSK-31, SSTV, RTTY SOUNDBOARD Interfaces Fully isolated, ready to plug in. http://www.G3LIV.CO.UK, johnny@melvin.com, G3LIV QTHR.

About hamads....

- Hamads may be submitted by ***email*** or on the ***form on the reverse of your current Amateur Radio address flysheet.*** Please print carefully and clearly, use upper AND lower case.
- Separate forms for For Sale and Wanted items. Please include name, address STD telephone number and WIA membership number if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
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- Copy typed or printed clearly please, and received by the deadlines shown on page 1 of each issue of Amateur Radio.

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

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Ernie Hocking, President
Amateur Radio April 2002

How to join WIA

- **Through your local amateur radio club**
- **Through your Division (contact details on page 56)**
- **Contact WIA Federal Office (03) 9528 5962**

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules **All frequencies MHz. All times are local.**

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Alan Hawes	VK1WX
Secretary	Deane Walkington	VK1DW
Treasurer	Bob Howie	VK1HBH

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga.
VK1 Home Page *http://www.vk1.wia.ampr.org*
Annual Membership Fees. Full $80.00 Family $38.75 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 9432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644 (NSW only)
e-mail: *vk2wi@wiansw.org.au*
Fax 02 9633 1525

President	Brian Kelly	VK2WBK
Secretary	Owen Holmwood	VK2AEJ
Treasurer	Noel May	VK2YXM

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.
Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Jim Baxter	VK3DBQ

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.
Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Ewan McLeod	VK4ERM
Secretary	Bob Cumming	VK4YBN
Treasurer	David Gulley	VK4DCG

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 in both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au
Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 148.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.
Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

President	Neil Penfold	VK6NE
Secretary	Roy Watkins	VK6XV
Treasurer	Bruce Hedland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website
Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.wia.org.au/vk7*
email: *vk7dg@wia.org.au*

President	Phil Corby	VK7ZAX
Secretary	Dale Barnes	VK7DG
Treasurer	Dale Barnes	VK7DG

VK7WI: At 0930 hrs every Sunday on 146.700 MHz FM (VK7RHT, Hobart) and relayed on 147.000 MHz FM (VK7RAA, Launceston), 146.625 MHz FM (VK7RMD, Ulverstone), 146.750 MHz FM (VK7RNW, Ulverstone), 147.075 MHz FM (VK7RWC, Rosebery), 3.57 MHz LSB, 7.090 MHz LSB, 14.130 MHz USB and UHF CB Channel 15 in Hobart area.
Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

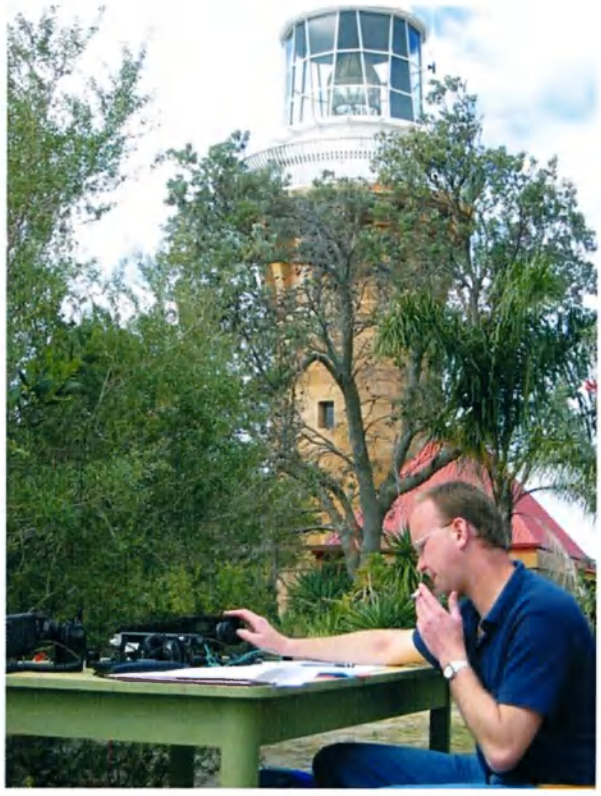
VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

A Weekend at Barrenjoey Lighthouse

Richard Murnane VK2SKY

During the Lighthouse Weekend, the Manly-Warringah Radio Society station VK2MB went portable at Barrenjoey Lighthouse at Palm Beach, which coincidentally was open to the public for the first time on the Sunday.

Aerial view of Barrenjoey Lighthouse



Peter VK2IT at the mic

Club members setting up a Spiderbeam antenna used for 20/15/10m ops

See full story on page 11

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The magazine for AUSTRALIAN Amateurs

November 2003
Volume 71 No 11

Amateur Radio

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Rob VK3EK does it twice

More about
The EH Dipole Antenna
by Lloyd Butler VK5BR

Ross A Hull Memorial VHF Trophy

2003/04 Contest begins Boxing Day

Rules in this issue

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An Alignment Transmitter or 80m Mini-Fox
by Bryan Ackerly VK3YNG

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Our Cover this month

The latest winner of the Ross A. Hull VHF Trophy, Rob Ashlin VK3EK of Balrnsdale in eastern Victoria. He achieved the top score over seven days of activity, with runner-up Glenn McNeil VK4TZL, who took out the two day section. Both have now won the trophy twice. See story on page 17

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editorial Comment

Colwyn Low VK5UE

A Claytons retirement

The ACA Consultation period for the review of the Amateur Service has ended. I hope you all made your views known in some way. The WIA response is very complete and seems to cover all comment that I have heard on the proposal.

I attended the ACA meeting in Adelaide and have had several communications from Amateurs on the proposals sent to me. I found a great deal of common ground. There is a report on page 11.

This time of year has become very busy for me. JOTA, Oceania Contest, Spring VHF Field Day, WICEN support of the Classic Adelaide Rally and the Bumper December AR to prepare. On top of that my "Beetle" Radio Shack needs attention so that I can travel and operate at some of these events. There are times I think I had more time before I retired!

Contests

I find interesting not so much to go into the solid 24 or 48 hours but just to make a few station changes see how they work and get that rush when some weak station replies first time after the "Killowatt Alley" operators have ignored me. Then there is the 'almost contact' where there is just one letter in the callsign which no phonetic alphabet can distinguish. Working in the CQWWDX Phone section I came across this several times. Seems part of the problem was mine, turned up the mic. gain, put on the processor and distorted my signal. We should check these things with a friend before we push too hard. However it is good to find the FT-101E is still doing a good job after all these 20 plus years. You will find some Yaesu nostalgia in this edition on pages 12 and 19.

The December AR will have 64 pages and the January February combined issue will be available late January 2004

Bill Rice VK3ABP retires from AR

Those of you who read every word in AR will notice that Bill Rice has decided the time to retire from the Amateur Radio Magazine team has come. The VK3 notes make mention of this and I as Editor wish to express the thanks of the Amateur Radio production team to Bill for his many years of service to the Amateur Radio Service in Australia and the AR Magazine in particular

- Bill's connection with Amateur Radio magazine follows: -
- Publications Committee Member March 1972 to June 1973.
- Technical Editor July 1973 to June 1984.
- Editor July 1984 to December 1999.
- Publications Committee Member January 2000
- Resigned from Committee August 2003.
- Appointed Life Member WIA 2001.

Bill, your presence at meetings will be missed but we know you will still be proof reading the published magazine. Enjoy your retirement Bill

73 Colwyn and the Publications Committee of Amateur Radio Magazine.

Ernie Hocking VK1LK
Email: president@wia.org.au
PO Box 691, Dickson ACT 2602

More than just a hobby

Federal WIA activity has remained high over the last month. The main issues being dealt were the Federal WIA response to the ACA discussion paper, discussions with the ACA on emergency service requirements in VK3, and the ever-increasing threat of the introduction of Broadband Power Line technology into Australia.

Finally work on this year's call book has been in full swing and we hope to have it ready for distribution in early November. I would like to say a special thank you to all the members of the team that have helped to put the call book together this year – Brenda Edmonds, John Martin, Ian Godsil, Mal Johnson, Robert Broomhead, and of course John and Gill Nieman, the team at Newsletters Unlimited. I am sure that you will all agree that the new innovations in this year's edition will make it an essential part of ever amateur's shack.

ACA discussion paper

The overall response to the issuing of the discussion paper by the ACA has been incredible. I have personally seen tens of submissions by individuals commenting on a single issue, through to groups who have got together to address every issue canvassed in the ACA paper. A number of people have raised concerns that the diverse range of views and responses made to the ACA indicate a split in the amateur community. In response to this I can only sit here in Canberra and cast my eye over towards Parliament in order to appreciate that diversity of opinion is exactly what makes the administration of amateur radio a democratic process. To me, of greater importance than the diverse views being expressed is the incredible amount of energy and intellectual effort that I have seen over the last months. By the time that you receive this issue of AR the Federal WIA response will hopefully have been well circulated by the WIA divisions. For those of you who have not seen the response I have arranged for a copy to be placed on the Federal WIA web site.

...of greater importance than the diverse views being expressed is the incredible amount of energy and intellectual effort that I have seen over the last months

All this activity has for me further reinforced the need to take the amateur radio message and shout about it from the tallest hill in order to bring its benefits to the attention of as many people as possible. Amateur radio is so much more than just a hobby and all of us should sell it as such. This observation was further reinforced recently whilst talking to a Government scientist. In the conversation it was clear that many in the scientific and technical community understood and appreciated that amateur radio has a lot to offer society. I personally hope that whatever the detailed outcomes of the ACA review entails, that the reforms lead to a situation where we can revitalise amateur radio in order to bring this great hobby to a much wider audience.

Further news on the 70cm in VK3

Recently I alerted you to moves to seek a reallocation of spectrum in the 420-430 MHz portion of the 70cm band within Victoria, for use by police and emergency services. This requirement for spectrum is being driven by the need to have an effective communications network in place in Victoria in time for the next Commonwealth Games. This is especially important given the high profile of the Commonwealth Games these days with the ever-present threat of terrorism.

The WIA has been working with the ACA, the Victorian authorities, and other users of the spectrum in order to attempt to minimise the impact of the proposal on the amateur radio community in Victoria. These negotiations are still continuing and the WIA ACA liaison team will make an announcement of the full impact once all the details have been worked out. In terms of timings at this stage it is expected that the new systems will start to be deployed in Victoria from 1 July 2004.

Broadband Power Line issues

Broadband Power Line (BPL) continues to be a matter of concern. The release of the ACA paper on BPL (available from the ACA web site www.aca.gov.au) sets out the issues associated with the implementation of BPL here in Australia and it is definitely worth downloading and reading. At the same time as developments are progressing here in Australia, the BPL issue is also running hot in the US with the ARRL fighting hard to ensure that such technology does not have a negative impact on the US amateur radio community or for that matter other spectrum users.

A study group has been formed here in Australia to track developments and act as an industry lobby group to raise awareness of the potential interference issues that BPL can pose to all users of the HF spectrum. If anyone is interested in joining the study group they should contact me and I can then put you in touch with the group directly.

Time is against me so I will have to bring things to a close and wish you all 73s for now. I look forward to hearing your comments, either directly or via the divisions. All the best in amateur radio.

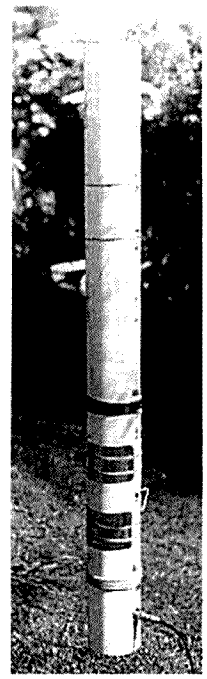
Ernie Hocking VK1LK

The EH dipole antenna

More information on how it works and how it has performed

(A follow up from the article published in the April 2003 issue of AR)

Lloyd Butler VK5BR



In the previous article, I described how EH Dipole Antennas could be constructed for 20 and 40 metre using recycled tinned plated cans mounted on PVC plumbing tube. There are several forms of these antennas introduced by the original inventor Ted Hart but my earlier article (and this one which follows) refers essentially to the type which he has called the L+L, defined by the method of matching.

A lot of discussion has recently taken place on the principles of operation concerning the EH antenna and whether the principles which had been assumed were quite on target. Based on a lot of thought and various measurements carried out, I present some theory on how I believe this type of EH Antenna works.

In the process of experimentation it has become evident that a considerable amount of RF current runs longitudinally down the coax feeder line causing radiation directly from that feeder. In fact some opponents of the CFA and EH mode theory have strenuously argued that this is the main form of radiation. However the antenna does not need this form of radiation and it is desirable to inhibit it. This allows concentration of all the power to the EH operation, it prevents undesirable interaction between the coax and the antenna tuning, it prevents excessive RF signal getting into the radio shack and it prevents power being absorbed in the ground or objects close to the feeder.

In following paragraphs, I will describe how this longitudinal current down the coax can be monitored and how traps can be fitted to inhibit this current. Also described are the results achieved having fitted these traps.

Some background

To achieve Electromagnetic (EM) radiation, we require the Electric (E) and Magnetic (H) fields to be at right angles in the same plane and in time phase. The EH antenna is designed to achieve this in much smaller space than the well established Hertz antenna.

In brief, the antenna consists of two tubular plates with natural capacity between them. The E field is generated by voltage across the plates and it has been assumed that the H field is generated by the displacement current in the dielectric between the two elements. (The fields intersecting at right angles are shown in Figure 1).

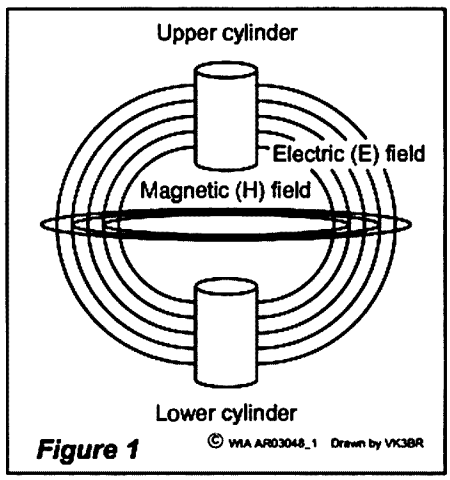


Figure 1. Fields generated between the two cylinders

Before proceeding further, I think we should discuss the concept of displacement current and a little on the generation of the Electric (E) and Magnetic (H) fields.

An H field is generated by a changing electric current in a conductor but also from a virtual changing current which Maxwell called Displacement Current and which is defined as the rate of change of an electric field. As the rate of change of the E potential is 90 degrees out of phase with that potential, so also is the displacement current.

This displacement current is assumed to occur in free space but if there are two metal plates forming a capacitance with a dielectric, then dielectric displacement current also occurs. (Dielectric displacement is really the displacement of electrons or distortion of their orbits around the atoms in the dielectric). According to my faithful old Admiralty Handbook, there is a total displacement current, the sum of these two.

So we can have an H field developed from either a changing current in a conductor or a displacement current produced by an E field.

The theory

Ted Hart discovered that if he introduced a phase shift (in fact 90 degrees) into the circuit feeding the EH dipole cylinders, the radiation dramatically increased, resulting in increased series radiation resistance (or equivalent reduction in the equivalent parallel radiation resistance). This was incorporated into reactive networks designed to match the new reflected antenna impedance to a 50 ohm source. The typical L+L matching network is shown in figure 2.

Initial reaction was that this phase shift somehow offset the phase of the input current (and hence the displacement current) relative to the voltage across the plates such that the displacement current (and hence the H field) was in phase with plate voltage

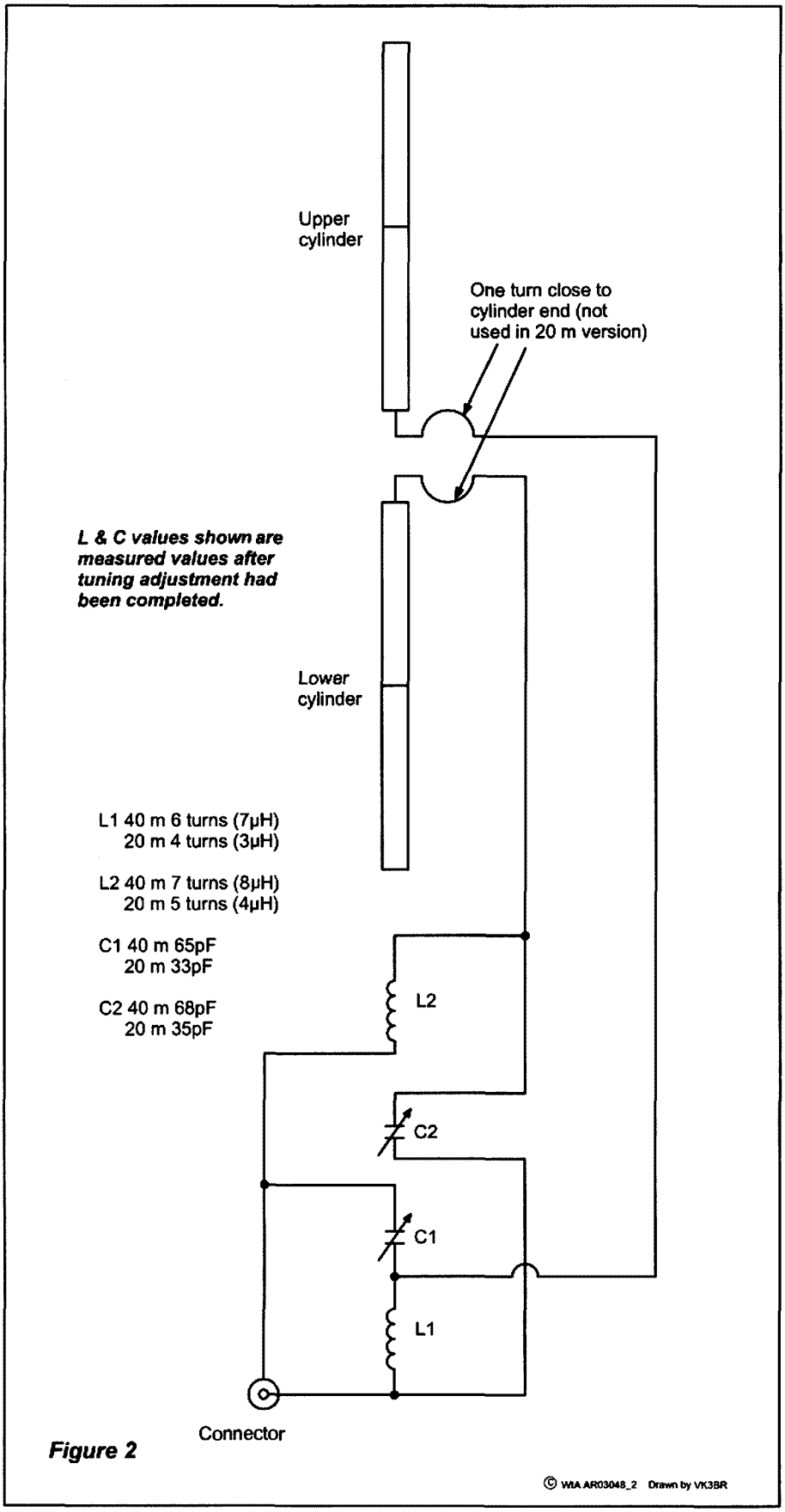


Figure 2

Figure 2 Circuit diagram

(and hence the E field). However this theory seemed to defy some basic electrical principles concerning the antenna input as a two terminal impedance. The only way to alter the characteristics of that impedance was to alter something inside the impedance and not the characteristics of something feeding signal to it.

Steve Galastri stressed to me that you can't consider the dipole antenna in isolation and you must refer it and its phase shift network back to the coax shield input as a reference. So here is a third terminal which is important to the operation of the antenna.

As a result it came to me that there must not only be an electric field between the two cylinders of the dipole but there must be some sort of an electric field between each cylinder and the reference coax shield. In Steve's version of the dipole, he uses a differential balanced matching network which also performs the phase shift. I assumed that in the longitudinal or common mode, that phase shift would be vastly different to that applied to the balanced dipole input. As such, we could have displacement current produced by the longitudinal generated E field partly in phase with the E field from the balanced dipole. In turn, this displacement would generate an H field also partly in phase with the dipole E field to achieve enhanced radiation. Adjustment of the amount of phase shift could well put the second H field precisely in phase with the dipole E field as desired.

At this point I had better clarify what I mean by the longitudinal mode signal. A longitudinal or common mode signal in a balanced circuit is one in which the current in both legs is the same and in phase as distinct from a differential mode signal in which the currents in each leg are in opposite phase. For an example refer to figure 3. In this we face each end of a balanced circuit with a centre tapped transformer with their centre taps joined to earth. The current (I_D) in the differential mode resulting from voltage source (V_D) flows in opposite directions in the two connecting legs. If a potential (V_L) exists between the two earth points, current (I_L) will flow in each leg between the two earth points but in the same direction. This is called a longitudinal or common mode current. If the circuit is perfectly balanced, no interaction can occur

between the signal coupled via the transformer in the differential mode and the signal in the longitudinal or common mode.

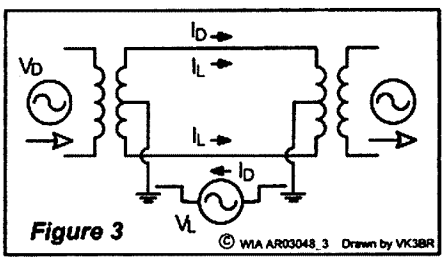


Figure 3. Longitudinal current

In the EH antenna we have an unbalanced to balanced matching network and in this, I refer to the Longitudinal or Common Mode potential as a voltage between the electrical centre of the two dipole cylinder connections and the reference zero point of the coax shield. This is equivalent to considering the voltage of the two dipole cylinders in parallel against zero reference. Now refer to figure 4. Vin is the voltage at the 50 ohm coax output correctly loaded by 50 ohm resistance, V_D is the output voltage across the dipole cylinders and V_L is the longitudinal voltage. For the theory I have outlined, we must find 90 degrees phase shift between V_L and V_D.

The tests

With the theory in hand, I set out to see if I could detect evidence of that field and the required phasing arrangement. Tests were carried out on my 40 metre EH dipole which I described in the previous article and which uses the balanced type matching network shown in figure 2.

The first operation was to carefully adjust the dipole tuning using about 20 watt of power and adjusting for an SWR close to 1:1 with the SWR meter connected in the coax feeder as close as possible to the antenna 50 ohm input connector.

Checking the field from the dipoles using a small fluorescent lamp showed even field distribution from the dipole cylinders. The field was strongest adjacent to the cylinders but it also extended lower adjacent to the matching elements getting weaker as the bottom of the PVC tube assembly was approached. There was certainly some field lower down than the main dipole field that wasn't above it. I thought this might be due to the longitudinal generated field.

I then turned to some phase measurements using the dual trace CRO and high impedance probes. This was not so easy. The trouble is that when a probe is placed near or on one of the dipole connections, the antenna is de-tuned and matching adjustment must be reset. Also the transmitter power must be reduced to a very low level otherwise the test leads and the test equipment get flooded with induction from the radiated signal and can give false readings.

Of course I couldn't measure (V_L) as the longitudinal voltage is at a virtual centre but I could measure the voltage from each cylinder plate to the reference coax zero, shown as V_{p1} and V_{p2} in figure 4. In actual fact, V_L is the average of V_{p1} and V_{p2}. In measuring at these points, de-tuning is reduced by coupling to the CRO high impedance probes via 10 kohm resistors. However, even with these in circuit, it is still necessary to initially raise the power just sufficient to get a reading on the SWR meter and readjust the matching for 1:1 SWR with the probes connected. The power is then dropped for the measurement.

With a probe on each cylinder it was observed that the voltage at each cylinder was nearly equal and slightly out of phase with each other.

Using the gain adjustment on one of the CRO trace amplifier inputs, the traces were adjusted as close as possible for equal trace amplitude. One trace is then reversed in phase and the CRO switched to the add mode so that cancelling occurs of the two traces. A residual waveform is seen and the gain of one of the amplifiers is fine adjusted for a residual minimum level indicating precise equal setting of the two trace amplitudes. By doing this the signals from the plates to reference zero are balanced out leaving a trace of the differential signal (V_D) across the dipole pair.

Now here is the important observation. The phase of the differential signal was then compared to that of the signals on the individual dipole cylinders to show that there was a phase difference close to 90 degrees. Taking the average of these, we get 90 degrees.

The high longitudinal voltage measured must certainly generate an electric (E) field at 90 degrees phase difference to the dipole field. An H field must be generated from the rate of change of the E field (or in Maxwell's terms, the Displacement Current). This is a further shift of 90 degrees putting the longitudinal H field in phase (or in anti-phase) with the E field from the dipole. So this satisfies the requirements of the Poynting theorem.

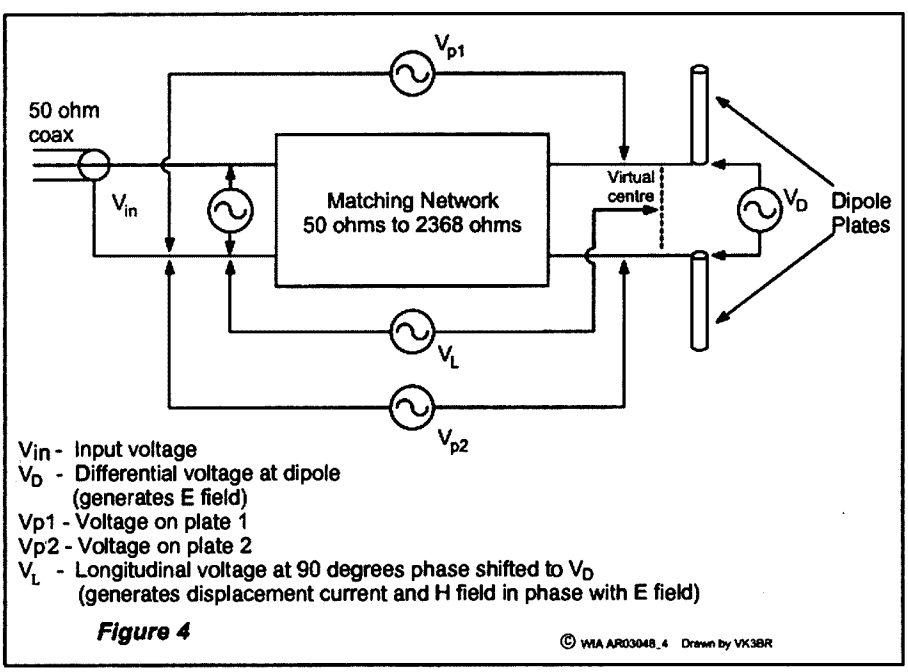
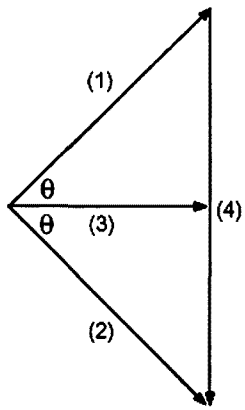


Figure 4. EH antenna - voltages



(1) Longitudinal voltage from dipole cylinder 1 to reference coax shield (Vp1).

(2) Longitudinal voltage from dipole cylinder 2 to reference coax shield (Vp2).
(Voltage (2) = Voltage (1))
(Phase difference between these voltages is 2 θ)

(3) Longitudinal virtual centre voltage to reference coax shield resulting from the combination of (1) and (2). (V_L)

(4) Differential voltage between the two cylinders. (V_D)
Note that providing voltages (1) and (2) are equal, this voltage is at 90 degrees to the longitudinal virtual centre voltage (3).
This is independent of the phase difference 2 θ).

Figure 5 © WIA AR03048_5 Drawn by VK3BR

Figure 5. Phase relationships between longitudinal voltages and differential voltage on the balanced LL Network.

If you read the appendix, you will see that the L matching system is actually a tuned circuit or in fact two tuned circuits making use of the low to high impedance transfer between the series and shunt connection. Using the off setting of the tuned circuits from resonance has been the method used to shift phase of the differential signal for this particular dipole. In fact I understand that the particular type of network was chosen for this purpose. To see how this works, refer to the vector diagram, figure 5.

It can be seen from the diagram that providing the longitudinal voltages V_{p1} and V_{p2} are equal and there is a phase difference of no particular value between them, there will be a differential voltage V_D at 90 degrees to the virtual longitudinal centre voltage V_L. So it's simply a matter of offsetting the frequencies of the two separate L circuits, one from the other.

As a guide line to the amount of frequency shift, a 45 degrees shift requires a frequency shift equal to fo/2Q. (The higher the Q the less is the frequency shift). Fortunately the longitudinal circuit is terminated in high impedance and hence longitudinal Q is high so frequency offset is not so great.

Returning to the subject of the second E field, one might suggest that power might be radiated as a monopole. My thoughts are that power radiated would be small as the matching network is set up for the higher radiation resistance of the dipole and would hardly be suitable to match the low radiation resistance of the monopole.

One might also argue that there could be a reverse condition where the longitudinal E field might also combine with the H field generated from the displacement current of the dipole E field to provide radiation in an enhanced mode. Again, the matching network is unlikely to be suitable for good power transfer. The network is designed for the dipole load and it is adjacent to the dipole where the radiation can be found.

H field and longitudinal current tests

As stated in the introduction, common mode or longitudinal current has been detected running down the coaxial line causing radiation from the line. We discussed in the previous paragraphs how a longitudinal voltage was developed to produce the secondary E field. Where there is voltage, current can flow and I assume the current is driven by that voltage. Current running down the coax line has been measured by close fitting a ferrite toroid over the coax, adding a single wire turn also through the hole and connecting to a 1 amp RF ammeter as shown in figure 6.

To make this measurement, the calibration was checked by first feeding a reference RF current directly through the ammeter. The same current was then fed via the shield of a short length of coax with the coupling device fitted. In my test device, the coupled reading showed about 80% of the direct reading. Calibration correction was derived from this.

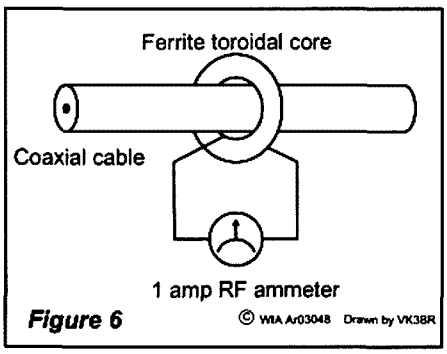


Figure 6 © WIA AR03048 Drawn by VK3BR

Figure 6. Current measurement

I wanted to check right down the coax so I also made use of another larger toroid which allowed me to slide it over the end BNC connectors. To get sufficient useable reading with this arrangement, I fed the coax through the toroid hole twice. Of course the calibration procedure had to be repeated.

Measurements were carried on the 20 metre L+L matched EH dipole. Measurable current is present (and only present) when the dipole is correctly matched for the EH mode with low SWR.

Using 25 watt of power, maximum current occurs at the end of the coax coupled to the dipole and is around 0.5 amp. This decreases as the measuring device is moved down the coax becoming below a measurable value as a quarter wave is approached. Further along the coax, the current increases again to reach another peak at a half wavelength.

This confirmed that the current was present and that there was a standing wave of accountable intensity which is

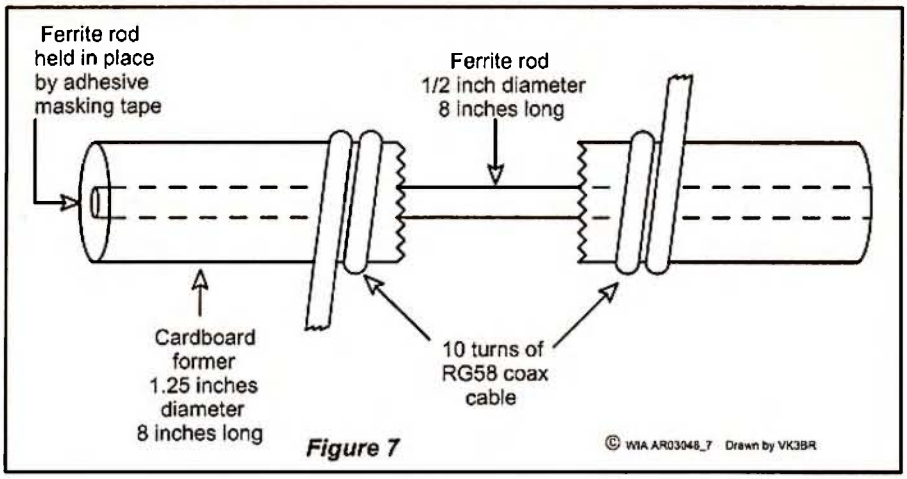


Figure 7. Coax cable line choke

not offset by current within the coax centre conductor.

Inhibiting the coax current 20 metre trap with ferrite core

To enable tests on the 20 metre L+L with the coax shield current removed, I made up the coax line choke shown in figure 7. The balun is 10 turns of RG58 wound on a 1.25 inch diameter former with an 8 inch x 1/2 inch diameter ferrite rod down the centre. The inductance measured from one end of the outer sheath to the other is 11.5 µH. (This provides a rejection impedance at 14 MHz of over 1000 ohm.) The ferrite rod was held in place by masking tape as a temporary means.

Whilst the choke reduces the unwanted current to a considerable extent, it is far more effective to tune the choke with a parallel capacitor so that it forms a trap. The capacitor is connected to the coax braid between input and output of the choke. The choke described is tuned with about 10 pf of capacitance (including distributed capacity). The resonance at 14 MHz can be easily checked by inserting the coil of a dip meter into the tubular former. With a Q of around 100, the trap increases the rejection impedance to around 100,000 ohm.

One consideration using the trap, is IR loss due to circulating current within the tuned circuit. Circulating current loss is minimised by keeping the L/C ratio as large as possible. Of course the limit is when L is too large to tune in the presence of the coil distributed capacity. In the trap described, circulating current loss was derived as about 4% of the power fed differentially through the trap.

Air wound 20 metre trap

Obtaining a large ferrite rod might be difficult and expensive and a second air wound trap has been tested as shown in Figure 8. The inductor for this trap is wound on 55 mm PVC tube and requires no ferrite core. What is really required

for winding the inductor is a small diameter coax. I didn't have any of this so I wound the trap with some 2.8mm diameter shielded wire which has a PVC cover and its inner wire PVC insulated. The characteristic impedance of this cable is not known and I made no attempt to determine its value. However apart from a measured 1 dB differential insertion loss, it worked very well.

The winding is arranged with sufficient turns to resonate at 14 MHz with a 10 pf capacitor. Details of the trap formed are as follows:

Former - 55 mm PVC Tube

Winding - 13 turns

Inductance - near 11 µH

Q - near 50

Derived loss resistance at 14 MHz - near 20 ohm

Measured differential through loss at 14 MHz - 1 dB

The tuned choke as a trap directly substituted for the original ferrite cored tuned choke. As with the ferrite core choke, interaction between the antenna tuning and the coax cable was inhibited and no coax shield current could be detected.

Circulating current through the tuning capacitor was measured as 0.28 amp for 50 watt of power transmitted. Based on the 20 ohm of loss resistance in the choke, this represents 3% of the power lost due to the circulating current.

The shielded wire used is not the preferred material and the 1 dB insertion loss to the differential signal could probably be reduced by using a small diameter coaxial cable with polythene dielectric such as RG178.

With continuous power of 50 watt fed to the antenna, a slight warming of the choke was evident.

The air wound choke is quite good enough for the job and does away with the expense of the ferrite rod and problems sometimes experienced with flux saturation in the ferrite material.

A trap for 40 metre

I also needed a trap for the 40 metre EH antenna. A choke was assembled with essentially the same construction as the 20 metre ferrite core unit (Figure 7) but with the number of coax turns increased to 18. This increases the inductance to around 30 µH to give a reactance of 1319 ohm. The choke resonates at 7 MHz with a 15 pF capacitor in parallel. The derived circulating current loss is about 7%. Whilst this is tolerable, I believe that the number of turns (and hence the inductance) could be increased further with further efficiency improvement up to the point where the choke distributed capacity prevents resonance at 7 MHz.

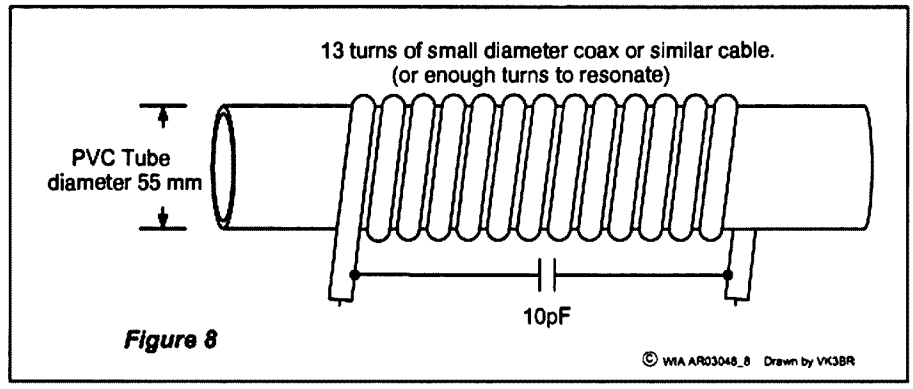


Figure 8. 20 metre trap, air core

The trap performs similar to the 20 metre unit and stabilises its tuning adjustment. There is no longer any interaction between the coax and the antenna tuning which occurs without the trap.

I have not tried an air cored trap on 40 metre but I believe it would be fine to make one similar to figure 8 with about 18 to 20 turns.

Where to place the trap

The trap can be placed right at the input connector to the antenna and this works OK. However I suggest putting it 1 to 2 metre down from the input connector. My tests using the 20 metre antenna produced signal reports 1 to 2 S points higher with a 1.5 metre length of coax tail between the antenna terminal and the trap. Field strength measurements without the short coax tail also indicated a skewing upward of the signal. Without the tail, the highest signal level received by a station at distance was found to be achieved when the bottom of the EH tube was tilted backwards by 45 degrees so that the skewed lobe was tilted down.

Comparison of Antennas

Tests were conducted with another radio Amateur who lives 11 km distant. I live partly up the slopes leading up to the Adelaide Hills and my friend is on the flats. Communication could be considered as close to line of sight.

The 20 metre EH antenna with trap 1.5 metre down the coax line was compared with an end fed full-wave Inverted V antenna and a 2.5 metre high vertical whip. The EH antenna was erected 2.5 metre from the ground. The vertical antenna was mirrored against a large steel decking as a ground plane. The decking is 2.5 metre above the ground.

With 25 watt of continuous carrier power fed to each antenna, my friend gave the following reports:

The EH antenna was 0.3 of an S point below the Inverted V.

The EH antenna was 0.2 of an S point above the Vertical antenna.

Making corrections for the comparisons, the vertical antenna is down by 3dB because of loss in the matching. The EH antenna is down by 1.25 dB because of loss in the feeder cable and down by 1 dB because of 20% loss in its matching network, making a total of 2.25 dB loss. However its signal report was 0.2 of an S point up on the vertical antenna which could be considered as 1 dB higher. On these figures we could say the effective signal levels from the vertical antenna and the EH antenna were almost the same.

Considering the inverted V to have negligible matching loss and the fact that it was 0.3 S point (2 dB) up on the EH antenna we could also say that the corrected readings for the three antennas were very close.

I also noted the receive levels from his single sideband speech transmission:

I recorded the Inverted V as one S point above the EH Antenna.

I recorded the Vertical antenna as one S point below the EH antenna.

Summary

In this second article I have outlined a theory on how this antenna works, somewhat modified from the earlier theory first presented in the "EH Handbook" by Ted Hart. These theories assume acceptance of principles introduced by Maurice Hately relating to the Poynting Theorem and which have been open to question by some sceptics. Personally, I prefer to keep out of that particular argument as I do not believe that I have adequate background in the fundamental principles of electric and magnetic fields in space to get involved.

I have drawn attention to a phenomenon of this antenna which causes current to flow in a longitudinal mode down the coax feeder and cause radiation. I have described how a tuned trap can be used to inhibit this current.

Several tests have been described which demonstrate that even with longitudinal current inhibited, the antenna mounted at a mere 2.5 metres, can be made to radiate as well as other antennas which are larger or mounted higher.

The problem with antennas which are small compared to a wavelength is that their radiation resistance is very low in comparison to loss resistance in matching them. Hence most of the power supplied is wasted in loss in the matching network. In this EH antenna, the effective series radiation resistance is raised allowing it to operate more efficiently. Also because of the higher resistance, its Q is lower and hence its bandwidth is much wider than, for example, the magnetic loop. These are the reasons it can be made to work well as a small antenna.

I might point out that my discussion has been confined to the EH antenna with L+L type matching but there are other versions of the EH antenna. There is one type Ted Hart has called a backpacker which uses a matching network referred to as the L+T and another one new (at the time of writing) called the Star. More information on these can be found on the EH Antenna web site.

Appendix

Some notes on how to derive component values for the Matching Network

For the EH dipole discussed, we can consider the dipole input as the equivalent circuit of figure A1. For the EH antenna with tubular elements of length around Pi times the tube diameter, the capacitance is around 10 pF or less and the parallel radiation resistance would appear to be close to 2368 ohm (as given by Ted Hart).

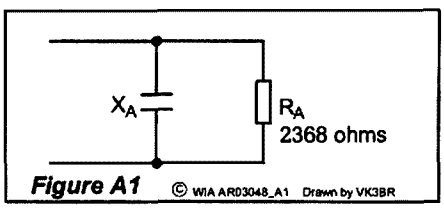


Figure A1. Equivalent antenna constants

If we ignore the unbalance to balance conversion and the need to address the phase shift, the 2368 ohm shunt resistance can be matched to the 50 ohm source circuit with a simple L network as shown in figure A2. We can think of an L network as a tuned circuit fed in series from the 50 ohm source and the output taken in parallel. The L and C components are selected to obtain a loaded Q such that 2368/50 is equal to $(Q^2 + 1)$ the ratio of parallel to series resistance of any tuned circuit at resonance. So Q is close to 6.8. Hence the reactance of the series inductive arm is 6.8 x 50 = 340 ohm and the total shunt capacitive reactance (including antenna shunt reactance) is the same.

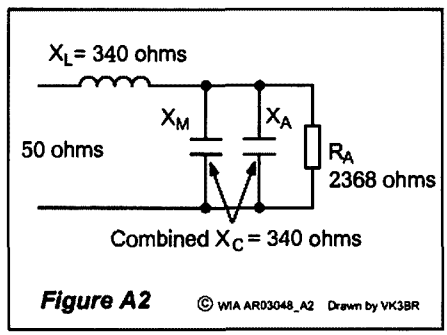


Figure A2. Basic L match
X_A = antenna capacitance
Calculated $X_C = X_M + X_A$

However in the model of the EH antenna discussed, the balanced form of the L network is used as in figure A3. Apart from balancing the circuit to the dipole, it also provides the phase shift as described in the main text. One can consider this form to be two of the L networks previously described but with their inputs in parallel and the antenna load connected across the two L network output legs. Each L network half transforms half the output load resistance (Ra) to twice 50 ohm. The four reactive elements can be calculated from the square root of 50 times R_A which, for R_A = 2368 ohm, gives reactive elements equal to 340 ohm, the same as for the simple L network. At say 14 MHz, this works out close to 4 µH for the inductors and 33 pF for the capacitors (including shunt capacitance reflected by the dipole).

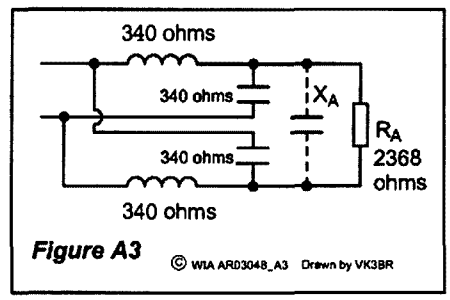


Figure A3. Balanced L match

The calculation does not take account of the need for resonance offset between the two L circuits to get the required phase shift. First working from the calculation described above, I found it necessary to reduce the inductance of the lower coil a little by taking off one turn of the winding. The one less turn is shown in figure 2.

References

1. Original Article on the EH Antenna - Lloyd Butler VK5BR - Amateur Radio. April 2003.
2. The EH Antenna Web Site (Sponsored by Ted Hart W5QJR) - http://www.eh-antenna.com
3. Various Articles on the EH Antenna by Lloyd Butler VK5BR - Web site http://www4.tpgi.com.au/users/ldbutler or link from http://www.qsl.net/vk5br

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ACA seeks Hams' feedback

Colwyn Low VK5UE
Editor Amateur Radio magazine.

The Adelaide meeting.

The review of Amateur Radio Service Regulation is being carried out by the ACA following the WARC 2003 Conference and the Governments desire to streamline the Amateur Licencing system.

Meetings around the country have had attendances from 16 in Canberra, 24 in Darwin and 26 in Hobart to between a 100 and 200 in the other State capital cities.

Mark Loney, Executive Manager RF Planning Group and Christine Allen were the ACA representatives at all meetings. Mark conducted all meetings in a professional manner and all topics were given proper attention.

The meeting in Adelaide seemed to follow the pattern of those held in other centres. We went through a general statement of what the ACA intended to do and then through the ACA proposal in detail. The topics that attracted most attention were

- How soon could the Morse Code requirement be removed?
- What was an Amateur Class Licence going to be?
- We cannot be held responsible for interference to commercial entertainment equipment, which is build to poor EMC standards, if we are operating within our licence conditions.

There was also a plea for higher power output, it being pointed out that in most cases the power used would be limited by the exposure levels that we had to meet.

From what I have heard most meetings went on for more than 2 hours. I just hope that there were non-WIA Members at all meetings because these meetings were ACA Meetings for Amateurs not just WIA members.

Re Morse Code the ACA was playing a very "proper" course and not arbitrarily removing a requirement until all that the Australian Regulations and the International Agreements required had been officially dealt with. This will require amending the Amateur LCD, which the ACA can do without taking it to Parliament. However the decision on removing the Morse qualification will have to wait until the consultation is complete, other wise why have a consultation?

If the Morse requirement is removed Amateurs have to decide if we have just Novice and Full Call Licences, rolling the Limiteds into the full privileges for each licence class.

The impression I got about the Class Licence, as applied to Amateur Licencing, was that it would be a new class and would let Amateurs do all they have traditionally done. This being possible because they had demonstrated a capability to understand, operate and build RF communications equipment. This would not be a CB style Class Licence.

Interference issues raised a lot of heat. It would appear the wording in the discussion paper was not as accurate as it could have been. All Amateurs who read it got the impression we would be bottom of the heap and have no rights. My impression from Mark's replies to questions was that there would be support for Amateurs, who were subject to accusations of causing interference, much as there is now and that interference caused to poorly set up systems would, in the first place, require the complainants system to be properly installed. The ACA Inspectors would be available but as now a procedure of providing information to trace causes of interference, advice on who to ask to fix it would be the first response to a complaint. Amateur Stations would not be arbitrarily closed down.

Licensing

The Adelaide meeting did not get into the levels of licensing to any great depth, but it would seem we still have to sort out whether we have two levels or three. If we have two, then Entry level should be wide ranging with regard to bands and modes but still leave room for an Unrestricted licence to be worth working for. A three level system would introduce more arbitrary limitations on privileges at each stage. (This may be more of the Editor than of the meeting).

Now I hope you have all made your response to the proposals because it will do no good at all if you discussed it at length with your mates at the club or on air and the ACA did not get to hear how you felt before they decided what to do.

A WIA position paper will be made available soon. When the responses close the ACA will complete its review. The ACA may contact some parties to clarify issues and collect further information and advice in order to complete the review.

WIA SA Division President Trevor Quick VK5ATQ and Mark Loney, ACA Executive Manager RF Planning group.

ICOM Australia celebrates 20th anniversary

By Jim Linton VK3PC

From a modest beginning with the opening of its first headquarters in the inner Melbourne suburb of Windsor in 1982, ICOM Australia has grown into a major player in its sector.

To mark its 20th birthday it held a mini-trade show at a Melbourne city hotel late last year displaying its current and soon to be available equipment, with experts on hand to discuss the products.

In the evening invited guests, including the ACA and WIA, ICOM dealers and others, joined a pleasant river cruise dinner.

As to be expected there were speeches made, and a Powerpoint presentation tracing the history of ICOM Australia and looking forward to the future.

A proud ICOM Australia Managing Director, Kiyoshi Fukushima VK3BZX, told the guests of the humble beginnings of the company with just Duncan Baxter VK3LZ and himself enthusiastically promoting the ICOM amateur range to an appreciative Australian market.

Among those on the cruise were many who were there on the opening day in November, 1982 and have maintained an association with the company ever since.

Kiyoshi VK3BZX highlighted some of the product launches over the years, such as its introduction of a Land Mobile and Marine range of transceivers in 1983 and the first ICOM Aussie CB handheld in 1984, the venerable IC-40.

In early 1988 it launched its Air Band range with the IC-A20 and in the late 90s ICOM began testing the market with a small range of Wireless LAN and LCD monitors.

It has come a long way since 1982 with a staff of just two, with about 20 staff now looking after a network of nearly 300 ICOM dealers throughout Oceania.

In its five-year business plan, the company has a goal of doubling its current turnover of about $A10 million a year, including boosting its exports to the South Pacific.

ICOM Australia has built on its beginnings of being purely focused on the amateur radio market, to encompass nearly all areas of the commercial radio communications market.

Kiyoshi VK3BZX said, "ICOM is now the product of choice with the hang-gliding and parasailing community, most if not all commercial handheld CB radio users, many sailing schools and yacht clubs, the Victorian and Queensland SES, the NSW Rural Fire Service, Antarctic Division, BHP and many other mining sites.

"This has only been possible due to the work of our dealers, staff, suppliers and other organisations such as ACA and WIA, who have contributed to ICOM's success.

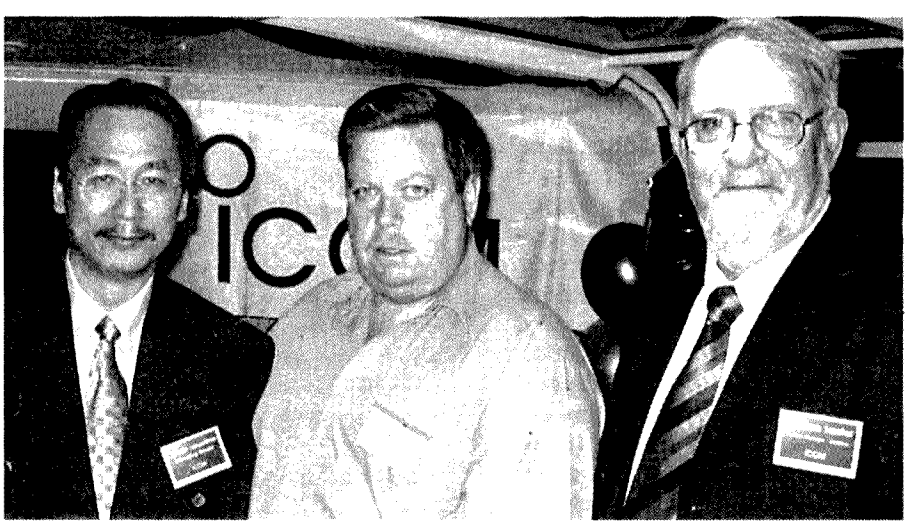
"More importantly, we would like to thank ICOM Inc in Japan for their enormous support in every way".

President and Founder of ICOM, Inc.Tokuzo Inoue, JA3FA, who was unable to visit Australia for the anniversary, has a business philosophy of "Technology first, the money will follow."

Mr Inoue in an interview with CQ magazine said, "No matter what, keep perfecting your technology. If you perfect your technology and make good products, you will always get business."

Recently joining ICOM Australia from Japan is Masanori Yoshiyama, who is now engaged in the area of product development to meet local needs, and business planning.

The company has signalled it will be working even closer with its dealer network, including product training forums, to help them increase their business, and to improve efficiency through the adoption of electronic commerce or online services and inventory.



ICOM Australia Managing Director, Kiyoshi Fukushima VK3BZX, Jim Linton VK3PC and Duncan Baxter VK3LZ

Wishing the retired icon of ICOM "Happy Days"

After 20 years service, Duncan Baxter VK3LZ, the face of ICOM Australia in the company's advertisements, and larger than life presence at hamfests, has retired.

He intends to spend some time travelling around Australia in his camper trailer.

As a gift, Duncan VK3LZ was presented with an ICOM IC-706MKIIG which will help him keep in touch with his many amateur friends on his travels.

The company intends to retain him as a consultant to draw on his extensive experience over the past two decades.

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An alignment transmitter or 80m mini-fox

By Bryan Ackerly VK3YNG.

If you are considering building an 80 m foxhunt receiver and don't own a signal generator, this project may prove useful. It provides a stable signal source at a number of different output levels with more than 100dB range. It can also double as an 80m fox-or mini-transmitter.

This circuit was designed as a simple alignment source for the VK3YNG 80m foxhunt receiver. Anyone constructing one of these receivers is encouraged to build one of these circuits if they don't own a reasonably good signal source.

This circuit is capable of providing reference signal levels between –120dBm and +6dBm in 40dB steps. This level range is typical for ARDF and other foxhunting on 80 metre and is useful to ensure that a receiver is capable of handling the signal range required to hunt transmitters right to their source on this band.

Circuit operation:

The schematic is shown in figure 1. U1A forms the main oscillator. R2 provides bias to operate U1A in its linear mode. C2 and C4 provide parallel loading to ensure Y1 oscillates at its marked frequency. This oscillator runs continuously.

U1D and U1C along with R4, R5 and C5 form a low frequency square wave oscillator at approximately 4Hz. This circuit was taken from an old National Semiconductor databook. On each alternate cycle, C5 is discharged through R5 until U1D toggles. R4 apart from providing a feedback path to U1D inputs also limits discharge of C5 through the input protection diodes on U1D as the voltage at C5 effectively swings greater than the supply rails.

The low frequency oscillator signal is then supplied to U1B, which effectively gates the 3.5MHz signal, by the lower frequency oscillator. This generates a "pulsing" signal that is easily identifiable.

For situations where a continuous signal is required, fitting R1 at the input of U1D forces the low frequency oscillator to stop. As both inputs of U1D are high its output will be low therefore forcing the output of U1C high which gates the 3.58MHz signal from U1B continuously on.

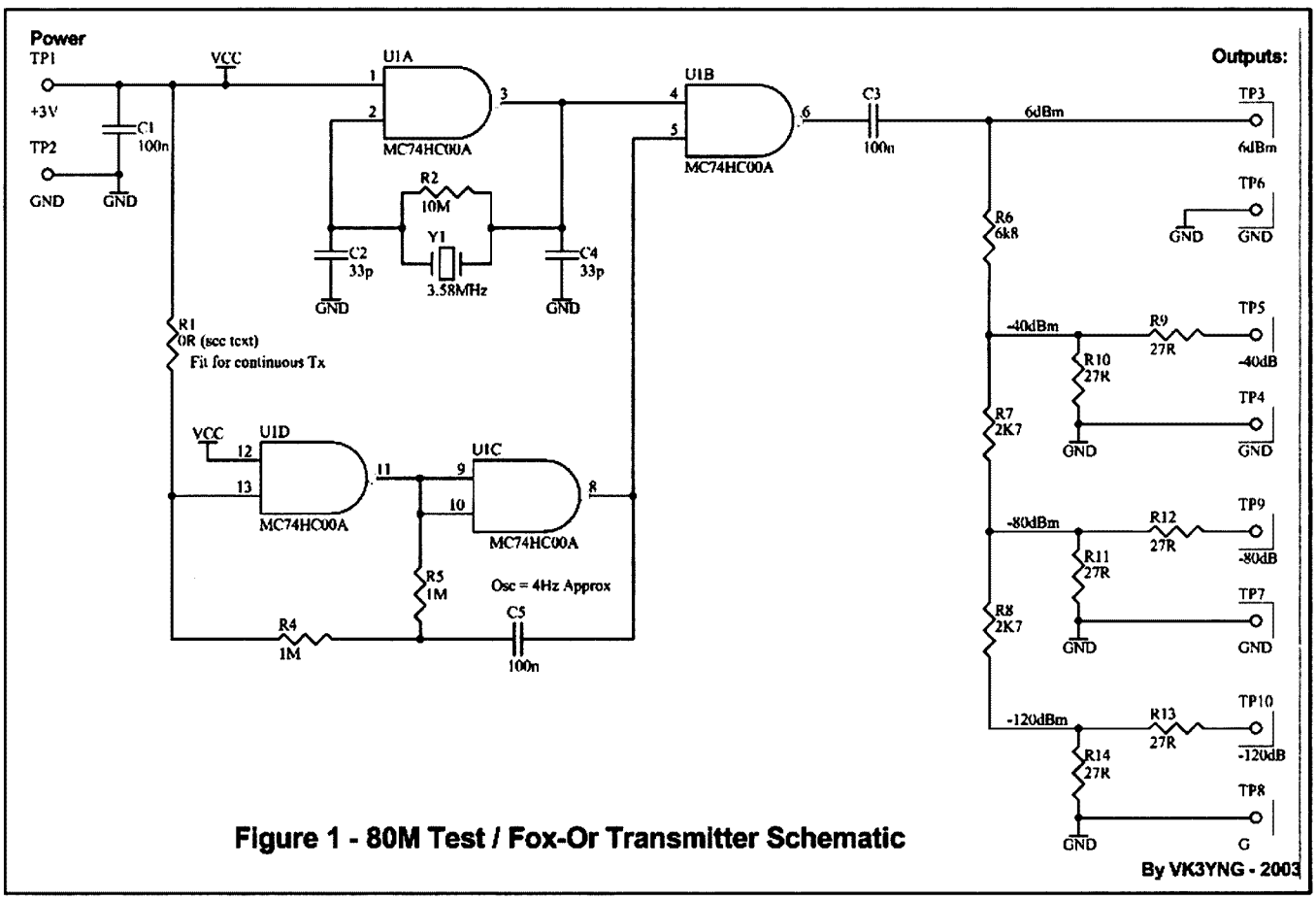

Figure 1 - 80M Test / Fox-Or Transmitter Schematic

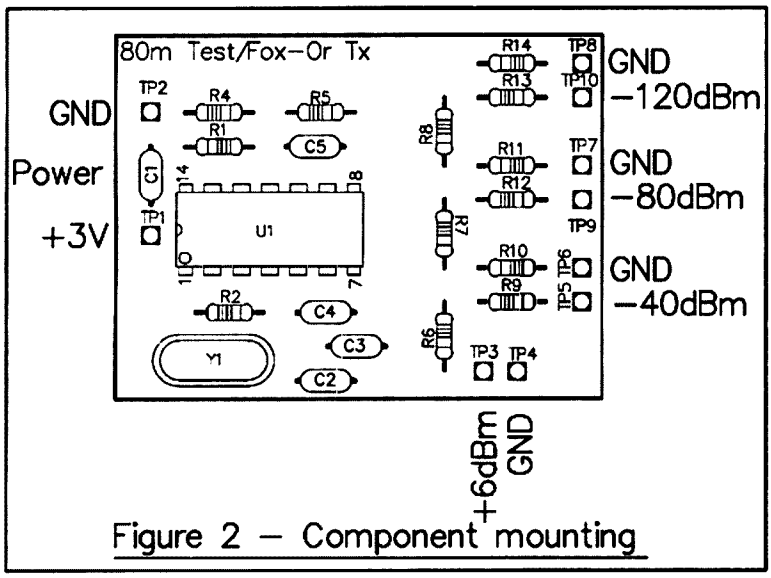

Figure 2 – Component mounting

C3 provides DC blocking for the output. The output of this circuit should provide up to 6dBm into 50 ohm for a 3.3V supply.

The attenuation network is a little unusual. Although it is not immediately obvious it is actually a voltage divider arrangement. It takes into account the fact that in most cases only one output will be used at a time, and because the attenuation is so great there is little influence from each stage. Using the –40dBm output as an example, a voltage divider is formed by R6 and R10. Actually the effective value of R10 is closer to 20 ohm when all of the series and parallel resistances are taken into account. This network results in a power attenuation of about 46dB. The series combination of R9 and R10 provides an effective source impedance which is close to 50 ohm to allow good matching into coax cable.

The same arrangement is used for the –80 and –120dBm outputs. The actual output levels should match fairly well for all outputs except the –120dBm one. This is because leakage limits its level somewhat and in practice the level is between 5 and 10dB higher than this. For the purpose of the circuit this should not be a problem. If you require a more accurate level, putting a shield around R8, R13 and R14 may help. Note that leakage increases significantly with frequency and this circuit arrangement will require a lot more care if used at higher frequencies unless surface mount components and double sided board are used. For a single sided board though the results at 3.5MHz are very good and quite repeatable.

Construction

Construction is straightforward. There are no special components. Mount the resistors and capacitors first as shown in figure 2. Make sure that all components are mounted flat against the board. Any elevated components especially around the attenuator will compromise the circuits operation. Trim the leads close to the board once soldering is completed.

Next mount and solder the integrated circuit taking note of orientation. Connect the +3V and associated ground connection to a battery holder.

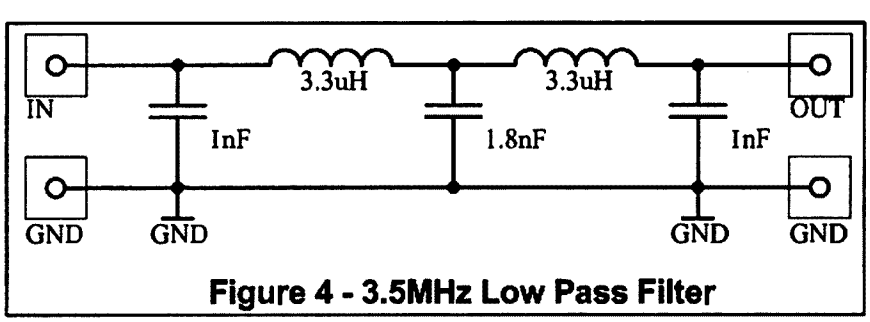

Figure 4 - 3.5MHz Low Pass Filter

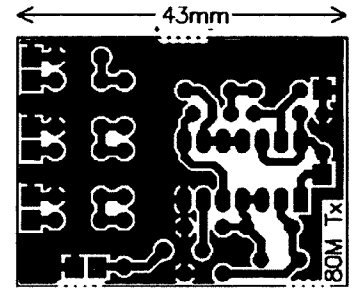

Figure 3 – PCB Artwork

If you are not using a properly made PCB, good results should still be possible using "Dead bug" construction techniques, but keep all signal carrying components flat against the board to minimise unwanted coupling.

A short run of RG174 or similar 50 ohm coaxial cable should be used to connect the required output signal. It may be tempting to consider a rotary switch to select the output level. However, the additional leakage through the switch may compromise the accuracy of the attenuation. If the transmitter is to be mounted in a proper box it may be better to provide four BNC or RCA output connectors instead. At this frequency, the impedance of the connectors is of little consequence. What is important here is that they are well shielded. Make sure that sockets are spaced a reasonable distance apart to minimise leakage.

If the board is to be properly boxed up, a single pole "on-off" switch and power LED with an appropriate dropping resistor can be added if desired. Another switch to change between "continuous" or "pulsed" operation could also be fitted in place of R1 if desired.

Operation and testing

There is no alignment required, just a simple check to make sure that the circuit is functioning. The first test should be done with R1 installed. Connect a short length (about 500mm) of wire to the +6dBm output. Use a nearby communications receiver of some sort and tune it to 3.58MHz. A continuous signal should be heard.

Next remove R1 and make sure that the signal then appears "pulsed" at about 4 times per second.

A note on antennas:

A 500 mm wire antenna should enable the transmitter to be heard up to 50m

away. A full length 80 m dipole should enable the transmitter to be heard several kilometres away. Be careful using an antenna that is this efficient, as there is no output filtering and the transmitter output is very rich in harmonics. If a long antenna is to be used, an output filter should be considered. A suitable filter is shown in figure 4. The expected response of this filter is shown in figure 5. (At least 36dB of attenuation is required at 7MHz to make sure harmonics are below –30dBm.) This filter is only needed on the +6dBm output and can be built dead bug style.

Parts list

R1 - Zero ohm Resistor or link. (*see text)

R2 – 10M 1/4W or 1/8W resistor

R4, R5 – 1M 1/4W or 1/8W resistor

R6 – 6K8 1/4W or 1/8W resistor

R7, R8 – 2K7 1/4W or 1/8W resistor

R9, R10, R11, R12, R13, R14 – 27R 1/4W or 1/8W resistor

C1, C3, C5 – 100nF X7R 5mm Monolithic Capacitor

C2, C4 – 33p NPO Ceramic capacitor

U1 – 74HC00A DIP Quad 2-input NANAD gate

Optional parts:

Metal box, Battery Holder, LED and 270R resistor, SPST power switch, SPST mode switch, 4x BNC or RCA sockets. For Low Pass filter: 2x3.3µH inductor, 2x 1nF Ceramic or Monolithic capacitor, 1x 1.8nF Ceramic or Monolithic capacitor.

*Note: R1 is fitted when using this board as an alignment signal source.

R1 is removed when using this board as a pulsed "fox-or-ing" transmitter

Power supply is 3 volt nominal (Use 2x AA Alkaline batteries)

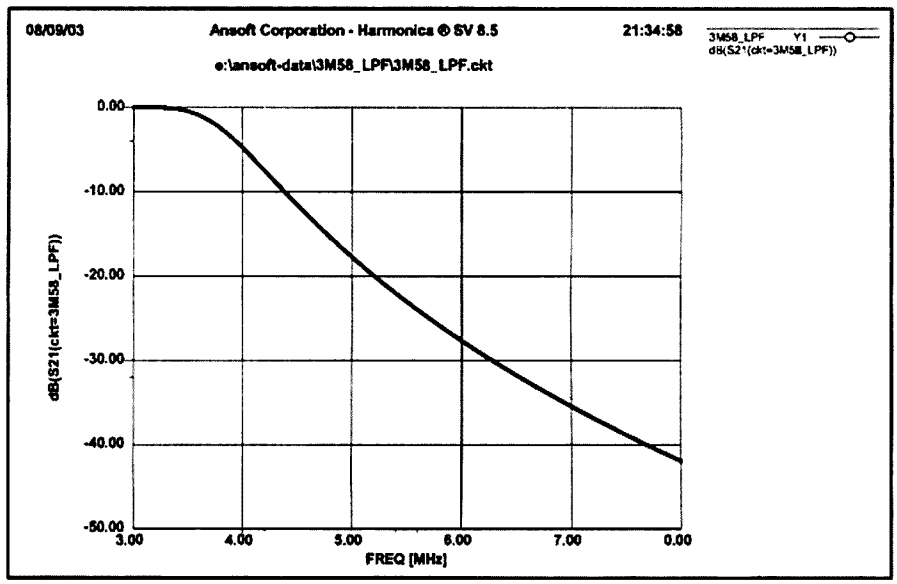

Figure 5

For more information:

The Victorian ARDF group web page: http://www.ardf.org.au
The author's web page: http://www.users.bigpond.net.au/vk3yng/foxhunt
The author's email address: backerly@bigpond.net.au

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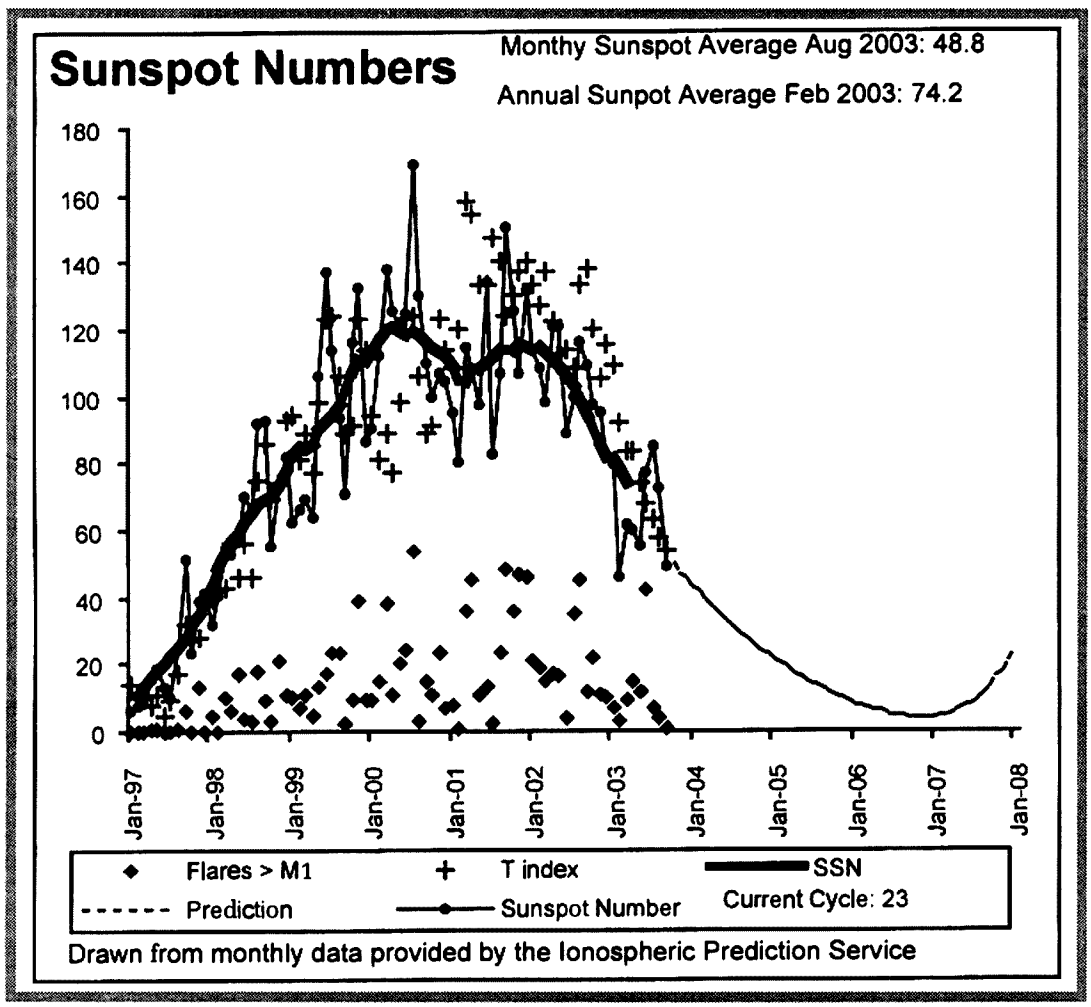

Ross A. Hull VHF Trophy winner 2003 encourages others to give it a go

By Jim Linton VK3PC

The Ross A. Hull Memorial Contest on the higher bands is a prolonged affair starting on Boxing Day 26 December, and running for almost three weeks with two sections - seven days and best two days.

It is held in the memory of VHF pioneer Ross Hull and the winner of the seven day section has their name and callsign inscribed on a perpetual trophy.

The contest period has participants high on alert for any bit of enhancing propagation and to get the best out of it by working everything that can be heard.

The latest and two-time trophy winner is Rob Ashlin VK3EK of Bairnsdale in eastern Victoria who achieved the top score over seven days of activity, with runner-up Glenn McNeil VK4TZL, who took out the two day section. Both have now won the trophy twice.

The inscription on the Ross A. Hull VHF Memorial Trophy reads: To perpetuate the memory of an Australian amateur – an early member of the WIA – who devoted his life to the amateur cause and who pioneered the VHF field during his brilliant career as editor of "QST" and "The Radio Amateur's Handbook". Born in Melbourne in 1902 his untimely passing in 1938 was a great loss to the amateur fraternity and the world of radio communications generally.

Rob worked Glenn VK4TZL on 6-metre during the contest and remembered at that time his rival had made the highest number of contracts.

He said, "So it was the head down and keep working as much DX as possible. I was not getting much score out of 6-metre, so for me it had to be done on microwave.

"Contacts were over 100 km away, with Melbourne and Geelong stations between 200 and 300 km on bands up to 10 GHz."

Meanwhile, up in Queensland Glenn VK4TZL, after good 6-metre openings in the 2001-2002 contest that gave his score a really good push along, was hoping for a repeat of the excellent openings to JA.

Microwave activity is nowhere near as prolific as in VK3, and while Glenn had access to 23 cm and 13 cm, a lack of other operators put paid to any ideas of large microwave band scores.

From Glenn's point of view and previous experience, 6-metre would be the deciding band unless some really good conditions came along on 2 m and 70 cm.

Glenn VK4TZL said, "I knew Rob and the other guys down south were not getting much on 6-metre, so I had everything crossed that something would happen to the north, and it did, but not quite long enough to push me over the line. And I knew Rob would be out to maximise his score on the microwave bands."

Runner-up Glenn VK4TZL had a good score on 6-metre, while Rob VK3EK maximised his opportunities on the remaining bands to achieve a 24-point winning margin.

Rob VK3EK said, "I must say well done to Glenn VK4TZL for a fine effort as well with scoring first place in the two-day event and second in the seven-day section. The score tells the story, we both had different propagation and activity and it was still very close."

He also acknowledged all the other placegetters in the contest. Rob VK3EK remembers when a few years ago he came third, then two years runner up, and his first win in 2000.

Rob VK3EK said, "My first win in the contest's 50th anniversary year (1999-2000) was a proud moment for me. I think there are a lot of stations out there that can win this contest and will. I hope that I can be part of you all doing that, it will be fun for us all."

Glenn, VK4TZL was only too happy to see Rob take out the top spot. "It is a

Continued on page 18

(Note This is published to encourage more participation in this year's Contest. So note what happened last year and start preparing for Boxing Day 2003. Editor)

Club News

Darwin Amateur Radio Club (VK8DA)

Peter VK8PDG
www.vkham.com/vk8da (Still to be upgraded)

My email address – I've had a few people call me and say I've sent you email but you have not replied, why not Stuie ?? Well my old email account vk8nsb@octa4.net.au no longer exist, my email address is vk8group@hotmail.com. Please change your address books.

IRLP News

At present Mike VK8ZMA is in the process of placing the IRLP node 6800 on the 147000 Repeater located in Darwin City. As soon as this is done Mike will inform me and I will email you all to advise you that IRLP Darwin Node 6800 is on air on 147000 Darwin City Repeater. This is great news and I hope that many Amateurs enjoy the IRLP Node provided by Mike 8ZMA on the 147000 Darwin City Repeater. All the IRLP info is on the Clubs webpages.

QSL Bureau

As reported the bureau has now officially changed over from VK8HA to VK8DK Len in Katherine. Len will collect QSL cards from VK8DA. So if you wish to drop cards off to the Buro you can do it at VK8DA. If you have any Questions about the Buro please contact the VK8GROUP, The reason is Len is currently out of Katherine working for the next month or so, so if you wish to contact him please e-mail the VK8GROUP and I will contact Len on his Mobile phone for you.

These comments from Peter VK8PDG (Thanks Peter)

I am sending you the following information if you have not already picked up on the air waves that one of the 2 metre Packet ports is open again along with my Tel_Net port now QRV 24/7, so any one can Tel_Net through onto 2 metre. Here is the Telnet setup for any one wishing to use the system. TelNet: 211.26.117.59 Port: 6300

The 2 metre RF side of the port will be switching until I get my new radio coming up from down south but is QRV 144.900 MHz at 1200bps to the WinFBB32 BBS. Many thanks for the great amount of feed back I have received concerning the opening of the First Echolink Gateway in HYDERABAD - INDIA by VU2NRO-R everyone can read a short web page of this event with a link to VU2NRO as well as VU3RSB at the following web URL: http://www.angelfire.lycos.com/nt/voiceofdarwin/index.html

Yet some more news concerning a SAT's project called The ET Shadow Project Australian Section. Web Site: http://vk3ukf.freewebsitehosting.com/etshadowozindex.html

This is open for all to take part and even SWLs, so have a look at this and one can use their sound card to act as the TNC. The programs and URLs are on the above web site and downloading is FREE so if any one is interested in this perhaps get themselves on the list of participants by contacting me Peter VK8PDG or Kevin VK3UKF.

OK that is all for now I will let you know more as each system comes back on-line.

***Note:** The Editor took the liberty of lifting this DARC Newsletter to give the Club's activities wider exposure. Hope that's OK. These are weekly notes.*

Ross A. Hull VHF Trophy winner 2003 encourages others to give it a go

Continued from page 17

friendly rivalry, and Rob is as keen as mustard, so it was great to see him on the winner's dais again."

Glenn's only wish was that many more radio amateurs would give the Ross Hull Contest a go. "You don't need a super station to compete or win. Most of my contacts were completed with 100 W on 6 m, 100 W or 400 W on 2 m and 70 cm, into single yagi antennas ... the biggest being 12 elements on 2 m.

"The two-day section especially, allows a station to compete throughout the contest period and then nominate the best two-day score, not an especially difficult task."

This year, and to a limited extent last year, provided Glenn VK4TZL with the opportunity to try some digital contacts during the contest. He said, "I didn't get many, but I did manage to work VK7 on 2 m FSK441, which is worth quite a few points.

"But I think that the time taken for a digital contact doesn't really make it feasible to depend too much on this mode of contact."

Well who is going to win the next Ross A Hull Trophy, and feature in its categories? There is any number of possibilities or it could be a relatively unknown who snatches the prized trophy.

But as Rob VK3EK and Glenn VK4TZL both urge, it is a good contest and more radio amateurs should get involved because they will enjoy it.

The Contest Manager, John Martin VK3KWA noted that the 2002-2003 contest saw an unusually high number of logs from those entering the contest for the first time.

John said, "I hope this is a sign that activity is on the way up again, but we still have a long way to go before activity returns to the levels that existed some years ago."

He said there are plenty of stations with DX capability, and many more who could participate to increase activity on the higher bands, yet the contest only attracted 20 log entries.

A review of the contest is underway to see how to make it more attractive, and John VK3KWA said he welcomes any suggestions.

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Rekindling the magic

Michael J. Charteris VK4IQ
empire1963@hotmail.com
Address as per WWW.QRZ.com

When all is dull and the bands are be-stilled with a silence unbecoming, I find myself reaching for my copy of the wonderful book by Mr. John Clarricoats G6CL, "The World At Their Fingertips". This is the story of what is the RSGB today, but which was then the London Wireless Society. And from its pages flow the story of Amateur Wireless all those years ago, just after the end of the Great War in 1918. The book itself covers the development and the struggle of the Hams of those days, as well as the amazing equipment they constructed. The inspiration that follows is such that I am somewhat more appreciative of what we call Ham Radio today. For as much as they worked miracles with the most basic of materials, we today have miracles a plenty in the black boxes that prevail in most radio shacks in here in Australia.

With this in mind, I reminisced about what it would have been like in the 1960s with the equipment that was commercially available in those days. In an effort to hark back to those times I set about collecting a few of what I now refer to as Classic Silver Tailed Yaesus. I wanted to be able to rekindle the magic that had inspired me to study for my radio licence almost 20 years ago. My first transceiver upon gaining my Novice Licence, VK4MAE, was a one owner Yaesu FT401B. I subsequently murdered my first set of 6KD6's Finals, and not long after that took lessons from a local Ham who was nice enough to explain the mystery of Valve output tubes. From then on it was lots of fun with contacts across the globe on 15 m and getting to know the locals on 80 m. One interesting point used to be when talking to the JAs, and upon relating to them the equipment being used, FT401B, to responses of "Oh that is very old equipment, but its doing a good job for you today". It was almost a welcomed endorsement that just because the equipment was old, it was no reason for it not to work just as good as the new stuff with a few less bells and whistles. Yaesu at that time had just released their new flagship transceiver, the FT-ONE with general coverage receive for the first time, while the FT101ZD still flourished in the market place

Some twenty years has since passed, and I have had the pleasure of owning a multitude of transceivers since then, including the famous Collins KWM2. Through the course of this time I also upgraded from Novice to Combined to finally Full Call as VK4IQ. But alas the dream I had held for the past 10 years was that of a station made up of equipment from the FTDX400 series of transceivers from the 1960's & 70's. I was drawn to its classy silver front panel, its all tube line up, and most of all the sheer power of its output from the delicate 6KD6 Finals. The received sound of SSB signals from operators using this equipment had also impressed me very much. So in the past year I had set about acquiring one each of the following sets in this series. Namely the FRDX400 Receiver with matching FLDX400 Transmitter, a very nice pair indeed, despite being idle for the past seven years, but I was happy to get this not often seen set of Twins. The net set I added to the station was an FTDX400 Transceiver in mint condition, still with the clear plastic all over the front panel. And finally I picked up an FTDX401 that looks really great on the outside but needs a bit of Vitamin B on the inside to get it back up to a healthy state of affairs.

One of the real beauties of this range of equipment is that you the operator actually have a good chance of being able to fix it yourself, perhaps with he help of a friend as well. For as all well know, not many have the equipment let alone the qualifications to lift the bonnet of this new equipment. No doubt there will be a lot of the older Amateur Radio Operators out there who have in the past used this equipment with varying degrees of success. I have been told of such ailments in this equipment as cracked PCBs, dry joints, failed crystals, unstable power supplies, deafness for no apparent reason and a few other complaints as well. I guess it is par for the course that such things would happen to a percentage of this equipment over time, but they are all about 30 years old these days and perhaps it is to be expected. For those who have never heard of this series of

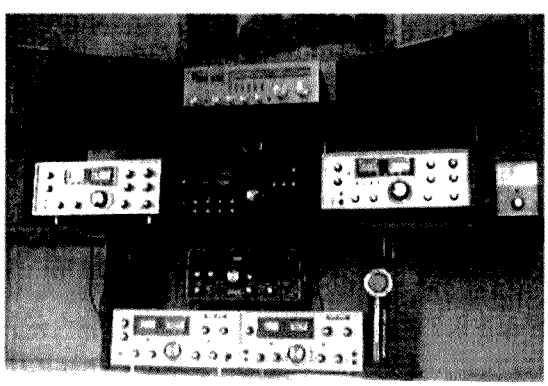

Photo 1. The Yaesu collection

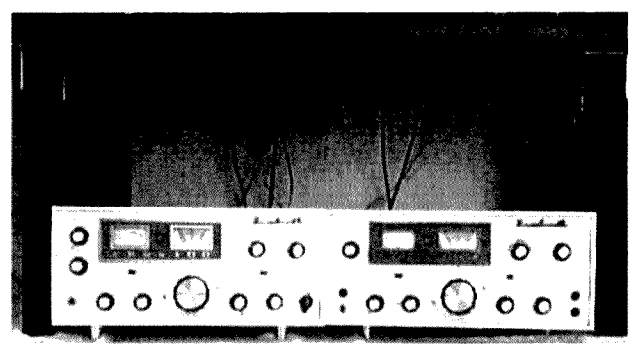

Photo 2. The 400s

Yaesus or ever owned one, I have decided to include in this basic article some of the details I have on the FRDX400 RX and FLDX400 TX. I have not as yet fired up the TX side of my Twins, but will merely quote from the book for the benefit of detail. The FRDX400 receives very well indeed, and the ANL is quite effective, along with the Rejection Tuning. This is indeed a feature I wish Yaesu had continued to use on the sets that came later in the series

Now as for the Receiver of this range, we start off with the FRDX400 Receiver, of which I am lucky enough to have an original colour brochure produced by Yaesu in1967. These came onto the Australian market through Bail Electronic Services in about 1967 or so, along with the matching Transmitter and the Transceiver version, being the FTDX400. The pricelist I have from Bail for August of 1968 states that the selling prices for these units at the time was as follows,

FLDX-400 Transmitter, (Mechanical Filter), inc PTT xtal Mic. $478-00

FRDX-400 Receiver, 160 - 10metre amateur bands $ 448-00

FTDX-400 Transceiver, (Crystal Filter), inc xtal PTT Mic $ 690-00

There was also a range of accessories for the series, and they included the following,

FLDX-2000 Linear Amplifier, $278-00

SP-400 Matching Speaker, $18-00

6 & 2 Metre converters, $18-00 each

FM Adaptor, $18-00

Just a small request to the readers, as I am still looking out for the Ext Speaker, the Ext VFO 400 type, as well as the FLDX2000 Linear Amplifier to complete my 1967 Ham Radio Station. So if you have any of these items, which you would like to part with then please drop me an e-mail, or perhaps phone, as I would like to hear from you about them no matter what their condition.

From the handbook of the FRDX400 Receiver are the following selected specifications,

"Mode: Selectable SSB & CW with ring demodulator, AM with diode detector

Sensitivity: SSB & CW 0.5μV S+N/N 10db

AM 1.0μV S+N/N 10db

Selectivity: 1 kHz at 6db down, 4 kHz at 60db down with rejection tuning, 2.4 kHz at 6db down,

4 kHz /60db down: 4 kHz/ 6db down, 7.5 kHz at 25db down:

(600 cps at 6db down, 1.5kHz at 60db down)

Spurious Response:- 60db at 14 MHz: internal spurious signals within Amateur Bands less than that from a 1.0 μV antenna system.

Frequency Stability: After warm up, less than 100 cycles for any 15 minutes: less than 100 cps for 10% line voltage change

T-Notch Filter: Better than 50db

Dial Calibration: 1 kHz"

As for the FLDX400 Transmitter, I will quote once again from the original colour brochure from Yaesu in 1967

"Specifications

Frequency Coverage: 3.5 - 4.1, 6.9 - 7.5, 13.9 - 14.5, 20.9 - 21.5, and-27.9 - 28.5 MHz

Modes of Operation: SSB: Upper & Lower on all bands

CW: Grid block keying, VOX circuit keyed for break - in keying

AM: Either sideband with carrier

Dial Calibration: Main dial calibrated 0 to 500 kHz and 500 kHz to 1000 kHz. Vernier dial calibrated 0 to 50 kHz to 100kHz in 1 kc division.

Stability: Less than 100 cycles within any 15 minute period after warm-up, less than 100 cycles with 10% change in line voltage.

Sideband Suppression: 50 db at 1000 cps

Carrier Suppression: Better than 50 db

Distortion Products: In excess of 30 db down

Frequency Response: 300 to 2700 cps

Input Power: SSB & CW- 240 watt PEP, AM 100 watt

Output Impedance: Nominal 52 ohm adjustable pi network

Microphone Input: High Impedance dynamic or crystal

Tubes & Semi-Conductors

6AN8 x 1, Speech Amplifier; 1S1007 x 2, Balanced Modulator; 6U8 x 1, VOX Amp, Relay; 12AT7 x 1 SSB Mixer; 6AW8A x 1, Heterodyne Oscillator & Mixer; 12AU7 x 1 VFO; 12BY7 x 1 Driver; 6U8, Carrier Osc & Antitrip Amp; 12AU7 x 1, SSB Oscillator; 6BA6 x 1, IF Amp; 6CB6 x 1 VFO Mixer; 6JS6A x 2, Final Amp"

As all can see there is enough heat generated here to warm the feet of many a Ham on a cold winter's night. And to a degree, perhaps this is why so many end up under the bench doing such a job in many shacks across the globe. So my friends I challenge you, dig it out, fire it up, put it on air and enjoy what can only be described in the title of my article as "Rekindling The Magic".

Basic cleaning

The FRDX-400 that I purchased was a bit dusty and grubby, but that was soon fixed. I got out the old toothbrush and a bit of Jif and some warm water and took all the knobs off and proceeded to clean them. Once this was done I cleaned the silver face to the receiver with the same method to restore the once wonderful shine. Having heard the crackle that emanated from the mode and band switches, I obtained a can of CO Contact cleaner. I proceeded to take off the top and bottom covers and sprayed all the switches and pots I could get the nozzle into. Having rectified this, things seem to go much better upon turning the Receiver on for a tune across the 20 m Band in the late afternoon. The set handles really well with the ANL quite effective especially in combination with the Rejection Tuning control. By comparison to my FT-ONE, the FRDX400 receives just as well with very little interference or unwanted noise being received. The antennas being used were a 3 element Monoband Yagi for 20 m, as well as an End Fed "L" Shape Long Wire about 30 m long. On this particular afternoon there was a sprinkling of Europeans and a few Yanks with big signals. Even with our declining cycle their signals filled the band and came through loud and clear at my QTH in Ipswich, Queensland. On its first venture into the 20 m band after seven years of non-powered idleness, the FRDX-400 performed very well indeed for a 35 year old Receiver.

Principles of operations

The receiver itself is Double conversion with injection voltage for the first mixer provided by a crystal-controlled oscillator. A tunable IF of 500kHz range is used to couple the first and second mixer. Injection voltage for the second mixer is provided by a Variable Frequency Oscillator with a tuning range of 500kHz ganged to the IF tuning capacitors. The 455 kHz output

Technical Abstracts

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Balanced line antenna tuner

Most antenna tuners cater for balanced lines by providing a 4:1 balun to convert the antenna input from unbalanced to balanced. Unfortunately this is not the ideal solution as most baluns perform poorly when called upon to transform loads other than their designed resistive values often at high values of SWR.

A better approach is to place the balun at the transmitter side of the tuner where the balun is dealing with a near to unity SWR and to use a tuner design which is balanced. This gives a far better result but does require the tuner to be configured as a balanced tuner.

A suitable design has been released by Palstar and is their AT1500BAL design. It was announced in the UK in Practical Wireless in their Radio News page in their April 2003 edition. The website for Palstar is www.palstarinc.com . Palstar is a United States company .

The Palstar AT1500 BAL places the balun at the transmitter side of the tuner and uses a Balanced L network using two roller inductors and a single capacitor. The roller inductors are mechanically coupled so that there are only two tuning controls. A switch is used to enable both high impedance and low impedance balanced loads to be matched. The design is capable of handling USA power levels and has a 1500 W PEP rating.

Adding a crowbar notes

In June 2003 AR Tech Abstracts an item originally presented by Ian White G3SEK in his January 2003 In Practice column in Rad Com was presented. This has stirred up some interest both locally and in the USA. The USA interest was from K8KK who contacted G3SEK directly.

Locally Ray VK4BLK contacted AR. Ray VK4BLK pointed out that the circuit was only suitable for use with a positive rail regulator as shown in the circuit presented in AR. This is true. To use a crowbar with a negative rail regulator the circuit would need to be redesigned.

The matters raised by K8KK were published in the June 2003 Rad Com In Practice Column by G3SEK. K8KK pointed out firstly the need for diode D1 which had been omitted from the original Rad Com circuit. In addition K8KK cautioned use of the circuit in a power supply used to charge a battery as the crowbar would attempt to discharge the battery causing considerable distress to the circuitry and present a hazard. The solution proposed to the battery charging problem was to use an isolating diode in series with the battery. Alternatively do not use a power supply fitted with the crowbar to charge a battery.

Rekindling the magic

continued from previous page

frequency is coupled to the 2nd IF stage to separate AM, SSB, and FM detectors. Injection voltage to the product detector is provided by a crystal controlled BFO.

RF and mixer circuit

The incoming signal from the antenna passes through a trap coil which minimizes interference caused by the signals of the first IF range to the tuned circuit, and is applied to the control grid of the RF amplifier tube, V101, 6BZ6, (or the an optional 6EH7). The tuning capacitor for the RF amplifier and first mixer is ganged and linked to the preselector tuning knob on the front panel. The required tuning range of these tuning circuits for band spread are obtained by switching appropriate values of fixed capacitance in parallel with coils. The amplified signal from V101 is coupled to the grid of V102A, 6U8, first mixer. The injection voltage from V102, 6U8, is coupled through L110, tuneable IF transformer (5354.5 kHz ~ 5954.5 kHz) to the grid of the second mixer V103, 6BE6, with VFO injection voltage applied to the cathode of this tube.

And so it goes through various other stages until the signal reaches the audio amplifier and is reproduced at the speaker for the listener's enjoyment. I must admit to not being the most technically brained person to ever attempt to write an article of this nature, so I will beg forgiveness now and trust that the above description of the sets operation is suffice to give my fellow Hams a basic idea of the way the set works. The valve line up for the unit is as follows,

V101- 6BZ6, V102 - 6U8, V103 - 6BE6, V104 - 6BA6, V105 - 6BA6, V106 - 6BM8, V107 - 6BZ6, V108 - 12AT7, V501 - 6U8, V601 - 12AT7.

For my money the Yaesu FRDX-400 is quite a nice set when it is all said and done, and one, which I derive a lot of pleasure from using on the Ham bands most days. I have been reliably informed that Bail Electronic Services sold quite a few of these Yaesu Twins and that there were never any major faults or complaints reported back to the dealer.

Perhaps you have over the past 30 years or so owned, used, or still have and operate one of these Receivers or even the Twins themselves.

I would be most happy to hear from you if this is the case as I would like to exchange ideas and perhaps information and mods if by chance you have any. If, like me and some others, you share the dream of rekindling the magic of the 1960s and 70s with this somewhat classic style of equipment, sing out say hello and share the information and experiences you have had using it. Maybe you made DXCC on the FTDX400, or some other similar milestone, then drop me an e-mail or write to me as I would look forward to hearing from you. For me as a Ham of some 20 years, I just love the look of the series and enjoy using it, knowing that it has been giving good service from the 1960's to this the 21st century.

In my next article I will attempt to bring to light the Transceiver version of these two sets, being the Yaesu FTDX400.

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Education Page

Ron Smith VK4AGS
Federal Education Co-ordinator

Project the Experience

Last time I looked at the PBL (Project Based Learning) concept. I promised I would this time look at some possible projects.

There are many different projects possible. The design of projects is not easy or hard but it does take some careful thought. The main example given here and some other possibilities are not exhaustive in any way. They are simply some suggestions to demonstrate some possibilities.

In designing projects, a most important aspect to consider is that the project is the learning environment and not an end in itself. The next step to consider is that the project is usually performed by small teams. Collaborative learning where the student takes responsibility for the learning is now known to be far better than prescribed or directed individual learning. Also important is the need for the student to keep records of the learning process and use these records to support a claim for adequate learning.

At first glance a PBL project can look like any other project or assignment. However, close inspection will reveal crucial differences.

A very basic PBL project might look like:-

Design and construct an antenna for an amateur band. Verify the operation of the antenna.

This project should be reported as a written report defending the choice of antenna design and showing the results of any measurements.

On the same sheet as the project it is usual to include some possible syllabus outcomes this particular project might support to give some focus for students. While outcomes are usually generic the relevant outcomes for this project might be:-

- Have a knowledge of different antenna designs.
- Be able to perform basic calculations.
- Apply the principles of antenna matching.
- Apply the regulations relating to amateur transmissions.
- Understand the responsibilities with regard to interference.
- Know the frequencies allocations for amateurs operations.
- Operate basic radio technology measuring equipment.

(Please note that these would not necessarily be only covered in this project, or even covered to sufficient depth in this one project.)

The standards for an ultimate pass for an award might be (again generically stated):-

- Correctly perform calculations to obtain correct values.
- Apply the regulations correctly.
- Use measurements and calculations to verify the operation of radio technology to a satisfactory level.

For even a project like this each team would commonly adopt a different approach. However it is likely any team would include some similar basic steps along these lines.

To complete this project the team or group will have to research different antenna designs to defend the choice. They would also have to look at the spectrum available to amateurs to determine the frequency to use.

the project is the learning environment and not an end in itself.

While they could copy a design from a textbook, it is not in their interests to do so. They would omit some of the outcomes if they did. The textbook approach might produce a successful antenna but that is not the purpose. The project is the learning environment, not an end in itself. For example, if the textbook approach was taken, students could not claim the calculation outcomes. So it would be better if they calculated the lengths and then could show the calculations.

They would have to research the regulations and find that they cannot transmit on an amateur band unless under the direct supervision of a licensed operator. They would also have to operate a rig in receive mode to check the presence or otherwise of other stations to avoid interference to determine a frequency to do the testing.

They would also need to consider the identification of transmissions requirements.

They would then (under supervision of course) have to operate the necessary measurement equipment, most likely a VSWR bridge, to test, adjust, etc the antenna.

Some students would also find the EMC requirements to be an outcome to consider as well.

They then have to ensure they have records for the report and evidence to include in their ultimate claim of having a "pass".

Both the writing of the report and the claiming of the "pass" involve revisiting the ideas. If you like, these are a double revision or consolidation of learning, even if the students don't realise this.

The project does not specify an antenna design, a band, or a frequency. It does not give specific instructions. It involves technical, regulatory, and operational aspects. In essence it is holistic which is closer to what really happens outside the 'classroom'.

It does not matter if the antenna actually works or if any project is successful. (They usually are.) The important idea is the learning about antennae, operations, measurement,

calculations, and regulations.

Here are some more possibilities. If you look at these you will see how the students have to make interpretations and decisions during the project and as such have to delve into learning about communications technologies and the 'rules" before making any decisions. It is possible to again see the holistic approach setting the learning environment. The topics are not specific. There are no 'right answers' to the projects.

1. Design a UHF/VHF voice repeater network for a town/district/city at least 200km from your location.
2. Write recommendations to the local counter disaster organization about establishing and maintaining communications between your location and another location 500km away during 24 hours in the event of total failure of the official communications system.
3. Investigate various designs of crystal oscillator and then build a crystal oscillator, determine its frequency and the levels of any harmonics. Report on the construction and measurements, and explain your choice of design.

PBL is an excellent educational tool when implemented properly. It will not always be possible to use it. The schools I have spoken too would be quite attracted to amateur radio if something like PBL was available to them. At this exciting time of restructuring it is important to seriously consider the utilisation of cutting edge educational methods and to have an implementation structure to allow for the possibility of implementing a range of educational methods, including those yet to be 'invented'.

What will the New Year bring? Let's see.

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QE46 Cape Hauy VHF DXpedition

By Rex Moncur VK7MO

The Cape Hauy VHF DXpedition was designed to activate the rare grid square, QE46, on the South East Coast of Tasmania by taking advantage of the new digital modes, JT44 (for tropo scatter) and FSK441 (for meteor scatter). The DXpedition involved backpacking a VHF station over 4 km of very rough terrain and overnighting in a tent. The project was a team effort with members of the VK7 Southern Branch of the WIA assisting in the deployment and recovery of the station and providing liaison. Despite a storm and wet gear the DXpedition demonstrated that with the new digital modes two-metre contacts of up to 1400 km and more can be achieved with a small station that can be backpacked into remote area.

Grid squares and VHF

While chasing countries and a DXCC is a popular HF (and six metre) activity VHF operators (two metre and above) gain a similar sense of achievement by chasing grid squares. Grid square standings are announced regularly in AR. For an explanation of grid squares refer to page 152 of the 2003 WIA Australian Amateur Radio Call book. Grid squares are one degree of latitude by two degrees of longitude and are roughly 100 km square. Only contacts from land areas count for grid squares. Up until a year ago the top Australian stations had collected up to around 70 grid squares using mainly SSB. In the main these were from home stations but a few were from portable stations going to rare squares. The problem in undertaking DXpeditions to rare squares was that beyond a few hundred kilometre one can spend a lot of effort on SSB for a nil return.

Within the last 2 years new digital modes have been developed that allow regular 2 metre contacts by tropo scatter up to 700 km and via meteor scatter up to around 2000 km. These modes have enabled a number of stations to make rapid increases in their grid square scores and one (VK2FLR) has now achieved the magic 100.

VHF digital DX modes

Joe Taylor, K1JT, has produced a computer program called WSJT (Weak Signal communication by K1JT) that has modes specifically designed for VHF propagation - FSK441 for meteor scatter and JT44 for tropo scatter. For information on these modes and activity in Australia refer to the NSW VHF DX Group web site at http://www.vhfdx.oz-hams.org/ and then click on "Digital Modes". These modes have put a whole new life into VHF for operators away from the larger capital cities. For example it is now possible from my home station in Hobart to make 2 metre meteor scatter contacts with VK4TZL in Harvey Bay and ZL3TY in Greymouth, New Zealand using FSK441. Using JT44 I have regular tropo scatter contacts with four or five VK3s each morning.

FSK441 exploits the fact the signal reflected from the relatively frequent under-dense meteor trails (typically around one per minute) can peak a few dB above the noise for a fraction of a second. To take advantage of these weak and short signals WSJT sends a repeated message at around 8000 words per minute within a standard SSB passband. A meteor burst of just 100 ms is sufficient to send two calls signs and a report. The height of the meteor trails (typically 95 km) is such that distances of up to 2000 km can be achieved.

JT44 is designed for very weak and slowly varying signals such as those received via EME or tropo scatter. On tropo scatter it can achieve good results on signals that are more than 20 dB below the noise in a SSB passband. The mode has allowed modest single yagi stations to complete EME contacts and to make tropo scatter contacts of 600 to 700 km on a regular basis.

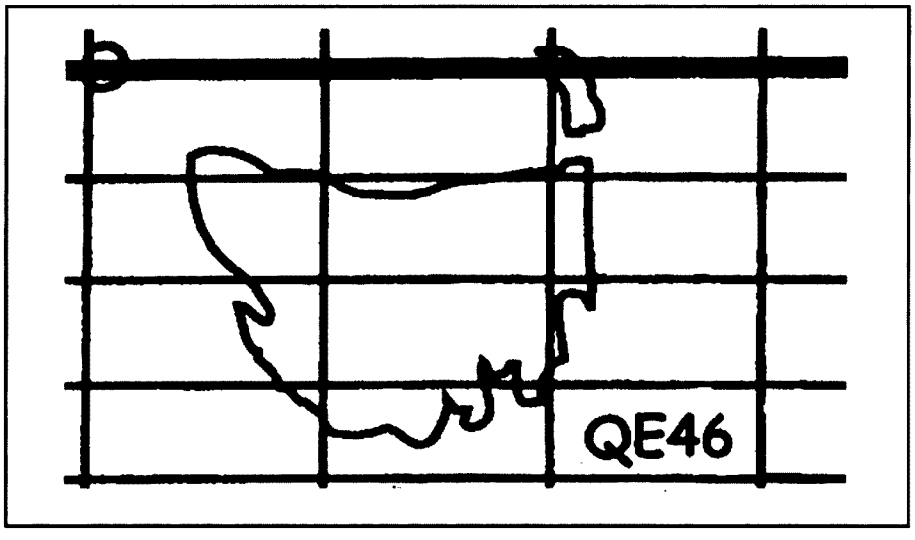


Figure 1 Location of Grid Square QE46, derived from Map by VK4KNH Page 21 AR November 1999.

QE46 Cape Hauy

I have had much fun conducting portable operations using the new modes from a number of rare grid squares in Tasmania and outback SA/NSW/QLD. All the squares accessible by road in Tasmania have been activated and thus at one of the "Wednesday" lunchtime get-togethers of the VK7 Southern Branch the discussion focused

on the more difficult squares. QE46 presents a special challenge in that it is not possible to gain access by car. As shown in the Maps, Figures 1 and 2, the land area of Tasmania just penetrates within QE46 at Cape Hauy.

I undertook a reconnaissance trip to check out Cape Hauy, reporting to the "Wednesday" group that I did not make it all the way to the grid square as the track was too rough and steep. The project was impracticable, given that all the equipment would have to be carried in. Not to be deterred Ian VK7IR, responded that he was willing to take the equipment in if others could help. Ian is a keen walker who keeps himself fit after a successful quintuple bypass 3 years ago. The next weekend Ian called for volunteers on the VK7WIA broadcast and the project gathered momentum. I decided on another reconnaissance trip and this time made it to a point where my GPS indicated that I was just within the square. At this point there was a good take-off to VK1/2/3/4 and 5 as well as ZL and a reasonable spot to pitch a tent.

Planning, discussion and testing proceeded at the "Wednesday" lunchtime get-togethers. This involved setting up and operating the complete station and then establishing that we had enough people prepared to carry it all. A successful trial of the backpack station was undertaken from the lawns outside the WIA Southern Branch clubroom with contacts to Guy VK2KU and Mike VK2FLR. Eric L70150 a short wave listener volunteered to overnight on the DXpedition with me. All was now ready for the DXpedition on the first weekend of March 2003.

Equipment

The plan was to take 2 metre and 70 cm and home brew antennas were constructed that could be easily dismantled and assembled. A centre-fed driven element with my own half wave sleeve balun was employed as this has proved a robust arrangement for portable operations. All elements were colour coded for easy erection in the field. For previous portable operations I had used a lead-acid battery to provide a stable 12 volt supply and charged this from a genset. A lead acid battery was out of the question due to weight and also the risk of spilling acid. The solution was to use the genset to directly power a lightweight switch mode power supply.

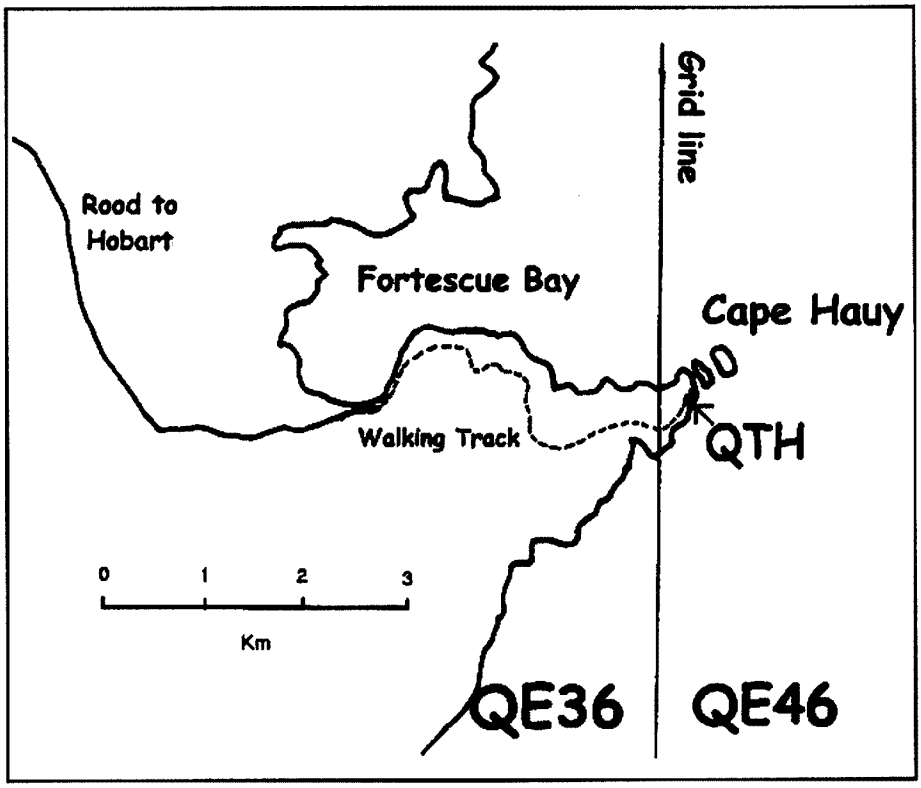


Figure 2 Location of QTH and walking track

In turn this presented a problem in that the genset was a Honda EU 10i with a solid state inverter and the switch mode had a specified in-rush current of 40 amps at 240 volts AC. Even though this is for only a few milli-seconds I was cautious about exposing the inverter to what was in effect a short circuit at 240 volts. A surge protector was developed to slowly charge the switch mode and delay connection of the load. Based on experience of portable operations a reverse polarity protector was also included. Tests were conducted on fuel usage that came out at 300 ml per hour, enough for 16 hours operation from a 5 litre plastic jerry can. To meet the requirements of weight and simplicity a linear was out of the question so an IC-910 H with a nominal 100 watt output on two metre and 75 watt on 70 cm was used. In practice the IC-910 H is very sensitive to SWR and under voltage and the best we achieved was 60 watt output. A Dell laptop running WSJT and home brew interface completed the radio equipment. Of course we needed to overnight to be ready for the meteor peak in the early morning and thus we needed a tent, sleeping bags, food and water, because there was no water on the route. All in all some 60 kg to be carried in.

The DXpedition

The first concern was when I picked up Eric early on Saturday morning. He had just heard the forecast for the evening: "A bushwalkers' alert with 20 to 30 knot winds, rain with snow on the mountains". However, with so many people organised we decided to make a final decision to proceed on assessing the weather at Fortescue Bay, the departure point to walk to Cape Hauy.

We were farewelled from Fortescue Bay by a King Penguin. When we got to the site I had previously selected my GPS said we were in QE46 but VK7IR's GPS said we were not. It turned out that the difference was due to us using different datums. (Datums are a mathematical model of the Earth used by map-makers to take account of the fact that the Earth is not an exact sphere and these have been refined over time resulting in a change of up to 200 metre in positions in Eastern Australia around 1990) After a quick phone call to manager of the grid square list (Guy VK2KU) to check on the correct datum we decided to walk on to make sure. The next problem was to find a suitable spot to camp with a good take-off to the North and to ZL. We kept walking until all GPSs showed we were well inside the

square. However, the only spot we could camp was on the track and there was insufficient room to put the tent up properly. The Honda EU 10i genset was set up around 30 metre down the track where it produced minimal RF noise unless we beamed at it. It was interesting to have perhaps 50 bushwalkers climb around our tent and antennas with Eric giving them a thumbnail explanation of grid squares and meteor scatter.

Once we were set up we completed contacts to Trevor VK7TS in my home grid square on SSB and JT44 on 2 m and 70 cm, so at least I had the square.

We were a few minutes late in turning the beam North for the VK3 JT44 time slot but as soon as we did I was surprised to see a good -17 dB signal from Ron VK3AFW. We completed with Ron and then with Charlie, VK3FMD on JT44 and continued to call CQ until around 8.00 pm and then when nothing further was heard we worked some more locals and went to bed.

The wind started to build up and heavy rain fell. Around midnight Eric woke me to say we have a leak. Once we found a torch the "leak" proved to be half an inch of water over half of the floor area of the tent. I picked up the switch mode power supply and water dripped from it. The way we had set up the tent combined with the strong winds had funnelled water through the tent door. Eric modified the tent to improve things and then set about using a cotton scarf to mop up the water and squeeze it into a saucepan. By about 2.00 am the tent was clear of water and with partially wet sleeping bags we settled again. Eric asked me if the generator would work in the heavy rain. I said I thought the generator would be OK but I was concerned about having 240 volt to a wet switch mode power supply in a wet tent. A little after 5.00 am I woke and rang Bob ZL3TY to cancel the ZL sked. Eric asked if I thought the recovery team would come out in this heavy rain!

After this we did further work on drying things out and it seemed that no water had gone inside the switch mode. A little before 6.00 am we started the genset and to our relief nothing produced smoke or funny smells and RF was going up the stick. We then had a good session on FSK441 working a number of mainland stations, as far as Coffs Harbour, and after 10.00 am another local session on FM. The recovery team arrived a little after midday. With heavy packs we struggled back and then drove home.

Results

The following is a list of notable contacts completed in addition to 40 VK7s we worked on SSB or FM. First report is sent and second received, JT44 reports are in dB below the noise.

The two metre tropo scatter contacts with VK3AFW and VK3FMD were especially pleasing as the distances were over 600 km. There was no tropo lift (Hepburn's tropo index showed black), the path was over the mountains in the center of Tasmania and we were using just 60 watt to a short (2.7 metre) boom length yagi.

VK7TS	SSB & JT44 both two metre and 70 cm 59+ both ways					
VK3AFW	JT44	2 m	-17	-23	tropo scatter	642 km
VK3FMD	JT44	2 m	-21	-19	tropo scatter	637 km
VK2KU	FSK441	2 m	27	26	meteor scatter	1068 km
VK2AWD	FSK441	2 m	26	26	meteor scatter	1086 km
VK2 FZ	FSK441	2 m	26	26	meteor scatter	1067 km
VK1WJ	FSK441	2 m	16	38	meteor scatter	1067 km
VK2JKK	FSK441	2 m	38	26	meteor scatter	1486 km
VK2EI	FSK441	2 m	28	26	meteor scatter	1371 km
VK2FLR	FSK441	2 m	37	16	meteor scatter	1067 km
VK3AXH	FSK441	2 m	16	26	meteor scatter	711 km

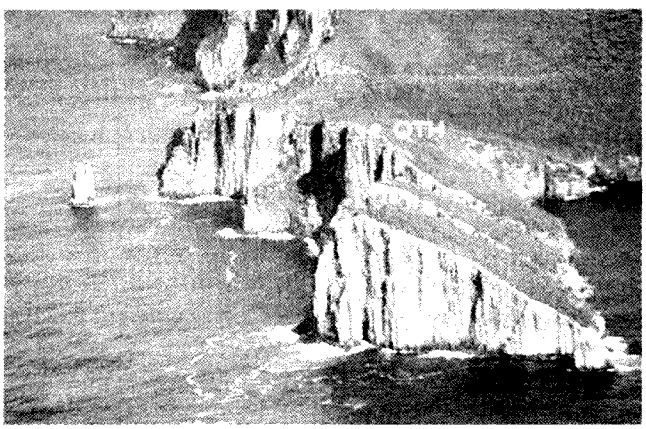


Figure 3 View of Cape Hauy showing location of QTH

Figure 4 Ian VK7IR receiving the farewell

Figure 5 QTH with 2 metre beam

Acknowledgements

Thanks to Eric L70150, particularly for solving the water problem, the deployment team of Ian VK7IR, Ian VK7IF, Mike VK7MJ, plus wives and friends; the recovery team – Brian VK7HSB, Roger VK7HRN, Gavin VK7HGO plus wives and friends; the liaison team – Dave VK7DM and Bob VK7KRW, also Trevor VK7TS who operated my home station and all of the stations who worked us, or tried.

Robin L. Harwood VK7RH

Farewell Radio Norway

I recently received news that Radio Norway International will cease broadcasting on shortwave as from the 31st of next month. For many years the two transmitting sites at Sveio and Kvitsoy have also been broadcasting Radio Denmark International. The first half-hour would be Radio Norway and the second half-hour would be made available to the Danes. Recently VT Merlin took over management of these senders and acquired other clients to utilise the senders and this will be continuing despite the Norwegian decision. These have been used by Burmese and Tibetan exile groups and for a short time by an Afghan group. The BBC World Service has also been heard via these Norwegian Senders. It turned out that a Norwegian domestic network relays London overnight to dawn Although the broadcaster in Oslo may have left, the senders will be continuing relaying Denmark and other clients.

NZ back online

Radio New Zealand International has been off-air since the end of August when the station near Taupo was hit by lightning. It has taken some time to get the necessary spares parts for the damaged sender. As I reported last month, RNZI had to hire airtime from Radio Australia at Shepparton between 1700 and 2115 on 9580. They are still not operating at deadline time but they do expect to be back online in mid-October. Here is their proposed schedule from the 26th of October to the last Sunday in March. Note they are planning to operate for the full 24 hours

1650-1750, 6095, NE Pacific, Daily
1751-1850, 11980, NE Pacific, Daily
1851-2239, 15265, Pacific/Europe, Daily
2240-0359, 17675, Pacific/West Coast USA, Daily
0400-0705, 15340, Pacific/Europe/Mid West USA, Daily
0706-1105, 11675, Pacific/Mid West USA, Daily
1106-1259, 15530, NW Pacific/East Timor/SE Asia, Daily
1300-1649, 6095, Pacific, Daily from 1.9.03

Radio Netherlands in Hilversum also made some hard budgetary decisions with the result that English broadcasts were scaled back to be an hour. This means that English broadcasts to this region are now as follows:-

English Schedule 26 Oct 2003 - 28 March 2004 (all times UTC)

To North America

1200-1300 on 5965 kHz
1900-2100 (Sat/Sun) on 15315, 17725 and 17875 kHz
0000-0100 on 9845 kHz
0100-0200 on 6165 kHz
0400-0500 on 6165 and 9590 kHz

To Africa

1800-1900 on 6020, 9895 and 11655 kHz
1900-2100 on 7120, 9895, 11655 and 18710 kHz

To Europe

2200-2300 on 1512 kHz
To Asia, Far East & Pacific
1000-1100 on 7260, 9785, 12065 and 13820 kHz

To South Asia

1400-1500 on 12070, 12080 and 15595 kHz

In addition, several regular programs were axed or incorporated into existing programs.

Radio Sweden also seems to have modified their broadcasts to Australia and NZ. The only English release audible in this region will be

1330-1400 AS/NAM 9430 17505 18960
1430-1500 ME/AF/AS/NAM 17505 18960
2030-2100 EU/AS 1179 6065 9400(9415)
2230-2300 EU 1179 6065.

Broadcasts in Swedish to this region will be heard on 18960 in our late evening hours.

Well that is all for this month. Until next time the very best of listening and 73

ar

QE46 Cape Hauy VHF DXpedition

Continued from previous page

Conclusion

The DXpedition met its primary objective in demonstrating that a small backpacked station can be used to make contacts of 1400 km and more on two metre to activate rare grid squares. However, something unforeseen by me at the time was that the exercise also engendered a great team spirit in the VK7 Southern Branch WIA members who are now asking when they can contribute to the next grid square project.

ar

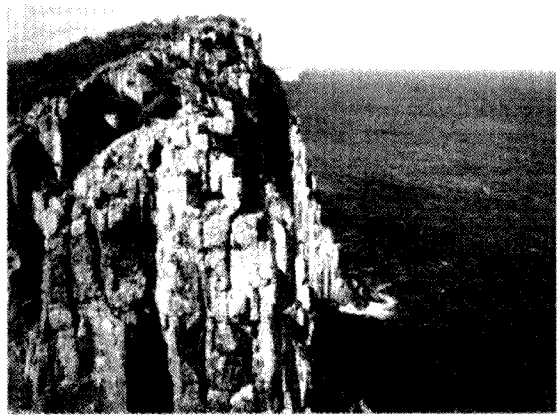


Figure 6 View from the QTH

Technical Abstracts

6146 replacements

An item concerning the various types of the generic 6146 used in many transceivers was brought to my attention. The item originally appeared in QST May 2002 and then in Break In in the Technical Forum Column of John Walker ZL3IB.

The 6146 which is used in most transceivers is the 6146B which is an improved version of the original generic 6146. The 6146B offered a plate dissipation of 35 watt which is considerably higher than the original 6146's 25 watt plate dissipation. The 6146B also offered other improvements including an improved heater design as well as the higher plate dissipation. It was designed for SSB service and hence it found its way into many transceiver designs.

The 6146W is a ruggedised version of the 6146 and also has a 25 watt plate dissipation.

The 6146A was a first generation design improvement but still had a 25 watt plate dissipation.

The 6146B was a significantly improved design which was made for SSB service and offered an improved heater design together with a plate dissipation of 35 watts.

If you are considering replacements for a transceiver final amplifier make sure you get the appropriate version of the 6146. If you have to replace a 6146B then use an exact replacement or be prepared to modify the operating conditions to suit the 25 watt rating of one of the other 6146 types.

Compact fluorescent lamps

Compact fluorescent lamps have become popular as a substitute for the incandescent bulb used for much household lighting. They are publicised extensively and their purchase price has reduced considerably. Sometimes they are even promoted by subsidised purchase schemes and even given away to promote their use and save energy used for lighting.

However, there have been some problems with their use, which can have an effect on users of the radio spectrum. The older style fluorescent tubes had some problems for radio users on occasions when they generated noise. The newer compact fluorescent lamp operates at a much higher frequency provided by an inverter circuit in the base of the lamp. This allows small and light components to be used in place of the older heavy ballasts. The inverter works in the range of 30 to 50 kHz.

In the *EMC* column of David Lauder G0SNO in *RadCom* for February 2003 there is a report of interference caused by compact fluorescent lamps on 144 MHz, and in the 160 MHz region to business two way radios. The interference was noticed by Dave M5ABH who works in the service and installation of two-way radios in Nottingham. The company Dave works for had customers experiencing interference and worked with the authorities, the UK equivalent of our ACA, to find the cause.

The interference was traced to compact fluorescent lamps, which had been given out by a local authority to people on benefits to help them with their electricity usage and bills. Unfortunately the lamps given out proved to be faulty, producing broadband RF interference between 140 and 200 MHz. The lamps met the relevant UK standard, which only required testing for RF emissions below 30 MHz.

Investigations and negotiations were reported to be continuing between the various authorities and users, and the manufacturers of the compact fluorescent lamps.

The case was reported in the press and other reports of interference from other compact fluorescent lamps were reported. These included RF interference to 49 MHz baby monitors and interference to remote controls.

The interference to remote controls is usually not an RF interference issue but is an optical compatibility issue. The modulated light from the lamp at the inverter frequency can interfere with the infrared light sensor used to receive the infrared light output from the remote control. The inverter operates in the 30 kHz to 50 kHz region, which apparently is within the frequency range for the modulated infrared beam emitted by the remote control. This can interfere with the operation of the remote control system.

Division News

VK1 News

Forward Bias

Peter Kloppenburg VK1CPK

Today's modern amateur radio transceivers don't often break down, but their compact construction makes it very difficult for most of us to attempt to do repairs to them. But most Radio Amateurs are capable of doing radio repairs because they either have had the experience or they have the theoretical knowledge and know-how. This is probably one of the reasons that many take up an interest in restoring antique radios. This interest is well catered for by the 'Historical Radio Society of Australia' (HRSA), which organises exhibits of antique and restored radios, as well as sales and auctions. An all-day market and get-together of Friends, Forums and Frenetic Fun, organised by the HRSA, was held at the Australian National University (ANU) Concert Hall, Balmain Crescent, Acton, ACT on Sunday, 14 September. The hall comprised 25 stalls, almost each of which offered antique broadcast radios, phonos, parts, and literature. In addition, there were Workshops, and a film "AWA at war", on "Working in Bakelite, Reproducers & Soundboxes, and Aussie Military radio". Many of the visitors wore membership tags of the HRSA, and some of them confided to the ACT-WIA membership drive stall, that they were licensed Radio Amateurs looking for a bargain. The WIA presence there was part of the membership drive that started in early September and will run until the AGM in February 2004. Two of the visitors (Lyle Carpenter, VK2ZCC and Charles Muller, VK1ZCM) signed up as members of the WIA on the day.

On Monday, 22 September, the subject of discussion at the General Meeting of the ACT Division was 'How to respond to the ACA Discussion Paper'. The President, Alan Hawes, VK1WX, led the discussion and also reported on the Extra-Ordinary Meeting of the Federal WIA that was held at the WIA-NSW Division in Parramatta on Saturday, 20 September, where the subject of discussion had been the same. The final outcome on both occasions was that almost everyone agreed that the Foundation Licence as operating in the UK should be adopted as an entry licence to Amateur Radio in Australia, with only minor modifications to the band plan i.e. no operations on 2210 - 2177 metres (0.1357 - 0.1378 MHz) and 4.286 - 4.255 Metres (70 - 70.5 MHz). There was some agreement that if the ACA goes ahead with the absorption of the Novice licensees into the body of the AOCP licensees, an intermediate licence may be needed to provide a realistic bridge between Foundation and AOCP licences.

Another important meeting occurred on Wednesday, 24 September, when radio amateurs from the ACT met with Mark Loney, Manager RF Planning Group ACA, at its offices, to discuss the implications of some of the proposals put in the ACA's 'Discussion Paper'. The meeting was held at an informal level and provided a clearer understanding of the reasoning behind the various proposals. During the discussion, many questions of concern to radio amateurs were answered. Hot topics were the 'No interference Policy'; Class or Apparatus Licensing; Discontinuation of the Morse code requirement; the outsourcing of amateur examinations, certificates and callsigns; and Broadband Powerline Communications. The last general meeting for 2003 will be held on Monday, 25 November at Scout Hall, Longerenong St. Farrer, at 8.00 pm. Nibbles and Drinks will be provided. Cheers.

VK2 News

Tim Mills VK2ZTM

Hello there. Sorry about the lack of October news. This internet transfer system is not as reliable as its devotees appear to believe. (*Sorry, my fault. Editor)*

Australia Post has changed the Box Number for the Division's postal address at Harris Park. A 9 has been added to the start of the sequence. Please address all future mail to P. O. Box 9432, Harris Park NSW 2150. These changes have been made to the directory details in the back of AR. Would Members also note that the 1800 Freecall number to the Division only operates within NSW with a slight overlap interstate where the zone boundary crosses a State border.

Recently, the packet group AAPRA held their AGM at which they decided to close the group down. Falling membership and interest and the difficulties of filling committee positions helped them come to this outcome.

We hope that you were able to attend one of the ACA review meetings or were able to submit your comments in writing. The VK2 Council, following the Sydney meetings and the input gained from Members formulated their response as the Divisional submission.

Most of the Affiliated Clubs finally submitted their updated details to the office. Most should have received their renewal notices from the Insurance Broker and have paid up by the due date. The end of this month is the next Conference of Clubs. It will be held at Amateur Radio House – Parramatta - on Saturday morning, the 29th November. By now your clubs should have submitted any agenda items or other matters for the conference.

The final exam being conducted at the Parramatta office for this year will be on Sunday the 23rd November. The closing date for applications is Tuesday the 11th November. The first exam at Parramatta for 2004 will be in February. Other dates for Parramatta based activities are the Experimental Construction nights on the first Tuesday of the month – being 4th

November and 2nd December. There is a Trash and Treasure on Sunday the 30th November. It is followed by the bi-monthly Home Brew gathering. The last Radio Veterans meeting for 2003 will be on Thursday the 20th November. On Saturday afternoon the 29 th November there will be the Division's Xmas party. Non members attending activities at Parramatta are now being asked to pay a $5 cover charge.

With the Christmas season approaching there is often the problem of what to put on your request list. You can always drop a hint about the VK2 Bookshop – details of which you can find from the Web pages. Interstate WIA Members may obtain a member discount from the Bookshop. Some Divisions have made an edited copy of their membership list available, others have not. If you are from interstate and the VK2 office does not have your details on file you may have to make prior arrangements for the discount. There is not the margin in the sales to seek details from your Division on your membership status.

WICEN NSW Inc is providing safety communications again to the Hawkesbury Canoe Classic over the weekend 8th and 9th November. Contact with VK2 WICEN may be made by telephone 0408 397 217. By Email – operations@nsw.wicen.org.au – Web – nsw.wicen.org.au – These facilities are provided courtesy the Physics Department of Macquarie University.

A brief run down on one of the Affiliated Radio Clubs. The Hornsby and District Amateur Radio Club operates on the Upper North Shore of Sydney. They meet twice a month with an informal gathering on the 2nd Tuesday and a business meeting on the 4th Tuesday. The meeting location is the Mt. Colah Community Centre, Pierre Close, Mt. Colah. It is opposite the local railway station. Contacts are Neil Imrie on 02 9477 2061. Classes are conducted twice a year and details from Tony Lamacchia on 02 9487 3383. A net is held on Monday night at 8 pm under the Club callsign – VK2MA – using their linked repeaters VK2RNS on 147.250 and VK2RAT on 439.975 MHz. They also operate packet repeaters and have involvement with other local activities like VK2WAH. If you would like a mention of your Club or group in the VK2 notes pass the details to the VK2 office for my attention.

There is more interest than we thought in the operation of the slow morse facility – particularly on 3699 kHz. Besides learning the art, it is used as a band opening indicator in VK5. We still like to hear of those using this and the beacon systems. It helps justify the power bill [and the green house gases]. While on the subject of beacons – and I know the following gets the ire of users – what real difference is there between operating beacons with vertical or horizontal antennas? Once correcting is made at the receiving end for the polarization, is there a problem? It would be much easier with the VK2RSY installation at Dural to install vertical antennas. We still have the problem that the present 6, 2 and 70 systems have their antennas temporarily placed at roof level, this move resulting from the previous low tower (at 12 metres) getting rust in its legs. Much of the RF is now lost in the local trees. The antennas are currently crossed horizontal dipoles, a single bay for 6 and 2 bays for 2 and 70. There are plans for these to be relocated to one of the wooden poles to give them elevation above ground and the local trees [20 metres] but it will be an expensive exercise, both in co-ax and mounting. A multiband vertical could be a more economic answer. If you have an opinion – either way – please write or Email the Dural Technical Committee via the Divisional office.

Until next month or when next the notes fight their way through the Internet system

73 Tim VK2ZTM.

VK3 Notes

Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

We now wait for the big review outcome

The ACA review of amateur regulations has now entered the stage where the submissions and ten public meetings are analysed, collated and reported.

Congratulations to WIA Victoria members who have responded to the ACA's call for input. It was good to see them among the 160 who attended the ACA public meeting on Wednesday 8 October, at St Kilda.

For a variety of reasons a number of members just could not attend. I was pleased to receive numerous "apologies" from those who wanted it known they supported the actions being taken by WIA Victoria, but were unable to be at the public meeting.

A report on the meeting was posted on the WIA Victoria website and issued via email.

The closing date for submissions has passed. Now we wait for the ACA to act, including the promise it has made to make an announcement about the end of Morse code proficiency tests for amateur licences.

There is a lot of work to be done over the next 12 months before we see the results of the ACA review actually implemented, and providing long term benefit to amateur radio in Australia.

Special event station

In commemoration of the 200th anniversary of Victoria's first European settlement, WIA Victoria mounted a special event station VI3BVS at Sullivan Bay, Sorrento on the Mornington Peninsula.

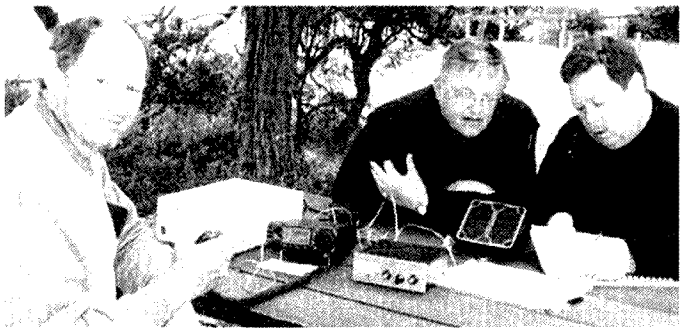
Lieutenant Governor David Collins first landed in Sorrento 200 years ago, and established a camp of 460 people.

The special event station VI3BVS was a day-time only operation on Sunday 12 October, at the exact spot where the first settlers arrived.

Operators were Ron Cook VK3AFW, Jim Linton VK3PC, and Barry Robinson VK3JBR.

The set-up was an ICOM 706 MKIIIG into a multi-band vertical running about 80 watt powered by a petrol generator.

During the operation a modest 100 contacts were made including Finland, France and Japan, Mexico, New Zealand and the United States. It was strange that despite the bands being open it was hard going to make contacts.



Ron Cook VK3AFW on the mike of VI3BVS set up on a picnic bench with Barry Robinson VK3JBR and Jim Linton VK3PC writing up the log.

Among the VK contacts were those who had heard about the special event on a Sunday WIA broadcast just a short time before they searched the band looking for VI3BVS. We are indebted to the WIA broadcast officers for their help.

Some of the passing public who had arrived for other Bicentenary Victoria Settlement activities on the day stopped at VI3BVS to ask a few questions, and were surprised to learn that amateur radio was announcing the historic occasion to the world.

Appreciation is expressed to the Mornington Peninsula Shire for its permission to set up in the Tideways foreshore picnic area, Bracher PR and Marketing that facilitated our needs, and the staff at the ACA that handled the request for the special event callsign.

A commemorative QSL card will be available. QSL via VK3WI or through the bureau.

Retirements

Bill Rice VK3ABP has retired from the WIA Publications Committee after many years of service including a record stint as the Editor of AR magazine. Bill had also previously served on the WIA Federal Executive.

David Wardlaw VK3ADW has also retired as IARU Vice President following a long and devoted service to amateur radio's international body. He has played a key role in the IARU's preparation and involvement with the World Radiocommunications Conference 2003. He had been attending WRCs since 1979.

Both Bill and David are WIA Life members. The WIA Victoria Council recognises their enormous contributions and wishes them both well in their retirements.

New Murray River border repeater

The Midland Amateur Radio Club (MARC) has put a new two-metre repeater VK3RCA on air at Torrumbarry on the New South Wales and Victoria border near Echuca.

Its transmit frequency is 146.675 MHz. Tests indicate it can be accessed mobile for a distance about 40 km.

Given that it only has an antenna height of approximately 60 metre it is quite reasonable.

The VK3RCA repeater has a separate transmit and receive antennas, Phillip's 828 transceiver, voice identification and a three minute time out.

The MARC felt the need for the repeater to fill in a gap between the Shepparton and Swan Hill repeaters along the Murray Valley Highway.

It may also provide radio amateurs in the Deniliquin area a link to the south.

VK7 News

Justin Giles-Clark VK7TW

Divisional News

VK7 ACA Consultation meeting

About 30 amateurs from around the State attended the ACA consultation session in Hobart on Tuesday the 7th October. The session started at 7:30pm and concluded at 10:25pm.

General feeling from the meeting was positive. It was obvious from the comments that the ACA is wishing to extract itself from administering the amateur licence side of their business. Mark Loney, the ACA representative mentioned a number of times during the meeting that it was up to the amateur service to determine their future and this was our chance to shape it.

The class/apparatus licence type and the "no interference" policy were the two issues that attracted the most discussion and concern.

VK7 Divisional Broadcast Replay

The weekly VK7 Divisional Broadcast can now be heard repeated on Monday nights along with a QNews rebroadcast on most of the 2 metre repeaters around Tasmania at 1930 (local Tasmanian time). This rebroadcast is courtesy of Tony, VK7AX and Danny, VK7HDM.

Branch Meetings

North

The Northern Branch's October meeting was a special presentation and talk by Leon Senior from Strong Australia and was in conjunction with Western Video P/L. The evening was also sponsored by Sterling Heights Vineyard and Sanitarium Australia. Leon presented a range of Strong digital terrestrial receiving equipment and also the range of satellite equipment including the very famous Strong satellite receiver with digital PVR (personal video recording).

The talk incorporated information about the Di SEQc that will evolve with the new OPTUS C1 satellite. The talk included technical information on the frequency changes and info on the new D series satellites that are planned for the near future. There was a display of Digital TV and set-top boxes that was fed via satellite.

A great night and a look at what the new digital and satellite TV technology is all about.

North West

The North West Branch's October meeting discussed the ACA's proposals for the restructuring of the amateur regulations. The participants were very constructive in their comments. In addition some time was spent on consideration of what we considered a very big threat to our hobby - the proposed expanded use of broadband

power-line technology by our utility companies and its effect on the HF and VHF bands.

Tony, VK7AX has been at it again! As of Monday 29 September there is a voicemail facility on the VK7AX IRLP Node 6700. To the best of our knowledge this is the first IRLP Node in Australia to employ the Voicemail facility. This system is experimental and was developed by Ted, KE6YJC. Commands are entered using DTMF. For more information on how to use the facility have a look at:
www.vk7ax.tassie.net.au/VM_Commands.htm

South

Spring Radio Field Day - A Success

Father's day the 7th of September saw the Spring Radio Field day held at the QTH of Ken (VK7DY) and XYL Wendy at Orielton. It was a huge success with 50+ amateurs, partners and children attending.

The day was started by John, VK7JK reading the news from VK7DY's shack that was recorded on video for ATV. John is a sprightly octogenarian and is an active amateur and regular reader of the VK7 Divisional Broadcast.

After the broadcast call backs there was show and tell of equipment and catching up with old friends and new friends. Rex VK7MO displayed his equipment for meteor scatter and demonstrated a number of meteor pings to the interested group of on-lookers.

Ken set-up two 2.4 metre satellite dishes facing each other about 60 metre apart and sent and received audio information. There was also wireless LAN and networking demonstrations which included the interesting 802.11b WLAN waveguide antennas.

The highlight of the day was the meat cutting and sausage making demonstration by our resident butcher, Ken VK7DY, who demonstrated preparing some beef and boning chickens. Ken showed how to make Kievs and crumbing, also chicken steaks. The sausage making competition winners were, for the breakfast sausage, VK7ZBX's XYL Allison and for the pork sausage was Brian, VK7KBE.

Shane from Hobart Port Corporation telling the Southern Branch members about what goes on in the port of Hobart including the various communication types used.

Thanks to Ken and Wendy for opening their property up for the field day it was a great success.

Southern Branch October Meeting

The Southern Branch's October meeting was a visit to the Hobart Port Control Tower on the Hobart waterfront. Our host was Shane from the Hobart Port Corporation.

The tower was built in 1987 and is 47 metres high (about 5 storeys). Shane outlined the diverse range of functions that Hobart Ports are involved in. They look after the Ports around Hobart (Sullivan's Cove), major ports in the D'Entrecasteaux Channel, Port Arthur, Spring Bay, Triabunna, Port Davey, Pasminco and Selfs Point.

They control the Tasman Bridge whenever a large ship needs to sail under it. Hobart Ports also provide pilotage/tug facilities, security services and stevedoring around the state and in Port Pirie, South Australia. There are four tugs, three operational pilots and a harbour master.

From a communications perspective most contact with ships is done through marine VHF frequencies and ships are contacted up to 8 hours prior to them entering the Port, about Schouten Island for you yachties. Channels 12 & 16 are utilised as well as the 81/82 repeater frequencies that are located on Guy Fawkes hill.

The control tower also takes over Coast Radio Hobart between 7pm and 7am each day and monitors the Marine HF emergency frequencies for the Tasmanian Small Marine Radio Group. Hobart Ports also maintain a number of automatic weather reporting buoys in the Derwent River.

It was a fascinating look into how a shipping Port operates and the diverse range of activities that Hobart Ports Corporation are involved in. Thanks to Shane for answering all our questions.

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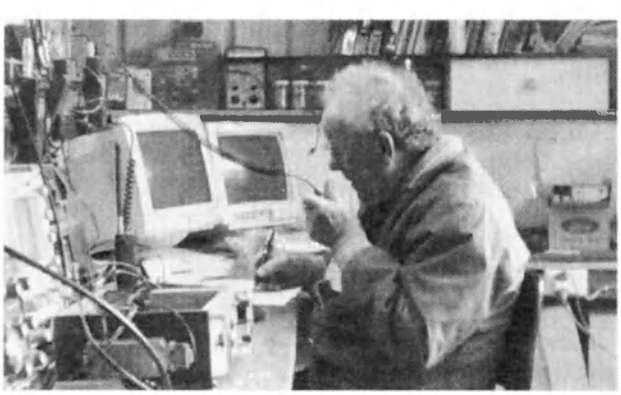
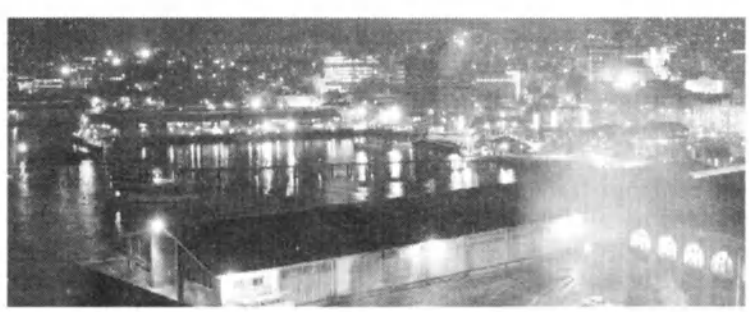


John, VK7JK reading the VK7 Divisional Broadcast from the Spring Radio Field Day at Orielton.



The great view of Hobart's CBD at night from the five story control tower.

ALARA

Christine Taylor VK5CTY
vk5cty@vk5cty or geencee@picknowl.com.au

JOTA

Did you run a JOTA station (for Scouts or Guides of any age)? Please let me know. I want to be able to tell people about you and what you do. Did you have lots of contacts? Were conditions good? Please tell me

One station I hope you heard and contacted is VK5KR. This station is run for and by the Black Forest Scouts from their campsite at Yundi. It has been operating every year in JOTA for over 30 years, most of the time under the supervision of Rufus VK5YO and Brian VK5PBL and the Scout Leader, Dirk.

During those years there have been a number of scouts and guides who have taken up amateur callsigns because they were introduced to radio through JOTA. Can you match this? Tell me about it, then, so I can tell everyone

The 222 Nets

Propagation is improving all the time during our afternoons so there are more and more European and North American stations coming through. If you have never joined the 14.222 MHz DXYL net on a Monday afternoon (0530Zulu) do try it now.

The sunspot cycle has given a lot of improvement in the conditions this year compared with a couple of years ago. Let us enjoy them.

The Net is run, most weeks by June VK4SJ or Dave ZL1AMN. Regular callsigns heard include Gwen VK3DYL, Maria VK5BMT, Dot VK5DB, Shirley VK5JSH, Alma ZL1WA, Bev ZL1OS, Lyn ZL2LL, Elizabeth VE7YL, Christa DG1TE, Sigrid DL3LG, and sometimes Walli DJ6US, Girdl SM6WXL or Linda M0CMK.

Also, remember that we should be listening for the Christmas Island and Cocos Keeling Island stations when Gwen, June and Elizabeth are there. Hope you made contact or will do so. Don't forget the QSL cards either. Let us keep Gwen busy.

You never know where you will encounter radio stories

Lloyd VK5BR was on a Probus Club outing with his XYL when, in casual conversation, he discovered that two of the other ladies had been telegraphists during the War. What is more they had been operating from a station he serviced, in VK5.

The station was underground, at Gawler, in the Barossa Valley. It was built into the bank of the Gawler River where it was very well camouflaged. (Lloyd has tried to find the precise spot, since the War, without success). All that was visible above the ground was a rusty windmill tower and an equally rusty tin shed. Lloyd couldn't find either of them when he looked along the river bank in the area where he thought the station had been.

The two ladies met as telegraphists at that station and had kept up their friendship through the years.

Later on that bus tour the group called in to a Post Office Museum (part of the Bendigo Constitutional Museum) where there were some Morse keys available. The two operators of the museum were amazed to find that there were three people in this particular bus group proficient at Morse Code, including two ladies of advanced years.

There are some skills you never lose.

Have you had a similar experience? Tell us about it.

The luncheons

At the VK5 Luncheon in September we had a new addition. Myrna VK5YW, well known in the early days of ALARA came along to join us. Myrna has not been on the air for some years but she has kept her licence valid and has attended most of the ALARA Birthday luncheons and the ALARAMEET in Perth a few years ago.

It was lovely to have her there and we hope she will continue to come along.

Remember the VK3 lunches are now only held on the odd months. Nevertheless, please go along. These were the first ALARA lunches to be held regularly so it would be sad to see them disappear altogether.

In VK6 the lunches are held on the third Friday, not the second one. Get in touch with Poppy VK6YF for more information.

Any time you are in a strange city, do get in touch with your ALARA State Rep, she will welcome you and may be able to help you meet some of the other ALARA members in that state. The list of State Reps is in the front of each Newsletter.

The lunch group – Christine VK5CTY, Maria VK5BMT, Mryna VK5YW and Jeanne VK5OJ

Nets

Here are a number of nets you might be interested in.

Monday
14.222MHz at 5300 Zulu as previously mentioned

Friday
0400 Zulu On 21.188 MHz run by Bev VK6DE, mostly for ZL and VK YLs

Friday
0500 Zulu on 14.148 MHz VE/VK/ZL

Wednesday/Saturdays
1115 Zulu on 7050/7090 MHz BYLARA Net

Tuesday
1700 Zulu 14.120 /14.180 MHz CLARA

Monday
1800 Zulu 28.433 MHz YLRY ROSES

Thursdays
1700 Zulu 14..242 MHz European DX/YL Net

Mondays
1400 Zulu 7070 MHz Italian YL

Sunday
No times given 3688/3710 MHz Phone or 3533/3522 MHz CW

Also, if you are in North Queensland listen out on 2 metres for the YL Net on Friday evenings. Why not find out what the local repeater frequency is wherever you are and put out a call. People are listening just about all the time, you know.

ALARA'S marvellous station donation

While the committee has not decided how best to use this we thought you might like to see some of it.
If you can tell us something about any of the keys we would be interested, especially if there is anything unusual about them.

AMSAT

Bill Magnusson VK3JT

You can 'Snoop' on AO-40's Attitude!

The time of year has again arrived when the controllers will be moving the attitude of AO-40 to chase the sun and ensure it continues to have a favourable power budget.

Stacey Mills recently announced that AO-40's attitude would be changed by about one degree per day for a month or two due to worsening sun-angles. Stacey will follow this up with regular bulletin board updates of the current attitude and progress reports during the entire process. Following this announcement, Gunther Meisse, W8GSM reminded users that those equipped with the YACER program from amsat.org could make some very interesting observations. Here's what he said. "Those interested in following the Alat & Alon of AO-40 from the shack should take note that Paul Williamson has just posted the latest version of YACER on the AMSAT.org web site. "YACER", Yet Another Camera Experiment - Revisited, is a suite of the programs that the Ground Controllers use to determine the current Alat and Alon of our spacecraft by using pictures taken with the YACE camera. While not for the faint of heart, it is truly a fun project, especially at this time of year when there is plenty of spacecraft re-orientation. The latest version, V1.05, is the same as prior versions with the exception of a bug-fix to the program ConvKeps. If you presently have YACER you can go to the AMSAT site and down load ONLY the new ConvKeps V1.5e program. Present users should probably just take the new program, not the complete suite, since the suite is an auto executable file that will re-establish the complete file structure. You will risk overwriting files that you have created earlier". Thanks Gunter and Stacey.

Setback for VUSAT

Some anomalies were found during pre-launch tests of VUSAT and it will be scheduled for a later launch.

Here is the report that appeared in an Indian newspaper early in October. The "HAMSAT" referred to is of course the satellite we will know as VUSAT. "HAMSAT which was to be a co-passenger of a remote sensing satellite onboard a PSLV later this month, will not make the trip. An official release from ISRO said here on Wednesday 8th October that the Hamsat was to be launched as an auxiliary payload using the launch capacity of PSLV. But, during the thermo-vacuum test of Hamsat, deviations in the performance of the payload were observed. After required corrections, Hamsat will be accommodated on one of the subsequent flights of PSLV".

"K" band still active on AO-40

Following several questions on the AMSAT-NA bulletin Board it has been confirmed that the "K" band operations on AO-40 are continuing as normal.

Viktor Kudelka OE1VKW has reported that he has been receiving the 24GHz beacon almost every pass since it was last turned on in August. He also reports cross band QSOs with JA and VK. "K" band is a real challenge, not only because of the engineering problems in getting 24GHz gear going in the first place but also due to many stations using mode L/S and listening only to their "S" band down link. They may not realise that their "K" band down link is sometimes too loud. This can be the case even though the "S" band down link is below the level of the beacon on that band. Viktor explains that this situation results in nearly all the available power for "K" band being used up by these stations. As if that's not bad enough - massive Doppler shift and frequency fluctuations due to temperature changes make tracking of the down link signal very difficult. "K" band is indeed a real challenge.

PCsat Enters its Third Year of Operation

Early in October a very proud Bob Bruninga declared the PCsat project a success when it entered its third year of operation.

Although PCsat was originally designed as a short-term project, Bob announced, "Today is the beginning of the 3rd year of operation. PCsat just came over the horizon and is OPS NORMAL and remains available for all users since her last recovery on 13 Sept. I see 50 users in the last 2 days". Congratulations Bob.

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an e-mail mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC.

All communication regarding AMSAT-Australia matters can be addressed to:
AMSAT-VK, 9 Homer Rd, Clarence Park, SA. 5034.
Graham's e-mail address is: vk5agr@amsat.org

AO-40 "Birthday Bash" continues

The AO-40 Birthday Bash to celebrate AO-40's 3rd birthday is still in progress and will continue until November 17. Join in the fun. Details are available on the AMSAT-NA web site or by e-mail from Bruce Paige, KK5DO, kk5do@amsat.org.

Adelaide Hills Amateur Radio Society

The September meeting was given an interesting talk by Jim VK5JST. He spoke about some of the rather special peripherals that can be used with computers. Such things as plan printers with several print heads capable of moving in two directions, often associated with a table also able to move in several directions.

With these it is possible to draw very complex diagrams. If tools are attached in place of printheads very complex patterns can be carved in wood or etched onto printed circuit boards. Alternatively, if laser cutters are used metals can be cut into intricate shapes and patterns.

Many of us have experimented with drawing programs capable of quite complex designs but few of us have been involved with turning those designs into real anything beyond a drawing on a sheet of paper.

If you are in Adelaide for the third Thursday of a month, contact Geoff VK5TY or Paul VK5PH QTHR the callbook, for information about the meetings of AHARS

Don't forget the AHARS Buy and Sell on Saturday 15th November in the Westbourne Park RSL Hall. It is the place to exchange your 'junk' for someone else's 'junk' and the place to meet everyone.

See you there.

Whyalla Amateur Radio Club

VK5HBG

I think it is about time that Readers of the A.R. heard from the Club that we are very active and still on air Wednesday nights. Our membership is on the increase and it is great to see past members returning. 12 members attended the meeting to discuss the ACA paper. Two members travelled to the A.C.A. meeting in Adelaide and reported back to the members. At the moment JOTA is the main topic for discussion.

The Club is in its 25th year, and a get together is planned for the end of this month or soon after.

Our three new members are studying for their novice, keep it up chaps not long to go.

The W.I. Sunday broadcast is enjoyed through the VK5RLH repeater and is causing interest within the Club.

I hear that some members are gathering old relics to start a museum, good luck with this project.

Silent Key

Bryan Robert Forbes VK3ASF

We are saddened to announce the death of Bryan Robert Forbes VK3ASF on the 1st January 2003 at the age of 71 years.

Bryan started working life in 1948 as an Office Clerk with the Victorian Railways. After 3 years he embarked on his life long association with radio, not only was it his hobby from a young age, but in 1951 he joined the P.M.G. (Postmaster General's Department) Broadcasting Division at "Radio Australia" rising to the level of Senior Radio Technician.

In 1965 he transferred to the National TV Station at Swan Hill, assisting with the installation of equipment and the Station start up. He remained there for 24 years, serving the last 10 years as "Officer In Charge".

Bryan returned to "Radio Australia" in 1989, until his retirement in August 1992. With 41 years completed service to the P.M.G. - TELECOM Broadcasting Division, Bryan ended his working life with radio.

In 1954 Bryan was granted a full "Amateur Radio Operators Licence" and until his death actively maintained his personal hobby with radio, having lifelong friends within Australia and contacts Worldwide.

He was also an active member of the Shepparton & District Amateur Radio Club, he thoroughly enjoyed the club's activities and field days.

He is survived by his wife Norma and brother Franklin, he will be sadly missed by his friends and all those who knew him.

Submitted by John Van Kerkwijk VK3ALF President, Shepparton & District Amateur Radio Club. (SADARC).

AMSAT continued

AO-40 Station Self-Evaluation

If you want to evaluate your latest effort at getting operational on AO-40 you can use the Excel spreadsheet prepared by Gene W3PM. It can be downloaded at: - http://www.amsat.org/amsat/ftp/software/spreadsheet/w3pm-ao40-v2.1.zip. It will give you a good idea of how the various components of an AO-40 station each affect the overall performance and where to spend your time (and money) to best effect.

More on Self-Evaluation

While we're on the subject everyone contemplating a move to AO-40 would do well to down load and study the "AO-40 FAQ", compiled by Steve, VK5ASF. It is now available at: http://www.amsat.org

Telemetry Challenge

Since the almost miraculous return of AO-07 many operators have found it interesting and informative to study the telemetry being broadcast on its beacon. Tim, K3TZ has written a program to decode AO-07 telemetry and it can be downloaded at:

http://www.qsl.net/k3tz/files/K3TZ_AO07_Telemetry_Decoder_0.5.zip

ar

Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 31 – *Internet trading*

Few Radio Amateurs actually build their own equipment these days. However, those that don't still need a ready access to components for small projects, like making up leads, building PSK interfaces, power supplies or kit building for fun. Some refurbish vintage WWII equipment, fiddle with QRP ideas, or build experimental antennas. The diversity is intriguing and forms the life-blood of our chosen hobby. The financial market is ever changing, and so are the radio and electronic vendors who have kept RAs supplied with 'bits and pieces' from local shops. Today, most regular dealers are out of stock, changing to trading in mobile phones and computers. So, where do we go to find ceramic coil formers, twin-gang air-spaced tuning capacitors (ATU project), double-ended 0.01uF, 350-volt polyester capacitors for a vintage receiver, or 6146's for that trusty old Kenwood TS830S? The only way to find those 'difficult' parts and components these days is via Internet Trading.

The Good Old Days!

Post WWII parts were plentiful and available everywhere for a few pence. In the 60's prices were higher but still affordable - everyone built something of significance from the myriad of first class articles in the national magazines of the day. The 70's saw the explosive commercial AR market from the Japanese, and from then onwards the parts suppliers slowly diminished with the onslaught of 'grey and black box' manufacturers. Since the 80's, and the computer 'revolution', and the 90's mobile phone addicts, parts suppliers have targeted the easy pathways to make money. Gone are the "good old days" when bits were plentiful. This trend has partly contributed to the diminishing multitude of AR licensees' worldwide.

Trading via the Internet

The modern AR operator can still find both regular and obscure items from around the world via the Internet. Various tries using a search engine looking with keywords like 'tubes'. Sites will pop up with details about plastic and steel pipes for water distribution! Further tries for 'Amateur Radio' + 'tubes' + 'valves' + 'vendors' will narrow the search to worldwide vendors that can be individually searched at leisure. A good example being when the writer was looking for replacement tubes (valves) for a WWII vintage receiver. Australian suppliers were not an option, but many Internet sites in the UK and the USA offered a huge range of new and secondhand tubes (valves) at very affordable prices. Buying these on-line took just a few minutes, and they were delivered, by airmail, within one week into Australia.

Trusting the Internet!

Much hype about Internet Security exists these days, and there's enough to put the wind up most users. Nasty people who grab your passwords, user names, email addresses, and bank account numbers do exist in droves. However, if readers have been following this series, you should be safe enough provided that secure sites are chosen. You can check this by looking at the padlock on the lower right hand side of Microsoft Explorer. If it's open then the site is not secure. If closed then the operators have built-in security and encryption to defend against those 'nasty people'.

Online banking

Today, many Internet users have changed to operating their bank accounts via the Internet. It's cheaper, faster, and immediate.

Money can be paid to vendors online, money transferred between accounts, and bills paid in seconds. Shire rates, electricity, gas, telephone and ISP accounts are all good examples. To do all this by standing in a queue at a branch bank is now unthinkable in today's world. Cheques have become obsolete. But what about doing all this with overseas electronic parts traders?

Plastic cards

For international Internet trading, the most common money exchange is done with a VISA card. Avoid credit and use a savings account that way you'll not have monthly paybacks with the huge interest rates bogging you down. Ordering items online becomes a breeze. Many online traders ask for your credit card number and expiry date. You have to decide if the Internet site is secure before revealing your credit card details. Many readers will not be comfortable with this. Traders ask you to fill in a customer online order form with your name and postal address plus the plastic card details. Not so good if you feel that the transaction might be compromised, or that the trader has not been proved reliable. The final decision has to be yours alone. However, many of the larger traders now use secure agents to conduct transactions for you.

PayPal transactions

Say you are buying a kit project from the USA. The vendor places an order form on the Internet asking for your personal details like name and address and the details of the product - its price in US Dollars and delivery etc. After completing the form and 'clicking' the agree button, another page appears from PayPal (2) confirming your order and asking for your method of payment. Selecting VISA and entering the card number and expiree date PayPal checks the number and confirms that the transaction is valid. PayPal sends you an email message detailing the transaction in your favour and the job is done. PayPal is an international online transaction company with secure encrypted communication between you

and the vendor. PayPal adds a few percent for processing the transaction but the process is well worth while. To see the terms and conditions for using PayPal try looking at ww.paypal.com (2).

The issue here being that the vendor has nominated PayPal as their preferred method of payment. You don't have the choice - the vendor has. You choose how to pay the bill with PayPal who reimburses the vendor in the appropriate currency. Ordering from Australia, via the Internet, from a vendor in the USA is easy because Pay Pal does the currency conversion for you from your VISA card. There are other online companies that do much the same thing. The writer has used this secure method into the USA and it's delightful. The transaction is confirmed with 60 seconds and the vendor confirms your order by email. To see an example of this in action, try: www.smallwonderlabs.com and go through the motions of ordering a kit.

Snail-mail transactions

For readers that feel jittery about online trading, all the research online can still be completed. The order is placed by snail mail giving confidentiality about your card details. The problem still remains on the method of payment. Buying a bank cheque costs around $25:00 Australian which is not an option for small orders - AND using a personal cheque needs the usual 10 days to clear - AND they are no good for overseas transactions anyway. It gets worse if your project is urgent!

One good method is to find a trader (using email) who is prepared to accept your VISA details by post, and register you as a 'preferred customer'.

In this example, the vendor has recorded all your personal details. Any email order is then processed automatically without any online transaction being made. Many companies use this system and it works in favour of Radio Amateurs because their details are readily available online anyway (QRZ.com) and can be verified. To check this idea try: www.americanmorse.com

Registered customers

This is ideal because the vendor knows your details, and your orders are guaranteed to arrive in good order and are insured. Ideal for specialised items.

Other methods commonly used in the UK and USA are via a friendly and helpful RA in those countries. If you have a friend in the USA, and you've done the online research about the product and vendor, ask your friend to order and pay for the product - AND for the product to be posted to you. It's great for small or hard-to-find items, and you can pay your friend in US Dollars via your VISA card directly into his bank account without any bank fees at all. It works nicely when vendors don't have VISA facilities or they are not happy when customers live overseas. This is the "old boy" method but you do need someone (preferably another Radio Amateur) that understands your dilemma, and is prepared to give you a helping hand.

News groups and bulletin boards

These are excellent for finding out critical information such as who, where and how much the products are. But, NEVER reveal any personal details online because many others are reading your bulletins. Keep your bank account and card details secret as best you can. If in any doubt - leave it out and trust nobody unless they trust you first.

On the positive side

Millions of online transactions are conducted on the Internet every day, and things are getting better. Key vendors are now advertising their products and services online through web sites so all the essential information can be readily obtained. Those that don't are missing out. Australia is still well behind in the online race for attracting business - especially when it comes to Amateur Radio products. However, on the positive side, the Internet offers almost everything yet the magazines have diminishing advertising to reduce operating costs. Remember that the Internet offers a world wide shop window whereas the circulation readership in the monthly magazine drastically limits magazine advertising to only the circulation readership.

Items on the Internet

Readers will have to seek out their own special needs. But unusual things like:

- Merlin parts for a WWII Spitfire.
- Spare coils for an HRO Receiver.
- Replacement mudguards for a 1934 Austin 7 Ruby.
- Plugs for a vintage 19 set.
- B2-MkII Transceiver parts.
- Vintage Morse keys and Sounders.
- Spare mains transformer for a Yeasu FT2100Z linear.
- Labgear LG50 for sale.
- Radio gear for reconstructing a WWII Lancaster Bomber.
- Meter for a Heathkit HW100.
- Magic Eye for an R1155 receiver.
- Knobs for an AR88 or...
- FT241 and FT243 crystals

The list is exhaustive, but all these parts can be found at a sensible price thanks to the power of the Internet. Options like B-Pay work in Australia but useless for international trading

Summary

Are you prepared to buy products via the Internet? There is a minor risk if precautions are ignored. VISA is the best option but do some homework first and only use trusted suppliers. Homebrew becomes a possibility when readers have access to the Internet.

Ham Tip No. 31 Open new bank or credit societies account activated from your VISA card. Transfer enough money into the new savings account to cover the cost of the online purchases including postage plus about 10% margin for exchange rate variations. If the new account is compromised, then your primary account is protected.

Ham Shack Computers - Part 32 next month - discusses "Power Back-UPS" for Radio Amateurs. These offer protection from mains surges and "brownouts" and automatically shuts down the computer to avoid data loss.

(1) Ham Shack Computers Web:
www2.tpg.com.au/users/vk6pg
(2) PayPal at:
www.paypal.com

73 de Alan, VK6PG/G3PHG

ar

Beyond our shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

Mainly Morse and BPL

This month all the web sites of overseas Amateur Radio clubs and societies seem to be concentrated on the two major topics: the removal of the Code from the licencing requirements and BPL. For some countries with good government controls, the removal of Code has not been a problem, however others, like here at home, there have been delays. The BPL problem is perhaps the most important and both in the U.S.A. and Europe, as well as here in Australia, it is very much in the spot light.

There has been a lot of publicity in the U.S.A. on the wonderful work Radio Amateurs have done during the September hurricanes when they were able to maintain communications for hospitals and other key facilities. Work well done. I've been following the various QSOs the International Space Station has each week with schools around the world. Some of the questions asked of the Astronauts are quite fascinating. Again all this is done through the capabilities of Amateur Radio.

QSO skeds

Ever wondered how you were ever going to increase your DXCC? Providing you have internet, it may not be as hard as it first appears. Just log on www.hamhq.org and complete the registration. You can then arrange a sked with someone in the area you are seeking. All you have to do is advise when you will be active on-air, frequency, etc. Skeds can be made for CW, SSB and digital modes.

Power line problems

Having read the ACA Discussion paper and their proposal to place the onus squarely on the Radio Amateur to resolve any EMC the Radio Amateur may have inadvertently caused, it was interesting to read in the ARRL Sept. 12 Newsletter of the efforts the FCC are taking to clean up Power Line interference. The FCC appear to be quick to use their government authority to send "please explain" letters to power companies that are lax in cleaning any interference their power lines are causing. I do hope our ACA take notice and act in the same way, as they are our government body responsible for our spectrum. Let's keep it clean.

Licence enforcement

The October 26 News Letter from the ARRL paid a tribute to Riley Hollingsworth who has spent the past 5 years as Special Counsel for Enforcement with the FCC. In the 5 years over 1,000 Amateur Radio cases have crossed his desk. Some have been prosecuted.

He feels the biggest problem we have now stems from conduct-type problems, such as deliberate interference. He says. "Amateurs have got to stick together and co-operate and stay away from in-fighting because we (*the Radio Amateur*) are faced with some very serious external threats. (*Such as BPL*). We have incredible frequencies, power and modes to operate with.". Riley has spent 30 years with the FCC and has been licensed since the age of 13.

(ARRL N/L)

Happy Birthday

Reputed "oldest ham in the US" turns 103: The man believed to be the oldest Amateur Radio operator in the US—Byrl "Tex" Burdick, W5BQU, of El Paso—turned 103 on September 25. First licensed in the fall of 1930, Burdick is on the air every day—most recently on 15 meters (look for him on or about 21.314 MHz), and he enjoys ragchewing. Happy Birthday, Tex!

(ARRL N/L)

Can you help with UN research project?

Kirsten Odegard N9WAC, is working on a United Nations research project on the impact of Information and Communications Technology, or ICT, volunteers on the information society. She is looking particularly at how ICT volunteers work towards the fulfilment of the UN's Millennium Development Goals.

The definition of 'ICT' includes amateur radio and Kirsten writes, "There has yet to be any enquiry into the volunteer work of hams that might be relevant to the UN's Millennium Development Goals. I therefore would like to extend to you the opportunity to assist me in finding ham operators who have served in such capacities and establish contact with them. If you know of hams whose work is relevant to the UN's Millennium Development Goals, please send me their names and contact details as soon as possible. I will then be able to send them a short questionnaire that would aid this effort and eventually aid the efforts of the *World Summit on the Information Society.*" If you can help with Kirsten's research project, please contact her by e-mail to n9wac@arrl.net **ar**

Contest Calendar November 2003 - January 2004

Nov	1/2	Spring VHF+ Field Day	(CW/SSB/FM)	(Oct 03)
Nov	3	High Speed Club Contests	(CW)	
Nov	2/3	Ukrainian Contest	(CW/SSWB/RTTY)	
Nov	9/10	OK/OM DX Contest	(CW)	
Nov	16/17	LZ DX COntest	(CW)	
Nov	29/30	CO WW DX Contest	(CW)	
Nov	29/30	CO WW SWL Challenge	(CW)	
Dec	5/7	ARRL 160 Metres Contest	(CW)	
Dec	6/7	MDXA PSK31 DeathMatch	(PSK31)	
Dec	6/7	TARA RTTY Sprint		
Dec	13/14	ARRL 10 Metres Contest	(CW/SSB)	
Dec	20	OK DX RTTY Contest		
Dec	20/21	International Naval Activity	(CW/SSB)	
Dec	26	Ross Hull Memorial VHF Contest	(CW/SSB/FM)	(Nov 03)
(to 11 January, 2004)				
Dec	27/28	Original QRP Contest	(CW)	
Dec	27/28	Stew Perry 160 Metres Distance Challenge	(CW)	
Jan	3/4	ARRL RTTY Roundup		
Jan	10/11	VHF+ Summer Field Day	(CW/SSB/FM)	
Jan	11	End Ross Hull Memorial VHF Contest		
Jan	10/11	Hunting LIONS on the Air	(SSB)	
Jan	17	070 Club PSKFest		
Jan	17/18	Hungarian DX Contest	(CW/SSB)	
Jan	17	LZ Open Contest	(CW)	
Jan	24/25	CO 160 Metres Contest	(CW)	
Jan	24/25	REF Contest	(CW)	

Special Note

Some of you may be using loggers that do not have a Cabrillo conversion module built in. If so, you may be interested to know that John VK5EMI has written a simple conversion program to do this job — a must-have if you are interested in entering DX contests. Please contact John at QTHR.

Results Pacific 160 Metres Contest 2003

This year saw some good conditions, participation and scores. I certainly thank all who took part, especially under the blanket of confusion caused by a change in the rules.

Suggestions were made that changes would enhance the contest, but I have to admit that I did not consider the ramifications of such changes at the time. For this I apologize most sincerely, but again say thanks for persevering.

Basically I decided to sort the logs as though there were two contests, a full 16 hours and the revised 3 hours, as shown by the times in the logs. The results below reflect this grouping.

73, Ian Godsil VK3JS
Email: vk3js@vkham.com

Three Hours Single Operator CW

1. ZL1/W3SE	Wes	295 points
2. VK8AV	Alan	72
3. VK5XE	Ian	36

Three Hours Single Operator SSB

1. ZL2CC	Mike	287 points

Three Hours Single Operator Mixed Modes

1. ZL2RX	Roger	1008 points
2. ZL3NB	Bill	432
3. ZL2AJB	C. Hodge	270
4. ZL4IQ	Don	190

Three Hours Multi-Operator Mixed Modes

1. ZL4AA	(ZL4KX, ZL4KS, ZL3TLU)	742 points
2. VK4RV/ VK4CY	Adrian/ Jon	86

Full Single Operator CW

1. VK3ZL	Bob	2880 points
2. ZL1JG	Ron	1079
3. ZL2BR	Frank	1030
4. VK3ET	John	310
5. W7LR	Bob	80
6. K6SE	Earl	5

Full Single Operator SSB

1. VK3IO	Ron	650 points
2. VK3KTO	Mike	160
3. VK5EMI	John	20

Full Single Operator Mixed Modes

1. VK5MX	Mervyn	408 points

Full Multi-Operator SSB

1. VK3BF/ VK3CKD	Alan Victor	441 points

Full Multi-Operator Mixed Modes

1. VK5NJ/ VK3JTM	John Tim	573 points
2. VK3APC (VK3 OR, YE, TSM, JED, KBD)		272

Check Logs ZL2DW VK3JS Ihank you.

Statistics	CW	SSB	MIXED	CHECK	TOTAL
	9	5	7	2	23

Comment: CW has not been looked on favourably by VKs for some years, but it is interesting to note the increased number of logs in both the CW and Mixed Modes sections of the above contest. This trend is very much in line with what is happening overseas and I suggest is likely to continue!

Results Oceania DX Contest 2002

Congratulations to all the winners in the 2002 Oceania DX Contest. Activity has again increased in 2002 compared to 2001; however there was a decrease in SSB logs of some 3 % and an increase in CW logs by 22%. Whilst the conditions seemed to be poorer than the previous year, as may well be expected as we head down the declining slope of cycle 23, scores were quite high with some strong activity and competition from Europe.

The complete results for the contest are contained in the attached tables. For the first time we have included the top ten score for each continent and also a top ten box for non-Oceania participants. A summary of the best scores for each Mode, Band and Continent is detailed below.

The rural station of VK4EMM took out the phone contest with a sterling effort. Plenty of skill as well as dedication is required to rack up a score like John's. As well as the top scores we were graced with a little more activity from other than the usual VKs and ZLs with activity from 4W, 3D2, YB, DU, 9M6, KH2 and others.

As might be expected most of the Non-Oceania top scores were from Asia. With propagation declining the North/South path is likely to yield the best overall conditions. Congratulations to PA3EPN a keen contester, present in many of the big ones, who managed to achieve a top score from Europe on the very tough 40m band.

2002 SSB Continent Leaders

Contest Category	ASIA	EUROPE	NORTH AMERICA	OCEANIA	SOUTH AMERICA	NON-OCEANIA
SWL	UA0-107-181	UA3-155-75				UA0-107-181
Single-Op All	JH4UYB	ER4DX	K3ZO	VK4EMM	PY2NA	JH4UYB
Single-Op 80m	JG1IGX			ZL2AMA		JG1IGX
Single-Op 40m		PA3EPN	K3TW	VK1MJ		PA3EPN
Single-Op 20m	JA7DOT	DL7CX		VK2APK	LU9JX	JA7DOT
Single-Op 15m	JR9NVB	UA3DEE		VK8DK	L44DX	JR9NVB
Single-Op 10m	JA6EFT	UA6ADC	NA2X	VK4NEF		JA6EFT
Multi-One	RW9C	RW2F		VK8DA	R1ANC	RW9C
Multi-Multi				ZL6QH		

2002 CW Continent Leaders

Contest Category	ASIA	EUROPE	NORTH AMERICA	OCEANIA	SOUTH AMERICA	NON-OCEANIA
SWL	UA0-107-181	YZ1KVA-SWL				
Single-Op All	UA0LCZ	UT7QF	N6RO	KH6ND	LU1EWL	N6RO
Single-Op 80m				VK3TZ		
Single-Op 40m	JA3HBF	OK2BVG	K3TW			JA3HBF
Single-Op 20m	JA7DOT	SP5CJQ	W7KPL	VK2APK		SP5CJQ
Single-Op 15m	JA1BBA	DJ5GG	K9ALP	VK2KM	PY7OJ	JA1BBA
Single-Op 10m	JA1PS	UA6ADC	W1END	VK4TT		JA1PS
Multi-One	RW9C	UT7L				UT7L
Multi-Multi				ZL6QH	R1ANC	R1ANC

KH6ND took out the top CW score this year, just edging out John, VK4EMM who nearly took out the double! Only the points awarded for band contacts really separated the two fine CW ops, with John having more mults and more QSOs but less points. The competition in the CW contest was hot! With around 287 logs submitted, and over half from Europe, CW is certainly alive and well.

In the CW section again, the Non-Oceania scores were mainly by Asian stations with the JAs well in front on 10 and 15m. Special mention to Dick, N6RO another one of those die-hard contesters who managed to top out the rest with the top all-band Non-Oceania score. A tough ask with not too many beams pointed his way.

Awards and Plaque winners

The Awards for the 2002 contest are unchanged and the worthy recipients are listed in the following table. John, VK4EMM takes out both the SSB and CW trophies with some very high scores. It would however be remiss not to mention that the top CW score from Oceania was by KH6ND, and the crew at ZL6QH once again produced some amazing results as the only Multi-Multi from Oceania. Is there a gang out there in VK who are willing to give those Kiwis a "spot of competition"?

2002 Trophy and plaque winners

Award	Description	Recipient
ZL2TT Trophy	Top entrant from Oceania in Single Operator All Band Phone category - in memory of Ron Wills ZL2TT, sponsored by ZL2GI, ZL2ZL, Wellington Amateur Radio Club and NZART	VK4EMM
VK5/VK8 SOAB Phone Plaque	Top entrant from VK5 or VK8 Call areas in Single Operator All Band Phone category, sponsored by WIA South Australian Division	VK5GN
VK7 SOAB Phone Plaque	Top entrant from VK7 Call area in Single Operator All Band Phone category, sponsored by WIA Tasmania Division	Not Awarded
VK2QL Trophy	Top entrant from Australia in Single Operator All Band CW category - In memory of Frank Hine VK2QL, sponsored by WIA Federal.	VK4EMM
VK5/VK8 SOAB CW Plaque	Top entrant from VK5 or VK8 Call areas in Single Operator All Band CW category, sponsored by WIA South Australian Division	VK5GN
N6RO Plaque	Top entrant from North America in Single Operator All Band Phone category, sponsored by N6RO	K3ZO
ASIA SOAB Phone Plaque	Top entrant from Asia in Single Operator All Band Phone category, sponsored by the Eastern and Mountain Districts Radio Club, VK3.	JH4UYB
ASIA SOAB CW Plaque	Top entrant from Asia in Single Operator All Band CW category, sponsored by the Eastern and Mountain Districts Radio Club, VK3.	UA0LCZ

Participation

The committee is pleased, albeit a little surprised to see that the CW contest has moved ahead in participation rate more than the SSB contest. The number of log entries in the SSB Contest has declined a few percent, but the CW contest shows a growth of 22%, with the overall participation for the combined contests up 9.3%. Hopefully the decline in the Sunspot activity will not deter compet-itors from submitting entries in 2003.

SSB results

Single Operator

OCEANIA

Australia

Call	Band	Power	Score	QSOs	Points	Mults
VK4EMM	all	high	2,813,776	1461	3626	776
VK5GN	all	high	2,551,020	1599	3111	820
VK2FHN	all	high	985,566	990	1779	554
VK2CZ	all	high	711,018	666	1701	418
VK4UC	all	high	471,472	583	1264	373
VK4DX	all	low	419,482	677	1162	361
VK8DK	15M	low	393,790	743	1486	265
VK3TZ	all	high	267,220	431	862	310
VK6NU	all	low	263,937	408	907	291
VK4NEF	10M	low	205,590	385	1155	178
VK2XT	15M	high	198,268	511	1022	194
VK2APK	20M	high	101,680	410	410	248
VK2VZQ	15M	low	96,570	333	666	145
VK4ADC	20M	high	93,252	409	409	228
VK4BAY	all	high	84,108	221	516	163
VK3VP	all	low	67,932	164	999	68
VK3BGH	all	low	54,932	188	443	124
VK2AYD	20M	low	41,912	248	248	169
VK5KCX	all	high	8,370	68	155	54
VK1MJ	40M	high	5,950	35	175	34
VKK3PRA	15M	high	5,166	63	126	41
VK4FJ	all	low	3,780	45	90	42

East Timor

4W6MM	all	high	2,407,860	1607	3510	686

Guam

NH2PW	20M	high	418	22	22	19

Indonesia

YB2OBL	15M	low	158,240	368	736	215
YC7SKM	15M	high	116,424	308	616	189
YC4FIJ	15M	high	20,470	115	230	89
YB2MTA	15M	low	9,052	73	146	62
YC2ECG	15M	high	3,500	50	100	35

New Zealand

ZL1TM	all	low	1,233,674	1042	2063	598
ZL1ALZ	all	high	351,880	683	926	380
ZL3GA	all	low	117,586	326	518	227
ZL4AS	all	high	103,246	290	494	209
ZL1ANH	all	low	58,032	246	372	156
ZL1BYZ	all	high	38,041	152	349	109
ZL2CD	all	high	21,894	125	267	82
ZL2LF	all	high	20,394	159	198	103
ZL1IM	all	high	7,239	70	127	57
ZL3DW	all	high	1,728	40	48	36
ZL2AMA	80M	high	1,680	24	240	7

Philippines

4D70SAN	20M	low	1,218	42	42	29

ASIA

Asiatic Russia

UA0LCZ	all	high	5,371	70	131	41
RN9HM	all	high	2,916	54	108	27
UA0FBS	all	high	2,700	50	100	27
UA9LP	all	high	2,697	49	93	29
RA9AU	all	low	1,220	29	61	20
UA9HR	all	high	480	19	40	12
UA0IV	all	low	468	29	36	13
RZ9ZR	all	high	320	13	32	10
UA9LGL	15M	low	128	8	16	8
RZ9IB	all	low	84	7	14	6
RA9ST	15M	high	60	6	12	5
RA0CL	20M	high	36	6	6	6
UA9XF	all	low	32	4	8	4
UA9QFF	10M	low	3	1	3	1

Hong Kong

VR2BG	all	high	1,040	26	65	16

India

VU3DJQ	20M	low	35	7	7	5

Japan

JH4UYB	all	high	44,772	208	533	84
JK1OLT	all	high	34,602	175	438	79
JA3AOP	all	high	12,420	96	230	54
JH1KLN	all	high	5,400	70	135	40
JA7ODY	all	high	5,282	63	139	38
JA1BBA	all	low	5,092	66	134	38
JM1XCW	all	high	4,896	70	144	34
JM1GHT	all	low	3,380	49	130	26
JA0VHI	all	high	2,688	37	112	24
JA2GHP	all	low	2,304	40	96	24
JJ3OOZ	all	high	2,112	43	88	24
JR9NVB	15M	high	2,024	44	88	23
JA1HFY	all	high	1,872	38	78	24
JE1PJR	all	high	1,480	30	74	20
JA1GYO	all	low	1,386	37	66	21
JA6QDU	all	high	1,292	30	76	17
JA1IZ	all	high	1,254	32	66	19
JA1KK	all	high	1,240	31	62	20
JG2REJ	all	high	846	22	47	18
JA4JJI	15M	high	840	28	56	15
JA1AAT	all	high	795	21	53	15
JA4BAA	all	high	792	23	44	18
JL7AIA	all	high	768	20	48	16
JJ2PUG	15M	high	700	25	50	14
JA7DOT	20M	high	688	43	43	16
JA4AQR	all	high	666	26	37	18
JA6EFT	10M	high	627	19	57	11
JR7LVK	15M	high	600	20	40	15
JR1MRG	all	high	533	18	41	13
7K2PBB	10M	high	324	12	36	9
7N2UQC	10M	low	315	15	45	7
JF3EBO	all	high	264	15	24	11
JA9SCB	15M	high	240	12	24	10
JA1XPU	15M	low	234	13	26	9
JR2TRC	10M	high	231	11	33	7
JQ2EAN	15M	high	216	12	24	9
JM2RUV	15M	high	216	12	24	9
JQ1AHZ/2	15M	high	192	12	24	8
JM7EPG	20M	high	190	19	19	10
JL3RDC	all	low	182	10	26	7
JG1IGX	80M	high	160	4	40	4
JG1GCO	all	high	133	8	19	7
JE2SOY	10M	high	90	6	18	5
JR3KAH	15M	high	72	6	12	6
JK1BII	15M	low	60	6	12	5
JH5OXF	15M	high	32	4	8	4
JG4OHX	20M	high	24	6	6	4
JA2MVW	10M	high	24	4	12	2

Kazakhstan

UN5PR	all	high	3,696	57	112	33
UN9GC	all	high	784	25	49	16
UN9LN	15M	high	270	15	30	9

Kyrgyzia

EX2T	all	high	260	15	26	10

Mongolia

JT1CO	all	high	70	6	14	5

Singapore

9V1UV	all	high	5,662	65	149	38

EUROPE

Austria

OE1TKW	20M	high	20	5	5	4

Belarus

EW6AF	all	high	640	27	40	16
EW2AA	all	high	319	16	29	11
EW6DX	20M	low	112	14	14	8

Belgium

ON4CAS	all	high	392	19	28	14
ON4XG	all	high	230	16	23	10

Bulgaria

LZ1UO	all	high	1,197	39	57	21
LZ1LZ	all	high	240	16	24	10
LZ4UU	20M	high	66	11	11	6
LZ1DM	20M	high	6	3	3	2

Czech Republic

OK1DVK	20M	high	66	11	11	6
OK2EQ	all	high	60	8	10	6

England

G3VAO	all	low	1,392	40	56	24
G3JKY	20M	high	9	3	3	3

Estonia

ES1QD	all	high	1,408	42	64	22

European Italy

IZ4DJZ	all	low	702	27	39	18
I2WIJ	20M	low	112	14	14	8
IK5WGK	20M	high	24	6	6	4

European Russia

RW1ZA	all	high	5,680	78	142	40
RX6LG	all	high	2,436	49	84	29
RK3SWB	all	high	2,080	44	80	26
RA6AFB	all	high	1,496	26	68	22
RX3AAJ	all	high	1,386	40	63	22
RN3DN	all	low	1,063	39	57	19
RN1AO	all	high	690	28	46	15
UA3DEE	15M	high	468	18	36	13
UA4LCH	20M	high	378	27	27	14
UA6HON	all	low	300	19	25	12
RZ3DH	all	high	154	12	22	7
RZ3BY	all	high	104	9	13	8
UA6ADC	10M	low	72	6	18	4
UA1WBV	all	low	28	5	7	4
RX3AEX	all	low	9	3	3	3
UA4AVN	20M	high	4	2	2	2

Fed. Rep. of Germany

DM5JBN	all	low	714	23	42	17
DL7CX	20M	high	456	38	38	12
DL1TC	all	high	288	19	24	12
DL1DQY	20M	high	126	14	14	9
DH5WB	15M	low	60	6	12	5
DL3ZAI	all	high	18	5	6	3

Finland

OH6IU	all	high	969	35	51	19
OH2MO	15M	high	408	17	34	12
OH2HMB	20M	low	1	1	1	1

Hungary

HG8W	15M	high	64	8	16	4

Lithuania

LY1DR	all	high	2,494	58	86	29
LY2OX	all	high	1,872	45	72	26

Moldova

ER4DX	all	high	14,960	119	272	55
ER1QQ	all	high	3,906	80	126	31

Netherlands

PA3EPN	40M	high	1,260	28	140	9
PA0MIR	15M	low	220	11	22	10
PA0VST	all	low	28	4	7	4

Norway

LA1VKA	15M	high	176	11	22	8
LA6PIA	all	high	144	13	18	8

Poland

SP6IHE	all	low	2,550	47	85	30
SP6IEQ	all	low	774	30	43	18
SP6LUV	all	low	570	20	38	15
SP6DVP	all	high	546	26	39	14
SP9TCC	all	low	480	23	32	15
SP9ADV	all	low	96	8	16	6
SP3DIG	20M	high	88	11	11	8
SP4AAZ	20M	high	10	5	5	2
SP1MVG	40M	high	5	1	5	1

Romania

YO5OEF	all	high	448	21	32	14
YO3FLQ	20M	high	32	8	8	4
YO6AJI	20M	high	15	5	5	3

Slovakia

OM4JD	all	high	960	35	48	20
OM4DN	15M	low	60	6	12	5
OM7YC	15M	low	32	4	8	4

Spain

EA3FHP	20M	high	28	7	7	4

Sweden

7S2E	all	high	4,681	84	151	31
SM5CSS	all	high	1,850	45	74	25
SM3TLG	15M	high	280	14	28	10
SM7AIL	15M	high	216	12	24	9
SM6FUD	15M	high	70	7	14	5

Ukraine

UR6QA	all	high	10,396	117	226	46
UR3IFD	all	high	7,098	96	169	42
UW5U	20M	low	72	12	12	6
UX0IB	15M	high	64	8	16	4
UU2JA	15M	low	2	1	2	1

Call	Band	Power	Score	QSOs	Points	Mults
Yugoslavia						
YU1RE	all	high	1,725	42	69	25
YU7LS	15M	high	280	14	28	10
YU7KM	20M	high	42	7	7	6
NORTH AMERICA						
Canada						
VE7AVV	all	low	612	21	51	12
VE1ZJ	all	high	470	14	47	10
VE3DZ	all	low	16	3	8	2
United States						
K3ZO	all	high	5,346	76	162	33
W6RLL	all	high	2,075	35	83	25
KU1CW	all	high	1,596	35	76	21
K4JRB	all	high	1,584	39	66	24
NY4T	all	low	1,155	31	55	21
NA2X	10M	high	96	8	24	4
K3TW	40M	high	75	5	25	3
WA5SWN	10M	high	12	4	12	1

Call	Band	Power	Score	QSOs	Points	Mults
SOUTH AMERICA						
Argentina						
L44DX	15M	low	320	16	32	10
LU9JX	20M	high	126	14	14	9
Brazil						
PY2NA	all	low	35	6	7	5
Multi-operator, One Transmitter						
VK8DA	all	high	1,215,384	974	2276	534
VK2QF	all	high	324,120	509	1095	296
RW9C	all	high	10,580	86	230	46
RK0AXX	all	high	1,870	23	110	17
RW2F	all	high	986	36	58	17
RZ4AYT	all	high	180	11	20	9
R1ANC	all	high	160	16	20	8
RK3RWL	all	high	72	6	12	6
UR4PWC	all	high	12	6	6	2
Multi-operator, Multi-Transmitter						
ZL6QH	all	high	3,510,936	1687	4092	856

Call	Band	Power	Score	QSOs	Points	Mults
Short Wave Listeners						
UA0-107-181	all		N/a	5,376	70	128	42
UA3-155-75	all		N/a	938	16	67	14
JA5-3278	all		N/a	918	22	51	18
UA3-170-847	all		N/a	338	21	26	13
ONL383	all		N/a	72	6	12	6
JA2-9329	all		N/a	25	5	5	5
UU-J-1	all		N/a	8	3	4	2

Check Logs

DL2SDQ RN6FK DL1DTC SP1EOM SP6CES YO5CRQ

Multi-Op Station Operators

UR4PWC	UR4PWC
RK3RWL	RN3RC, RU3RQ
R1ANC	RW1AI, UA1PAC
RZ4AYT	UA4AVN, RA4A-356, RA4AI
RW2F	UA2FB, UA2FF
RK0AXX	CONTEST TEAM SCDXC
RW9C	RW9CF, RA9DK
VK2QF	VK2ANZ
VK8DA	VK8NSB, VK8AN, VK8DP, VK8KG, VK8XC, VK8HRE, VK8PT, VK8NAI, VK8PC, SWL = RON & PETER
ZL6OH	ZL2AMI, ZL2AOV, ZL1AXG, ZL2BBJ, ZL2CA, ZL2UDF, ZL2UO, ZL2DZ, ZL1AZE

Europe Top 10

ER4DX	all	high	14,960
UR6QA	all	high	10,396
UR3IFD	all	high	7,098
RW1ZA	all	high	5,680
7S2E	all	high	4,681
ER1OQ	all	high	3,906
SP6IHE	all	low	2,550
LY1DR	all	high	2,494
RX6LG	all	high	2,436
RK3SWB	all	high	2,080

North America Top 10

K3ZO	all	high	5,346
W6RLL	all	high	2,075
KU1CW	all	high	1,596
K4JRB	all	high	1,584
NY4T	all	low	1,155
VE7AVV	all	low	612
VE1ZJ	all	high	470
NA2X	10M	high	96
K3TW	40M	high	75
VE3DZ	all	low	16

Asia Top 10

JH4UYB	all	high	44,772
JK1OLT	all	high	34,602
JA3AOP	all	high	12,420
9V1UV	all	high	5,662
JH1KLN	all	high	5,400
UA0LCZ	all	high	5,371
JA7ODY	all	high	5,282
JA1BBA	all	low	5,092
JM1XCW	all	high	4,896
UN5PR	all	high	3,696

South America Top 10

L44DX	15M	low	320
LU9JX	20M	high	126
PY2NA	all	low	35

Africa Top 10

No Entrants

Oceania Top 10

VK4EMM	all	high	2,813,776
VK5GN	all	high	2,551,020
4W6MM	all	high	2,407,860
ZL1TM	all	low	1,233,674
VK2FHN	all	high	985,566
VK2CZ	all	high	711,018
VK4UC	all	high	471,472
VK4DX	all	low	419,482
VK8DK	15M	low	393,790
ZL1ALZ	all	high	351,880

Non-Oceania Top 10

JH4UYB	all	high	44,772
JK1OLT	all	high	34,602
ER4DX	all	high	14,960
JA3AOP	all	high	12,420
UR6QA	all	high	10,396
UR3IFD	all	high	7,098
RW1ZA	all	high	5,680
9V1UV	all	high	5,862
JH1KLN	all	high	5,400
UA0LCZ	all	high	5,371

CW results

Single Operator

OCEANIA

Australia

Call	Band	Power	Score	QSOs	Points	Mults
VK4EMM	all	high	4,205,320	1740	4571	920
VK2AYD	all	low	2,168,947	1228	2959	733
VK4DX	all	low	1,469,320	1197	2180	674
VK5GN	all	high	1,250,044	839	2372	527
VK4UC	all	low	416,480	432	1370	304
VK4TT	10M	low	413,991	513	1539	269
VK2QF	all	high	352,625	494	1085	325
VK2KM	15M	high	331,676	566	1132	293
VK2APK	20M	high	273,504	777	777	352
VK8AV	all	low	264,702	436	843	314
VK3JS	all	QRP	171,550	237	1175	146
VK4XY	all	low	159,222	291	714	223
VK2PS	all	high	79,304	236	431	184
VK3TZ	80M	high	10,800	36	360	30
East Malaysia						
9M6A	all	high	99,414	240	526	189
East Timor						
4W6MM	all	high	147,852	310	666	222
Fiji						
3D2/W7DRA	all	low	582,015	532	1687	345
Hawaii						
KH6ND	all	high	4,449,375	1735	5085	875
Indonesia						
YB0ECT	all	low	379,008	652	1008	378
YD2DQV	15M	low	15,708	102	204	77
New Zealand						
ZL1GO	all	high	2,431,968	1340	3234	752
ZL2BR	all	low	2,127,066	1212	2942	723
ZL2AZ	all	high	1,134,980	743	2345	484
ZL2CD	all	high	617,391	553	1629	379
ZL1AIH	all	high	513,279	567	1599	321
ZL2AGY	all	high	324,352	375	1267	256
ZL2LF	all	high	145,754	256	718	203
ZL3GA	all	low	9,614	69	209	46
ZL1ALZ	all	low	4,900	61	98	50
ZL3CED	all	high	3,404	45	92	37
ZL/G4EDG	20M	low	1,320	40	40	33
Philippines						
DU3NXE	all	high	221,147	423	787	281

ASIA

Asiatic Russia

UA0LCZ	all	high	11,220	78	220	51
RA9MA	all	high	6,794	67	158	43
UA9JKA	all	high	5,080	59	127	40
UA0SAD	all	low	4,000	47	125	32
UA0ANW	all	low	1,102	23	58	19
RA0AY	all	high	1,026	23	54	19
RA0CL	all	high	540	15	36	15
RW0LIA	15M	low	456	19	38	12
UA9XF	all	low	170	11	17	10
UA9FGJ	20M	low	42	7	7	6
UA0SBQ	all	high	12	2	6	2
RA9ST	20M	high	9	3	3	3
UA9QFF	15M	low	2	1	2	1
RW9QA	15M	low	2	1	2	1
India						
VU2UR	all	low	1,794	34	69	26
Japan						
JI3BFC	all	high	7,098	62	169	42
JA7ARW	all	low	2,106	39	81	26
JA3YPL	all	low	1,976	35	76	26
JA4AQR	all	high	1,968	37	82	24
JE1REU	all	low	1,869	30	89	21
JA1PS	10M	high	1,824	32	96	19
JA1HFY	all	high	1,575	28	63	25
JR1NKN	all	QRP	850	21	50	17
7J1ABD	all	high	816	19	48	17
JA3HBF	40M	low	770	14	70	11
JA1BBA	15M	low	750	25	50	15
JE2SOY	10M	low	663	17	51	13
JA4ETH	10M	low	480	16	48	10
JA2KCY	all	low	374	15	34	11
JH5OXF	all	low	360	14	30	12
7K2PBB	10M	high	297	11	33	9
JA4CES	10M	high	264	11	33	8
JA1AAT	10M	high	264	11	33	8
JG3NKP/1	10M	high	252	12	36	7
JI2KVW	all	high	216	9	24	9
JR2TRC	10M	high	180	10	30	6
JA7DOT	20M	high	168	14	14	12
JF7GDF	15M	high	126	9	18	7
JO7BBS	10M	high	84	7	21	4

Call	Band	Power	Score	QSOs	Points	Mults
JH2OMM	20M	high	72	9	9	8
JE1KDM	40M	high	60	4	20	3
JH1NXU	all	high	52	5	13	4
JN7OJA	10M	high	45	5	15	3
JQ1AHZ/2	15M	high	32	4	8	4
JO1WIZ	15M	high	32	4	8	4
JK1LUY	20M	high	20	5	5	4
JH7IMX	20M	low	9	3	3	3
JH9WHX	40M	high	5	1	5	1

Kazakhstan

UN5J	all	high	3,432	48	104	33
UN6P	all	high	2,184	31	84	28
UN9LN	all	high	217	7	31	7
UN7EX	all	high	112	10	14	8

Kyrgyzia

EX2X	15M	high	280	14	28	10
EX2A	all	high	32	4	8	4

South Korea

HL5UOG	all	high	6,280	61	157	40

EUROPE

Austria

OE3ZK	all	high	1,932	43	69	28

Belarus

EW6MM	all	high	1,944	34	72	27
EW6AF	all	high	1,232	25	56	22
EW2AA	all	high	270	13	27	10
EU1MM	15M	low	154	11	22	7

Belgium

ON4XG	all	high	1,140	32	57	20

Bosnia-Herzegovina

T95A	15M	low	60	6	12	5

Bulgaria

LZ1LZ	all	high	1,725	47	69	25
LZ1XL	10M	high	408	17	51	8
LZ2L	15M	high	180	10	20	9
LZ4UU	20M	high	150	15	15	10
LZ1IA	20M	high	135	15	15	9
LZ3DP	10M	high	126	7	21	6
LZ2UZ	all	low	48	8	8	6

Croatia

9A9AU	all	high	104	11	13	8

Czech Republic

OK2EQ	all	high	1,968	34	82	24
OK1OX	all	high	1,782	34	66	27
OK2BCJ	all	high	1,495	36	65	23
OK1DVK	all	high	1,100	31	50	22
OK2BVG	40M	high	390	13	65	6
OK1AOU	all	high	300	13	25	12
OK2BNC	all	high	216	15	24	9
OK1ANN	15M	high	98	7	14	7
OK1DSU	all	high	36	5	12	3

Denmark

OZ5DX	all	high	5,250	65	150	35
OZ7BQ	all	high	920	24	46	20

England

G3GLL	all	high	2,688	47	96	28
G3UFY	all	high	1,875	37	75	25
G5MY	all	high	180	11	20	9
G3JKY	all	high	91	9	13	7

Estonia

ES2JL	20M	high	126	14	14	9

European Russia

RN6BN	all	high	6,437	67	157	41
RA6LW	all	low	2,880	48	90	32
RN1AO	all	high	1,890	36	70	27
RA4HW	all	low	629	22	37	17
UA3DEE	15M	high	432	18	36	12
UA6ADC	10M	low	420	14	42	10
UA6HON	all	low	312	18	26	12
RZ4AG	all	low	299	15	23	13
RX3DTN	all	high	297	11	27	11
UA4QK	all	high	204	12	17	12
RA3WDK	40M	low	150	6	30	5
UA3AVR	15M	high	140	10	20	7
RA4AI	all	low	12	3	4	3
RV3DAK	20M	low	9	3	3	3
RW3VZ	20M	high	9	3	3	3
RZ4AA	all	high	6	2	3	2

Call	Band	Power	Score	QSOs	Points	Mults
UA3RF	40M	high	0	0	0	0

Fed. Rep. of Germany

DL6KVA	all	high	2,573	38	83	31
DK3KD	all	high	1,958	34	89	22
DL8QS	all	high	1,869	36	89	21
DK3GI	all	low	1,725	31	75	23
DL6YK	all	high	1,672	37	76	22
DL2TG	all	high	1,140	25	57	20
DL7AXM	all	high	780	24	39	20
DJ5GG	15M	low	494	19	38	13
DL3NSM	20M	high	338	26	26	13
DL3ZAI	all	high	198	12	18	11
DL1DQY	20M	high	130	13	13	10
DL8UAT	20M	low	56	8	8	7
DK3RA	40M	low	45	3	15	3

Finland

OH1BOI	all	high	128	9	16	8
OH2HMB	all	low	60	6	10	6

France

F6IRF	all	low	2,025	40	75	27

Hungary

HA8VK	all	high	6,825	66	175	39
HG8W	all	high	378	17	27	14

Kaliningradsk

UA2CZ	all	high	190	11	19	10

Latvia

YL2LY	all	high	5,846	63	158	37

Lithuania

LY1DR	all	high	4,320	55	120	36
LY2OX	all	high	1,344	30	64	21
LY2BNL	20M	low	25	5	5	5

Netherlands

PA0MIR	all	low	680	26	40	17
PA3BFH	all	low	629	24	37	17
PA3FDO	all	high	88	6	22	4

Northern Ireland

GI4KSH	all	high	28	4	7	4

Poland

SP5ATO	all	low	2,880	49	96	30
SP6BAA	all	high	1,134	25	54	21
SP5GH	all	high	1,026	25	54	19
SP6IHE	all	low	527	18	31	17
SP7BCA	all	high	495	21	33	15
SP9QJ	all	high	406	19	29	14
SP5CJQ	20M	high	345	23	23	15
SP9BRP	all	high	312	14	26	12
SP8BAB	20M	low	253	23	23	11
SQ4NR	all	low	144	8	18	8
SQ9FMU	15M	low	128	8	16	8
SP4AVG	15M	high	84	7	14	8
SP3AOT	20M	high	80	10	10	8
SP3BGD	20M	low	70	10	10	7
SP9EMI	all	low	24	3	8	3
SP5AKG	15M	high	18	3	6	3
SP4AAZ	20M	high	1	1	1	1
SP9ADV	20M	low	1	1	1	1

Romania

YO6BHN	all	low	2,132	36	82	26
YO8WW	all	high	54	8	9	6
YO8BGD	40M	high	20	2	10	2
YO2BEH	15M	high	18	3	6	3

Slovakia

OM0WR	all	high	4,725	46	135	35
OM8ON	all	low	2,158	33	83	26
OM4JD	all	high	2,050	42	82	25
OM4DN	all	low	1,232	28	56	22
OM7RC	all	low	663	22	39	17
OM7YC	15M	low	280	14	28	10
OM7PY	20M	QRP	36	6	6	6
OM7AT	20M	high	25	5	5	5

Slovenia

S53AU	all	low	462	21	33	14
S59ZZ	15M	high	98	7	14	7
S58MU	20M	high	63	9	9	7

Spain

EA7GSU	15M	high	330	15	30	11
EA2AHZ	all	high	286	14	22	13
EA7CA	20M	low	4	2	2	2

Call	Band	Power	Score	QSOs	Points	Mults

Sweden

7S2E	all	high	4,032	45	126	32
SM6CRM	all	high	1,323	32	63	21
8S0W	all	high	765	21	45	17
SM3TLG	15M	high	240	15	30	8
SK0TM	all	high	160	10	20	8
SM0KV	15M	high	50	5	10	5
SM5CSS	15M	low	2	1	2	1

Switzerland

HB9IK	all	high	2,160	39	80	27
HB9CZF	all	high	900	28	50	18

Ukraine

UT7QF	all	high	15,872	105	256	62
UR3IFD	all	low	4,588	58	124	37
UR8LA	all	high	3,672	48	108	34
UT2UB	all	high	2,820	40	94	30
UW5U	all	low	2,635	43	85	31
UU5JIB	all	high	1,392	32	58	24
US9QA	all	high	1,260	33	63	20
UY0ZG	all	high	1,045	26	55	19
UX1IL	all	low	520	14	40	13
UT5UIA	all	high	344	11	43	8
UX0IB	15M	high	198	11	22	9
US3QW	15M	low	50	5	10	5
UU2JA	20M	high	48	8	8	6

Yugoslavia

YU7LS	15M	high	456	19	38	12
4N1JA	all	low	336	17	28	12
YU7KM	20M	high	220	20	20	11
YT1VM	15M	high	198	11	22	9
YU1RE	40M	high	140	7	35	4

NORTH AMERICA

Canada

VE3DZ	all	low	9,024	73	192	47
VE1ZJ	all	high	7,942	57	209	38
VE4IM	all	high	6,734	57	182	37
VE7ASK	all	low	3,475	37	139	25
VA3IX	all	high	196	8	28	7

United States

N6RO	all	high	32,472	133	451	72
KU1CW	all	high	12,740	91	245	52
K3ZO	all	high	12,005	88	245	49
W6RLL	all	high	5,530	53	158	35
N6ZZ	all	high	4,726	54	139	34
K3NK	all	low	4,046	57	119	34
W3BP	all	high	3,266	38	142	23
W2OO	all	high	2,825	37	113	25
N4PSE	all	low	1,050	26	70	15
K9ALP	15M	high	432	18	36	12
W1END	10M	low	273	13	39	7
KC8LTL	10M	QRP	264	11	33	6
K0UK	all	low	230	10	23	10
W3CP	15M	high	224	14	28	8
K0COP/4	all	high	207	11	23	9
K3TW	40M	high	200	8	40	5
W7KPL	20M	high	20	5	5	4
W1HDO	20M	high	1	1	1	1

SOUTH AMERICA

Argentina

LU1EWL	all	high	3,159	51	117	27

Brazil

PY2NA	all	low	40	5	8	5
PY7OJ	15M	low	24	4	8	3
PY4FQ	all	low	20	4	5	4

Multi-operator, One Transmitter

UT7L	all	high	3,638	49	107	34
OM3KZA	all	high	2,378	43	82	29
RW9C	all	high	1,155	28	55	21
HA1CW	all	high	680	24	40	17
RK3RWL	all	high	98	7	14	7
SP9KRT	all	low	5	1	5	1

Multi-Operator, Multi-Transmitter

ZL6QH	all	high	7,106,666	2315	6223	1142
R1ANC	all	low	1,472	29	64	23

Shortwave Listener

UA0-107-181	all	N/a	9,840	79	205	48
YZ1KVA-SWL	all	N/a	1,197	31	57	21
UA3-155	all	N/a	738	26	41	18
UA1-173-1	all	N/a	624	24	39	16
UA3-155-75	all	N/a	528	19	33	16
JA5-3278	all	N/a	481	14	137	13
UA3-170-847	all	N/a	160	11	16	10
OK2-9329	all	N/a	77	8	11	7

Check Logs

DF3OL DF6LQ DL1DTC DL2HWI DL2SDQ DL7VMM K9GY LA1YE
OH7NRW OK1DEC PA0TON PA5TT PY7GK RA9AC SP2AVE SP9SOU
UA4NF ZL2ALJ

Multi-Op Station Operators

UT7L	UR4LTX, UX0LL
OM3KZA	OM3CUG, OM3TYC, OM3TPN, OM6FM
RW9C	RW9CF, RA9DK
HA1CW	HA1CW, HG5OYL
RK3RWL	RN3RC, RU3RQ
SP9KRT	SP9ADU, SP9-1753
ZL6QH	ZL2BSJ, ZL2III(DK1III), ZL1BYZ, ZL1AZE
R1ANC	RW1AI, UA1PAC

Europe Top 10

UA0LCZ	all	high	5,371
UT7QF	all	high	15,872
HA8VK	all	high	6,825
RN6BN	all	high	6,437
YL2LY	all	high	5,846
OZ5DX	all	high	5,250
OM0WR	all	high	4,725
UR3IFD	all	low	4,588
LY1DR	all	high	4,320
7S2E	all	high	4,032
UR8LA	all	high	3,672

North America Top 10

N6RO	all	high	32,472
KU1CW	all	high	12,740
K3ZO	all	high	12,005
VE3DZ	all	low	9,024
VE1ZJ	all	high	7,942
VE4IM	all	high	6,734
W6RLL	all	high	5,530
N6ZZ	all	high	4,726
K3NK	all	low	4,046
VE7ASK	all	low	3,475

Oceania Top 10

KH6ND	all	high	4,449,375
VK4EMM	all	high	4,205,320
ZL1GO	all	high	2,431,968
VK2AYD	all	low	2,168,947
ZL2BR	all	low	2,127,068
VK4DX	all	low	1,469,320
VK5GN	all	high	1,250,044
ZL2AZ	all	high	1,134,980
ZL2CD	all	high	617,391
3D2/ W7DRA	all	low	582,015

Asia Top 10

UA0LCZ	all	high	11,220
JI3BFC	all	high	7,098
RA9MA	all	high	6,794
HL5UOG	all	high	6,280
UA9JKA	all	high	5,060
UA0SAD	all	low	4,000
UN5J	all	high	3,432
UN6P	all	high	2,184
JA7ARW	all	low	2,106
JA3YPL	all	low	1,976

South America Top 10

LU1EWL	all	high	3,159
PY2NA	all	low	40
PY7OJ	15M	low	24
PY4FQ	all	low	20

Africa Top 10

No Entrants

Non-Oceania Top 10

N6RO	all	high	32,472
UT7QF	all	high	15,872
KU1CW	all	high	12,740
K3ZO	all	high	12,005
UA0LCZ	all	high	11,220
VE3DZ	all	low	9,024
VE1ZJ	all	high	7,942
JI3BFC	all	high	7,098
HA8VK	all	high	6,825
RA9MA	all	high	6,794

Results Jack Files Contest 2003

from John Spooner VK4AJS, Contest Manager.

This year saw the number of entries for the contest drop compared with the number received last year. We were all hoping that we may have witnessed an increase but it wasn't to be..maybe next year? I would encourage anyone with any ideas or comments on how to improve the contest and in doing so encourage more participants to enter would be regarded as welcome. There were several stations who took part but did not send in logs.

VK4 Single Operator Phone: VK4NCW Daniel Peter De Voss of Asply Brisbane

VK4 Club Station: Bayside Amateur Radio Club

VK2 Single Operator Phone: VK2LCD Chris Meagher

VK3 Single Operator Mixed: VK3JS Ian Godsil

So there it is for 2003. I would like to congratulate the winners and to thank all that participated and entered their logs. The listed winners' certificates will be sent as soon as possible. As I mentioned before all ideas to make this contest more popular would be welcome.

Cheers de John VK4AJS

Results CQ WW DX SSB Contest 2002 (VKs only)

Single Operator

VK5GN	All Bands	3,612,654
VK8AA	"	2,447,474
VK2FHN	"	542,015
VK2APG	"	485,888
VK5KKD	"	295,472
VK2BCQ	"	108,582
VK4TI	"	42,625
VK4WPX	"	10,332
VK1MJ	7 MHz	4,950
VK3TZ	All Bands	1,189,440
VK4DX	"	524,552
VK8AV	"	98,050
VK4FJ	"	73,170
VK4BDJ	"	51,520
VK5EMI	"	6,938
VK4EJ	28 MHz	368,534
VK5LA	21 MHz	9,802
VK2AAC	14 MHz	4,042
VK4UC	7 MHz	38,934
QRP		
VK3VP	All Bands	5,625

Multi-Operator Single Transmitter

VK5ANC	All Bands	942,952

Multi-Operator Two Transmitters

VK1JDX	All Bands	145,008

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Ross Hull Memorial VHF-UHF Contest 2003 – 2004

John Martin (VK3KWA), contest manager

The next Ross Hull Contest will be held between December 26, 2003 and January 11, 2004. The rules are unchanged from last year.

The contest is open to all amateurs, and all operating modes are permitted. Traditionally most activity has been on SSB or CW, although there has also been some FM activity. During the last year there has been quite an upsurge in the use of digital modes, and it will be interesting to see what effect this will have on contest activity this year.

But no matter what modes you prefer to use, summer is the time for DX, so give it a try and see what you can do. And please send in a log, so I can send you a nice certificate in return.

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

Duration

0000 UTC Friday December 26, 2003 to 2400 UTC Sunday January 11, 2004. In Eastern Summer Time, that is 11 a.m. on December 26 to 11 a.m. on January 12.

Sections

A. Best 7 UTC days nominated by the entrant.
B. Best 2 UTC days nominated by the entrant.

Entrants may submit logs for either or both sections. The nominated UTC days need not be consecutive. The overall winner will be the top scorer in Section A. If the overall winner has also entered Section B, his/her log will be excluded from Section B.

General rules

One callsign and one operator per station. One contact per station per band per UTC day. Repeater, satellite and crossband contacts are not permitted. No contest activity is permitted below 50.150 MHz. Recognised DX calling frequencies must not be used for contest calls, exchanges or liaison. Suggested procedure is to call on .150 on each band, and QSY up if necessary. All rulings of the contest manager will be accepted as final.

Penalties

Minor errors in distance estimates or calculations may be corrected and the score adjusted. Contacts made on recognised calling frequencies will be credited if the entrant provides an explanation of why it was not practical to use another frequency. Otherwise such contacts will be disallowed. Persistent unjustified use of calling frequencies or false log entries will lead to disqualification.

Contest exchange

RS (or RST) reports plus a serial number. Serial numbers need not be consecutive. For difficult propagation modes such as meteor scatter, exchange of a total of two digits is sufficient for a valid contact.

Scoring

For 2 metres and above, one point per 100 km or part thereof (i.e. up to 99 km: 1 point, 100 - 199 km: 2 points, etc).

For 6 metres only, contacts below 1000 km: as above. Contacts from 1000 km to 2400 km, 2 points regardless of distance. Contacts over 2400 km, 20 points regardless of distance.

The band multipliers are:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Logs

Logs must cover the full contest period and contain the following for each contact:

- Date and UTC time.
- Station location (if operating portable).
- Specific FREQUENCY (not just band) and callsign of station worked.
- Approximate location or grid locator of station worked.
- Reports and serial numbers sent and received.
- Estimated distance worked and points claimed, including the band multiplier.

Separate scoring columns for each band would be helpful.

Cover sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered, and a list of the UTC days to be scored.
- A scoring table set out as the example below.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Please use the following format for your scoring table. If you wish you can cross-check by adding the daily totals across the table, but please make sure that you include the separate band totals.

Date	6 m	2 m	70 cm	23 cm	etc
Day 1	xxx	xxx	xxx	xxx	xxx
Day 2	xxx	xxx	xxx	xxx	xxx
etc.					
Total	xxx +	xxx +	xxx +	xxx +	xxx = xxx (Grand total)

Continued on page 50

HF Predictions

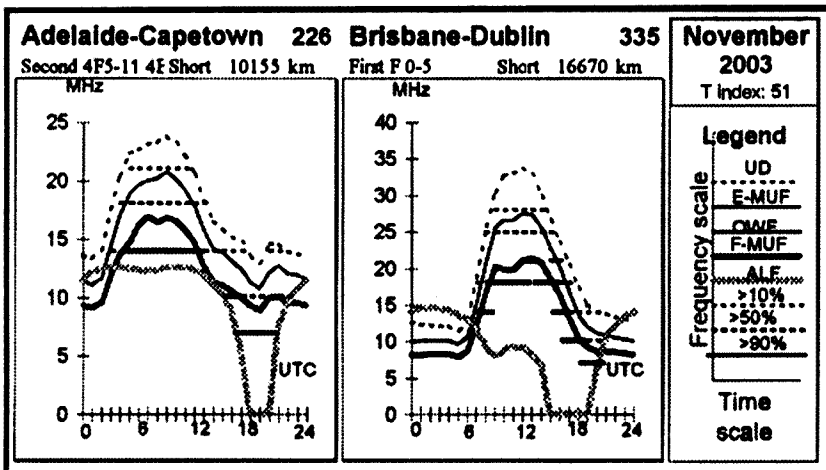
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

November 2003
T Index: 51

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

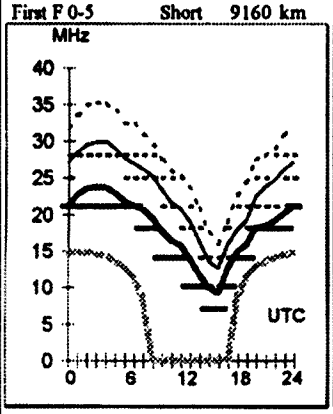
Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4



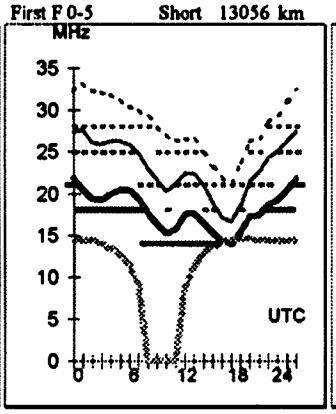
Adelaide-Capetown 226 Second 4F5-11 4E Short 10155 km

Brisbane-Dublin 335 First F 0-5 Short 16670 km

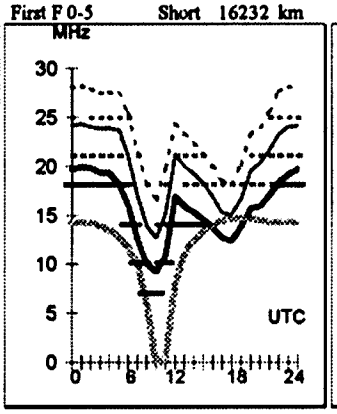
Adelaide-Honolulu 57 First F 0-5 Short 9160 km



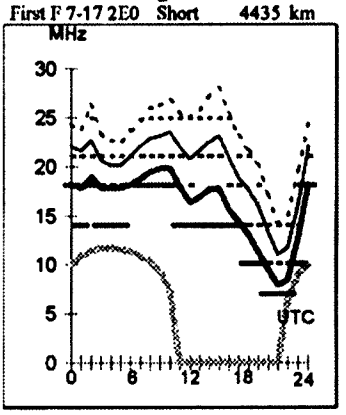
Brisbane-Lima 1 First F 0-5 Short 13056 km



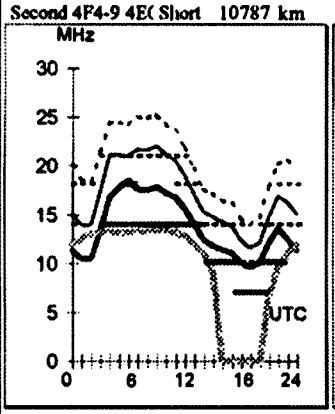
Canberra-Barbados 123 First F 0-5 Short 16232 km



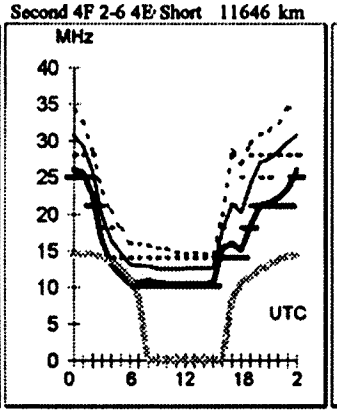
Darwin-Bangkok 310 First F 7-17 2E0 Short 4435 km



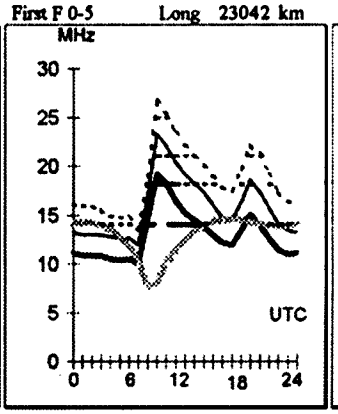
Adelaide-Lusaka 246 Second 4F4-9 4E(Short 10787 km



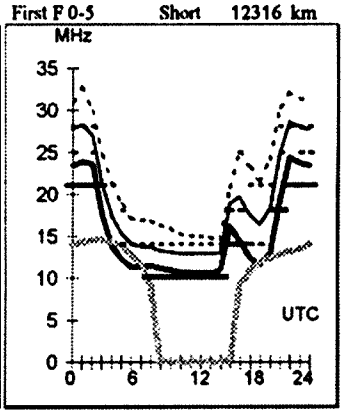
Brisbane-Seattle 44 Second 4F 2-6 4E Short 11646 km



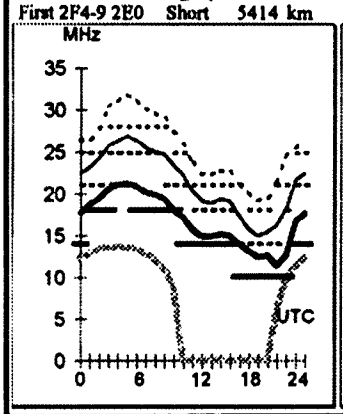
Canberra-London 136 First F 0-5 Long 23042 km



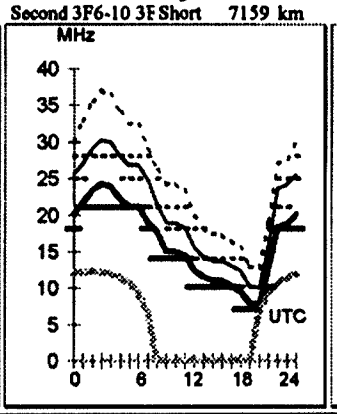
Darwin-San Francisco 54 First F 0-5 Short 12316 km



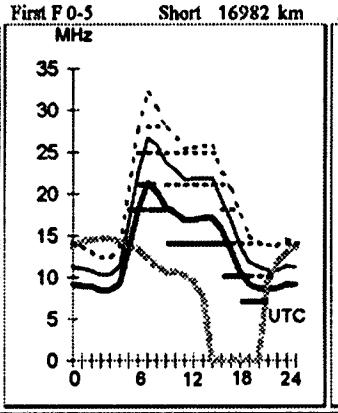
Adelaide-Singapore 311 First 2F4-9 2E0 Short 5414 km



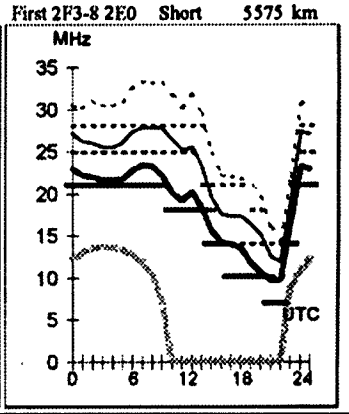
Brisbane-Tokyo 348 Second 3F6-10 3E Short 7159 km



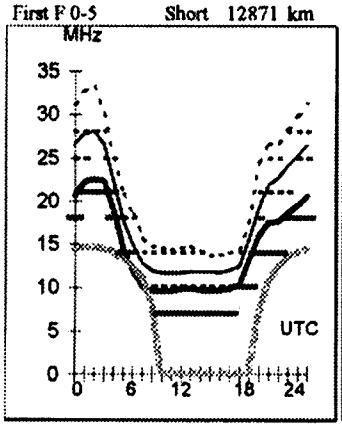
Canberra-London 316 First F 0-5 Short 16982 km



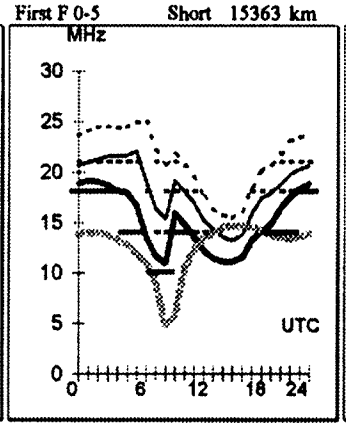
Darwin-Seoul 356 First 2F3-8 2E0 Short 5575 km



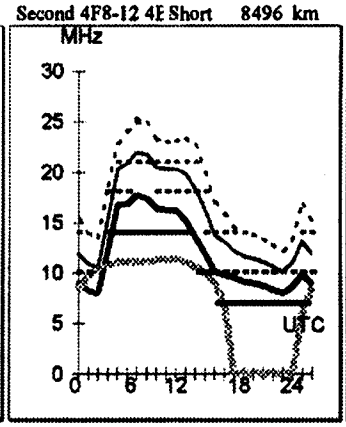
Hobart-Anchorage 28
First F 0-5 Short 12871 km



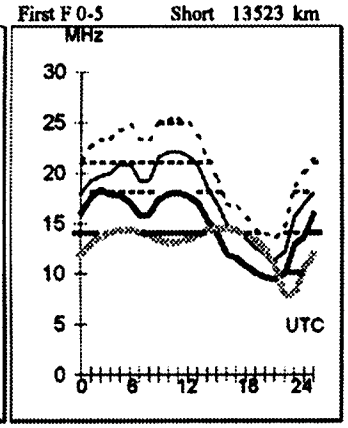
Melbourne-Surinam 145
First F 0-5 Short 15363 km



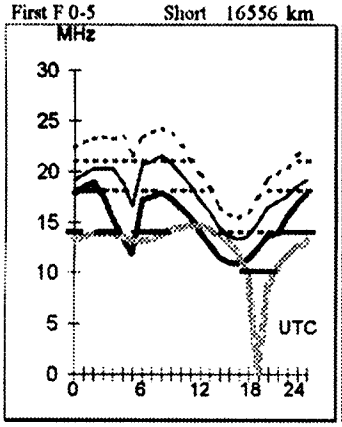
Perth-Harare 257
Second 4F8-12 4E Short 8496 km



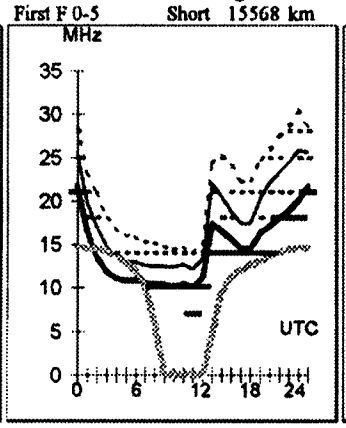
Sydney-Rio de Janeir 203
First F 0-5 Short 13523 km



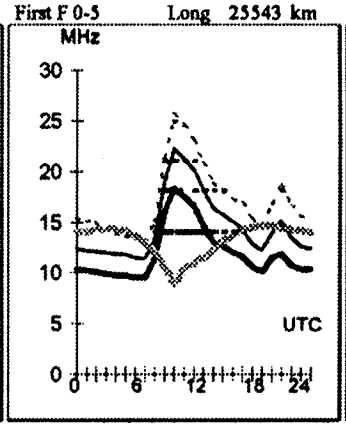
Hobart-Dakar 209
First F 0-5 Short 16556 km



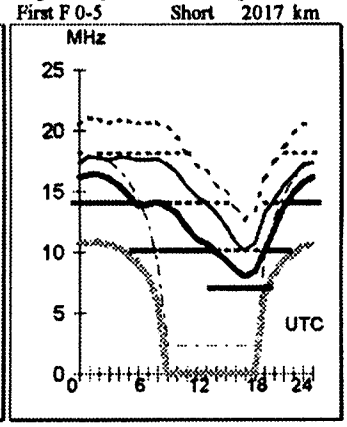
Melbourne-Chicago 67
First F 0-5 Short 15568 km



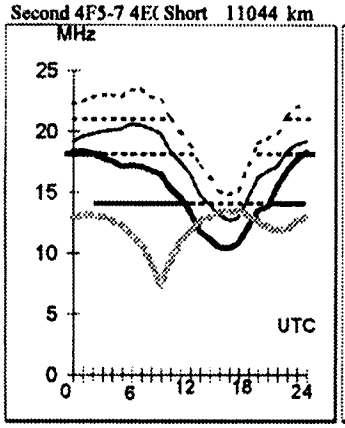
Perth-London 133
First F 0-5 Long 25543 km



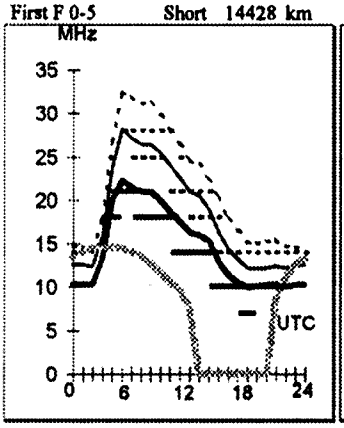
Sydney-Invercargil 139
First F 0-5 Short 2017 km



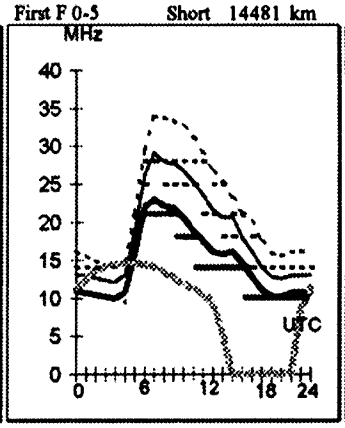
Hobart-Montevideo 161
Second 4F5-7 4E(Short 11044 km



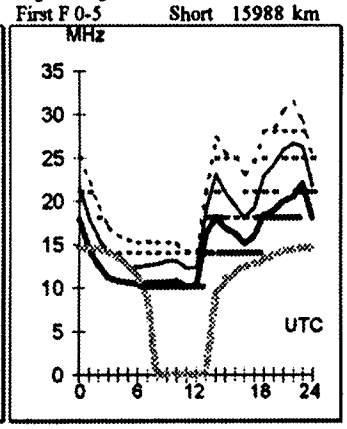
Melbourne-Moscow 316
First F 0-5 Short 14428 km



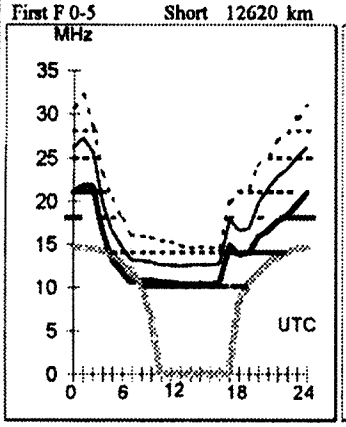
Perth-London 313
First F 0-5 Short 14481 km



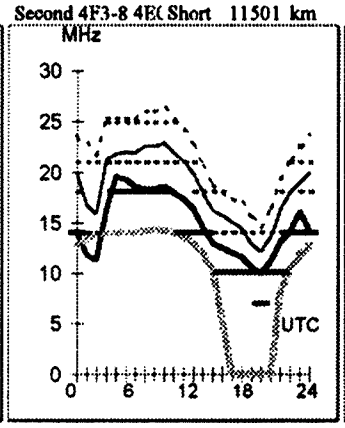
Sydney-New York 66
First F 0-5 Short 15988 km



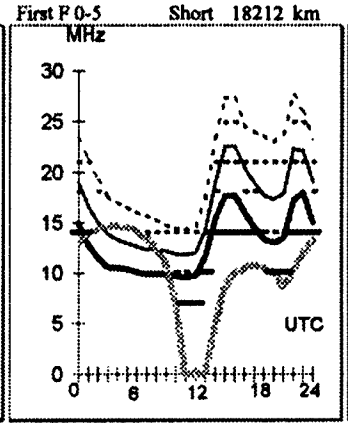
Hobart-Vancouver 49
First F 0-5 Short 12620 km



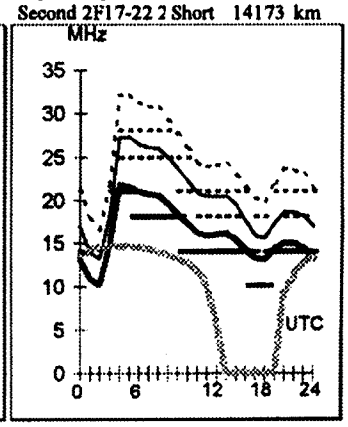
Melbourne-Nairobi 258
Second 4F3-8 4E(Short 11501 km



Perth-Ottawa 30
First F 0-5 Short 18212 km



Sydney-Tel Aviv 287
Second 2F17-22 2 Short 14173 km



Continued from page 47

A sample cover sheet has been posted on the VK-VHF email reflector, and copies can also be obtained from the email address given below.

Deadline

Paper logs may be posted to the Manager, Ross Hull Contest, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to jmartin@xcel.net.au. The following log formats are acceptable: ASCII text, Office 97 RTF, DOC, XLS or MDB. If you use Office 2000, please save the files in Office 97 format.

Logs must be received by Friday, February 6, 2004. Early logs would be appreciated.

Note on calculating distances

Absolute accuracy is not required. All you need to know is whether the other station is above or below the nearest multiple of 100 km. An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using a computer program which can be obtained by sending an email to the address given above.

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Summer VHF-UHF Field Day 2004

John Martin (VK3KWA), contest manager

The Summer VHF-UHF Field Day will take place on the weekend of January 17 and 18, 2004. Logs will be due on February 9, and entrants are also invited to include any comments or suggestions about the rules.

Dates

Saturday and Sunday January 17 and 18, 2004.
Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.
Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

A: Portable station, single operator, 24 hours.
B: Portable station, single operator, 6 hours.
C: Portable station, multiple operator, 24 hours.
D: Portable station, multiple operator, 6 hours.
E: Home station, 24 hours.

Single operator stations may enter both Section A and Section B. If the winner of Section A has also entered Section B, his log will be excluded from Section B. The same applies to the winner of Section C if the station has also entered Section D.

General rules

A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Operation may be from any location, or from more than one location. You may work stations within your own locator square. Repeater, satellite and crossband contacts are not permitted.

One callsign per station. If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other. Stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make any contest exchanges using callsigns other than the club or group callsign.

No contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for any contest activity. Suggested procedure is to call on .150 on each band, and QSY up if necessary.

Contest exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator.

Repeat contacts

Stations may be worked again on each band after three hours. If the station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Scoring

For each band, score 10 points for each locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time, frequency, station worked, serial numbers and locator numbers exchanged, points claimed.

Cover sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table. In this example the operator has operated from one locator and worked four locators on each band:

ARDF

Mark Harrison, VK3BYY
266 Nell St West, Watsonia, Victoria, 3087
Email: vk3byy@nerg.asn.au

Australia will host the 5th IARU Region 3 ARDF Championships from 28th November to 3rd December. More than 100 competitors and officials, mostly from overseas, will gather in Ballarat, Victoria, for some keenly fought competition.

The WIA's Victorian Division is hosting the championships together with the Victorian ARDF Group. Ballarat and other Melbourne amateur radio groups, as well as volunteers from the Victorian Orienteering Association, will provide much needed support.

This is only the fifth championship to be held in Region 3, however it is not the first for Australia - back in 1996 the second championship was held in Townsville. Since then Region 3 championships have been held in Mongolia and Korea. Winners from this year's events will go on to compete against the other two IARU regions at the World Championships in Brno, Czech Republic next September.

Ballarat University's Mt. Helen campus, set in 110 hectares of natural bushland near Ballarat, provides an ideal ARDF venue. Adjacent to state parks and forests, it has comfortable facilities, catering, and accommodation. Ballarat is only 90 minutes from Melbourne's International Airport, in the heart of Victoria's historic goldfields tourist region.

What is involved in running an International ARDF event? Advertising around the world, processing the registrations, shepherding visitors through airport red tape, organising transport both to Ballarat and around the actual ARDF courses. Naturally the organisers want to keep guests well fed and comfortably accommodated. Then there are the opening and closing ceremonies and awards presentations, along with the traditional banquet with entertainment of an Australian flavour.

Finally of course there are the actual ARDF events themselves.

A location with interesting terrain must be found so that the total optimal distance travelled, visiting all five transmitters, is between 6 and 10 km. The location must then be mapped carefully. The detailed topographical maps need to indicate features like undergrowth density, natural and man-made landmarks, and all safety hazards. Fortunately the Victorian Orienteering Association has cartography experts that make excellent maps! All of this information is kept secret.

On the day, all the transmitters are placed out in the field, where they will be observed discreetly by IARU officials and local representatives to make sure there is no cheating.

Volunteers help set up and run the Starting Area, which is an elaborate arrangement of partitioned off areas that hide the view of the course. All competitors are corralled and their directional receivers (sniffers) are impounded before the event starts. Competitors receive the official map just before picking up their sniffer and being released onto the course. A group of competitors, consisting of one person from each category, is released onto the course every five minutes, synchronized to the start of transmitter #1. All these precautions prevent competitors at the start from gaining any clues about the locations of transmitters before being released.

Eventually competitors end up at the Finish gate (hopefully!), located well away from the Start gate. The contestants' electronic "Sports ID" tags are read by computer to confirm which transmitters they found, along with elapsed times. The competitors also receive a printout of their times for each leg as a record of their personal performance.

Regular meetings of the team leaders, officials, and jury meetings are held to keep everybody informed and resolve any protests that may arise from the competitions.

Finally, a special event station with the callsign VI3ARDF will be run by the Ballarat Amateur Radio Group (BARG) to keep visitors in touch with home and to mark the occasion with a special QSL card. The four letter callsign creates a little history of its own, being the first to be issued in Australia.

Volunteers are needed in every capacity, including for the Australian team! Visit the Victorian ARDF Group's web page at www.ardf.org.au where there are more details on the ARDF championships as well as for local events held throughout the year.

Further enquires can be directed to:
Mr. Jack Bramham, VK3WWW,
Federal ARDF coordinator,
Wireless Institute of Australia
vk3www@alphalink.com.au

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Contests – *continued from previous page*

Band	Locators Activated (10 pts each)	+	Locators Worked (10 pts each)	+	QSOs (1 pt each)	x	Multiplier	=	Band Total
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
							Overall Total	=	680

A sample cover sheet and scoring table has been included in the postings on WIA web sites and the VK-VHF e-mail reflector. Copies can also be obtained from the e-mail address given below.

Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to jmartin@xcel.net.au. The following log formats are acceptable: ASCII text, MS Office RTF, DOC, XLS or MDB. If you use Office 2000 or later, please save the files in Office 97 format.

Logs must be received by *Monday, February 9, 2004*. Early logs would be appreciated.

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VHF/UHF - An expanding world

David Smith VK3HZ - vk3hz@wia.org.au
Leigh Rainbird VK2KRR - vk2krr@telstra.com

Weak Signal

David Smith - VK3HZ

The first VK/ZL opening for the season occurred on 24/25 September. Nick ZL1IU on the northern tip of the North Island reports working VK4LC, VK2EI and VK2DVZ on 2 m and VK4AFL and VK2DVZ on 70 cm. Signals peaked to S7-8 on both bands.

There has also been some auroral activity, although there are no reports of contacts. Auroral propagation was heard on some aircraft net stations from this QTH on the morning of 19 September. At the time, an auroral alert was current on the IPS Space Weather site (www.ips.gov.au/Main.php?CatID=2).

Wally VK6KZ reports that the Mt Barker beacons are now operational on 3 cm and 70 cm. Mt Barker [OF85ti] is about 50 km north of Albany. The WA VHF Group Inc. commissioned a 200 mW beacon on 10,368.564 MHz on 5 October. An exciter and keyer in the hut feeds an FSK signal at about 518MHz up the coax to a multiplier chain and PA mounted at the back of a 380 mm dish. The dish has a bearing of 106 degrees (i.e. towards Melbourne - well we can dream, can't we?). The beacon has been heard at Albany by VK6KZ/p and VK6WG. It has also been heard in the Stirling Range (north east of Mt Barker) by VK6ZWZ. Additionally a beacon on 432.564 MHz was commissioned on the same site and this has close to 50 watt split into two 10 element yagis - one towards Melbourne and the other towards Perth. It is being heard quite consistently in Perth under present conditions (about 340 km). The WA VHF Group hopes to replace the Southern Electronics Group 2 metre beacon at Albany - now withdrawn from service - with one at Mt Barker. Also, don't forget to look for VHF Group beacons on 144, 432 and 1296 (all nnn.562 MHz) at Augusta (Cape Leeuwin). Full details of WA VHF Group beacons may be found at vhf.worldsbest.com.au/beacons.htm.

Adam VK4CP has been adding some features to the VK/ZL VHF-UHF propagation logger (www.vk4cp.com/vklogger.php). There is now an operator information page on which amateurs can add details of their station, including grid locator, which can be quite handy. There is also a page for people to add their current gridsquare standings. This is not intended to replace Guy VK2KU's official tally on the NSW VHF DX Group site (http://www.vhfdx.oz-hams.org), but simply a means to keep track of gridsquare standings in the busy months between official updates.

Digital Modes

Rex Moncur - VK7MO

It's good to hear of some digital activity over in the west. Craig VK6JJJ in Karratha in the north west of Western Australia reports that he has been trying to raise some interest in Perth in activity on FSK441, to no avail. The path is about 1200 km, which makes it about optimum for FSK441. Recently he set up a sked with Nigel VK6KHD and out of about six attempts, they have only managed to get one ping through (Karratha to Perth). They are now making some changes in the hope of establishing a regular contact. Anyone interested in joining them should listen at 7 am local time on 144.230.

Recently, I undertook a 432/1296 MHz Digital DXpedition through southern central NSW. From Mildura, I travelled up through Broken Hill then across to Ivanhoe, West Wyalong, Grenfell and Young, finishing at Bathurst. 36 contacts were made with stations worked including VK3AXH, VK3CY, VK3KQB, VK3HZ, VK3BRZ, VK3FMD, VK3AFW, VK3XLD and VK3KAI.

One of the most interesting things was that the increased sensitivity of JT44 allows one to see aircraft reflection (equivalent to normal radar back or side scatter), which is typically around -15 to -25 dB compared to aircraft diffraction which is typically much stronger and allows SSB contacts. Diffraction is characterised by strong signals and durations of just a minute or so as the aircraft crosses the path where reflection is weaker, but can run on for 10 or 20 minutes and has significant QSB. Reflection occurs much more frequently than diffraction and while aircraft reflection was apparent around 50% of the time diffraction was present for just a few percent.

The differences between the various types of propagation show up more clearly on 432 than 144 and this is to be expected as in relative terms tropo scatter losses increase with frequency. Aircraft reflection is roughly constant and aircraft diffraction losses reduce with frequency (providing you are in close alignment in both the vertical and horizontal planes). Further tests on 1296 will be useful in differentiating the three modes.

Aside from the three types of propagation listed I did hear three meteor pings over the many hours of listening the best one being a 2.8 second burn.

I found that it is impossible to receive a JT44 signal if more than one station is Tx-ing even if one is 10 dB stronger than the other. This means that successful JT44 Expeditions do require a lot of consideration by operators for others and I was pleased that people tried very hard to be fair. We will need to think a bit more about the best procedure, but if it's clear the DX station has started to work another station, you should cease Tx-ing until the DX station calls CQ. How to resolve the issue of two stations responding to a CQ call is more complex but my inclination is that stations who are getting good copy (better than -15 dB) should be prepared to respond on say only every second or third period to give a weaker station a chance of being identified. Note that once one sends a signal report one keeps to this even if a stronger signal is received later.

2 m & 70 cm FM DX

Leigh Rainbird - VK2KRR

Now approaching the warmer months, we should see much better Tropospheric DX conditions on 2 m and 70 cm. For those of you who have been waiting all winter to get your ducting fix, it's now time to dust off the microphone, plug in the antenna.... and wait. Yes, DX on 2 and 70 can be a bit of a waiting game, often many weeks are spent, just waiting and listening for any possible openings without any luck at all. But this is what makes the higher bands all the more exciting. You might have coverage of 100 km for weeks, then all of a sudden something comes floating through from 400 km then 600 km! You will find optimum times to catch summer DX activity are from around 5.30 am to 8.30 am local time. If you're keen, I have noted a good percentage of activity beginning around 2 am local time. This research is taken from inland N.S.W and may vary with location, especially coastal areas.

A mixed bag of DX to report on for the month of September. Big news of the month was an international duct opening reported from north VK4, and one major opening in the south eastern states, along with a number of smaller openings.

To start the month off, a major opening began in the evening of the 2nd, with east west ducting noted from here to the Adelaide area. This was rather weak and disappeared later in the evening, to re-appeare around 4 am on the 3rd, still weak and covering more areas north of Adelaide such as Port Pirie, Port Augusta and Cowell (961 km), also further north again to Broken Hill. That evening it was wide spread and much better signals were to be had, even on 70 cm.

VK3FIQ Geoff in Stawell was making it to Lobethal VK5RAH very well. Brian VK5ZMB in Gawler was reaching across to Ararat and Shepparton. Conditions were so good that I was able to access the Port Lincoln repeater VK5RAC (1019 km) where I spoke to VK5KFB Rod, located near Summertown. Rod was a decent distance from the repeater himself. A number of VK5 70 cm devices were also worked from here, Crafers, Barossa Valley, Mt Terrible and Summertown (779 km).

The following morning, the 4th, stations in the western areas were having more luck working across to the east. Again, Brian VK5ZMB was working well into Shepparton VK3RGV 146.650 and Yarrawonga VK2RWB 147.200. Shane VK5NRV at Woodside was making it quite easily into VK2RWG the Wagga repeater, a good 750 km. I think Shane was also able to work a number of other repeaters in the eastern areas. Garry VK3KYF in Mildura was also working into Wagga.

On the 7th and 8th of September, I noted some good conditions with the furthest distance being to Mt Gambier VK5RMG on 146.900. Signal was up to S9+20 dB. Its always good to make it in to Mt Gambier because the operators there are always interested to hear from you as they are all very interested in VHF and UHF DX themselves. And living in probably one of the best locations to work across to VK6, it's no wonder they are keen.

On the 9th Mike VK4JOO in Gladstone reports, Wayne VK4ZRT was the first to notice the abnormal conditions on 2 metre and managed to talk through the Hervey Bay repeater around 9 am on the 9th. He also noticed that the Blackdown tableland repeater was accessible. Soon after this Wayne was able to work into the Mackay repeater on 147.00. I was able to trigger the Mackay repeater at this stage but when I tried to make contact with VK4JWG, I was dropping in and out of the repeater.

On the morning of the 10th, Felix VK4FUQ in Ingham, Nth QLD, was able to work to VK4RHR, 146.925 Hodgson Range (491 km), Felix spoke with Mark VK4KMR in Dysart and Harry VK3LE. Later, John VK4JKL in Cairns also called in on the same repeater (686 km).

Mike VK4JOO reports, in the evening of the 11th about 8.30 pm, Wayne VK4ZRT in Gladstone was able to hear the Gympie repeater on 146.625. No sign at my QTH but I was keen to keep trying. About 9.00 pm I worked VK4HNL (Nev) in Hervey Bay via the Gladstone Repeater. He thought initially that he was getting into Gympie, which is on the same frequency, and was quite surprised when I told him he had the local Gladstone repeater. Later Wayne managed to trigger the Hervey Bay repeater to complete the loop.

On the evening of the 13th and the following morning, Mike VK4MIK at Malanda, south of Cairns had conditions to the south as far as the Mackay repeater (550 km) VK4RMK.

Some interesting conditions were noted on the 17th around the north Queensland coastal areas. Felix VK4FUQ reports, from about 1930 local, there was good access into the Mackay repeater on 147 MHz from here in Ingham. Mike VK4MIK on the tablelands also accessed this repeater with a collinear vertical. Interestingly enough, he was not able to access Townsville, which is closer. In fact, later in the evening, something rather strange was observed. When Townsville area stations tried to access the Mackay repeater on 147.000 they could not, but they found they could access one of the P29 (New Guinea) repeaters on the same frequency! My beam was looking south, but I could just hear "something in the noise", off the back of the beam. My rotator is of the "Armstrong variety", and too difficult to reposition at night.

Again on the 18th Felix VK4FUQ gave another interesting report. Things got underway a little later last night, with some international DX, when at around 1200 hours (10 pm local), Jim P29JB in New Guinea worked into the Townsville 2 m repeater with good signals. He was using around 35 watts and a 4 element Quad. Jim advised that Australian FM broadcasters were very strong into his location last night, which was an excellent indicator of good VHF propagation. The estimated distance was around 1200 km. No simplex contact was attempted. Stations who worked Jim P29JB were myself, VK4FUQ, John VK4JKL in Cairns, Tony VK4TJS in Townsvillle. Around the same time, there was once again some weak coastal ducting down to Mackay, but the best propagation was into P29.

Thanks to VK4MIK Mike, VK4JOO Mike and VK4FUQ Felix for the great reports.

If you happen to copy some good 2 and 70 FM DX over the coming months why not drop me a note at vk2krr@bigpond.com. Be interesting to hear from you. Cheers for now and good luck with the DX.

ar

Hamads
classifieds

FOR SALE NSW

• **Power supply Japanese Industrial Newie Lambda** 14 volt 43 amp switchmode, but definitely no interference. Instructions and circuit available, post anywhere in VK, $75. Bob VK2CAN Phone 02 9416 3727.

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• **Shack clearance - reduced** to $1000: **Yaesu patch audio system, Micronta power modulation SWR system, Yaesu ATUs** FC-700, FC-707, **digital capacity tester,** analog multi tester, digital multi tester, DSE Lab oscilloscope 13.8 V 25 A PSU, Panasonic SJ200 VCR - as new, **coax switches, 30 MHz aerial filters,** much more. Buyer collect, Ernie VK2BUE, Tenterfield. Phone 02 6736 1388

• **Vintage TVs, radios, test equipment,** service manuals, 2-way radios, valves, teletype, etc - a whole van full, $600 the lot. VK2ZPC, 8 Jacqueline Ave, Gorokan NSW 2263. Phone 02 4393 2113

• **Kenwood R-5000** with VHF converter, owner's and technical manuals, $600. **Yaesu FRT-7700** antenna tuner, $100. **Yaesu power supply FP7-07**, $150. **Yaesu FT-208R** VHF hand-held with PA3 car adapter/charger, no battery, $100. **Yaesu condenser microphone** YM-48A, $30. **Yaesu Dynamic microphone** YM34, $30. **Yaesu speaker microphone YM-24A**, $40. **Kenwood TS-530SP transceiver** with MC-50 desk microphone, owner's and technical manuals, top condition, $500. **Revex 2-way S20 switches**, $30. **Dick Smith multi-meter Q1200** for model 360 FET, $50. **Dick Smith multi-meter Q1136**, $70. Panel meters various types, $10. **Toyo Watt Meter T435**, $100. **Oskerblock SWR200** meter, $50. **Butternutt antenna**, $150. **Micronta** 7 range AC meter, $50. **Kyoritsu Grid dip meter**, $70. Power packs, various types $15. **Weller soldering unit TC 202D**, $70. Maurie VK2OW QTHR, Phone 02 9838 1834, email maurieh@hotmail.com.

• **PALEC VCT-3,** valve and circuit tester. Good physical condition. Working condition unknown. OFFERS or trade. Mick VK2BZE. Phone 0242976406 or mickh1@swiftdsl.com.au

• **6KD6 Valve** to finish linear amplifier project. Mick VK2BZE Phone 02 4297 6406 mickh1@swiftdsl.com.au.

• Licenced 1962 but now too deaf. Sell for best offers, or give away:. **Yaesu TS-120S** transceiver (s/n 0070661) with manual and service book. **Kenwood FT-301D** transceiver (s/n 100312) with manual. **Kenwood TR-7730** 2-metre FM transceiver (s/n 2110194). **Yaesu AC power supply FP-107E** (s/n 070350). **Z-match antenna coupler** with built-in metering. RF load and watt meter, 20 W/200 W. SWR/power meter. Test oscillator 10 Hz - 610 kHz. **Signal generator 6 kHz-18.6 MHz** with metering and dB attenuator. **Test oscillator 10 Hz - 610 kHz. 200 MHz freq meter. 20 metre monoband quad & rotator. Galvanized tower 20 metre,** dismantles into trailer length sections. **Mobile whip antennas**, morse keys, handbooks and lots of freebies. Roger Graham VK2AIV QTHR Phone 02 4234 1431. Email for details rogergraham@optusnet.com.au.

• **3 m mesh Satellite Dish** on polar mount, **Chaparral MC-115 Rx**, 3' Actuator, C-Band Feed & LNB, $290. 1' Actuators, $50 ea,. **NTSC-PAL Converter**, $40. **Several analogue Sat. Rx's**, $20 ea. **FM-828 A**, $50. **HP-7550** Plotter, $100. **NEC 3D** Monitor, $50. **Video Blaster**, $20 . **Grandtec VGA-Video Converter**, $40. Rogerwoodward10@hotmail.com, Phone 02 9547 2546

WANTED NSW

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FOR SALE VIC

• **Nally tower 37.7 m**, Buyer to arrange dismantling, $800 or best offer. Norm VK3JLY Phone 03 9578 3053.

• 30 years of **AR magazines**, free to a good home. Len VK3AQJ AH Phone 9762 3522.

• **Top section Nally tower** 8 m approx $250. QTHR VK3YJ Phone 03 9315 9387, email xdrover@bigpond.com.au

• **Yaesu FT-707** solid state HF tcvr. Works well 100 watt output $325 ono. Bill VK3DQS Phone 03 5941 2899.

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• **ICOM 735 tcvr**, PS15 supply, 100 W output hand mic, manuals $850. **Yaesu FT-101ZD**, desk and hand mics, manuals plus bonus 2 new 6146B tubes $400. **Tokyo Hy-Power antenna coupler HC200L**, $500. David VK3FHU Phone/ fax 03 9560 9435 or email davidsyeo@hotmail.com.

• **Estate VK3BYW. Yaesu FT-920**, mint, $1250. **Yaesu FL-7000** solid state HF linear, $800. **Yaesu FT-817**, $800. **Kenwood TS-505**, $800. Matching ATU $150. D/S 25A p/supply $125. **1GHz freq counter**, $75. D/S capacity meter $50. **Nally tower with TH3 beam & rotator** $750 the lot. Buyer to remove. Many other items - please enquire. Contact Ron VK3OM QTHR Phone 03 5944 3019.

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• **Ham gear from 3 amateur stations.** Please phone, write, or email, for lists of Txs, Rxs, Mobile Antennas, Test gear, Power supplies, Radio Books, and Valves. Bruce VK3QC.QTHR Phone 03 5762 6540. email bplowman@bigpond.com

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• **Donations of ex military comms equipment for RAAF Museum Townsville.** Your junk may be our treasure! Also need donation of amateur transceiver for our memorial station. Older rig OK if GWO. Contact Wayne VK4WDM Phone 07 4788 8781. melrosew@optusnet.com.au

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• **Any info,** handbook and circuit diagram for **clone HRO Receiver type AMR100** built by AWA circa 1943. Alan, VK6PG. QTHR. Phone 08 9275 3348 or vk6pg@tpg.com.au

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• **The WIA QSL Collection (now Federal) requires QSLs.** All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

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The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Alan Hawes	VK1WX
Secretary	Deane Walkington	VK1DW
Treasurer	Bob Howie	VK1HBH

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga.
VK1 Home Page *http://www.vk1.wia.ampr.org*
Annual Membership Fees. Full $80.00 Family $38.75 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 9432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644 (NSW only)
e-mail: *vk2wi@wiansw.org.au*
Fax 02 9633 1525

President	Brian Kelly	VK2WBK
Secretary	Owen Holmwood	VK2AEJ
Treasurer	Noel May	VK2YXM

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.
Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Jim Baxter	VK3DBQ

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.
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VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Ewan McLeod	VK4ERM
Secretary	Bob Cumming	VK4YBN
Treasurer	David Gulley	VK4DCG

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 in both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au
Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web: *http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.
Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

President	Neil Penfold	VK6NE
Secretary	Roy Watkins	VK6XV
Treasurer	Brucs Hedland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website
Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.wia.org.au/vk7*
email: *vk7dg@wia.org.au*

President	Phil Corby	VK7ZAX
Secretary	Dale Barnes	VK7DG
Treasurer	Dale Barnes	VK7DG

VK7WI: At 0930 hrs every Sunday on 146.700 MHz FM (VK7RHT, Hobart) and relayed on 147.000 MHz FM (VK7RAA, Launceston), 146.625 MHz FM (VK7RMD, Ulverstone), 146.750 MHz FM (VK7RNW, Ulverstone), 147.075 MHz FM (VK7RWC, Rosebery), 3.57 MHz LSB, 7.090 MHz LSB, 14.130 MHz USB and UHF CB Channel 15 in Hobart area.
Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

DX Operations on a grand scale at V2 Antigua and Barbuda

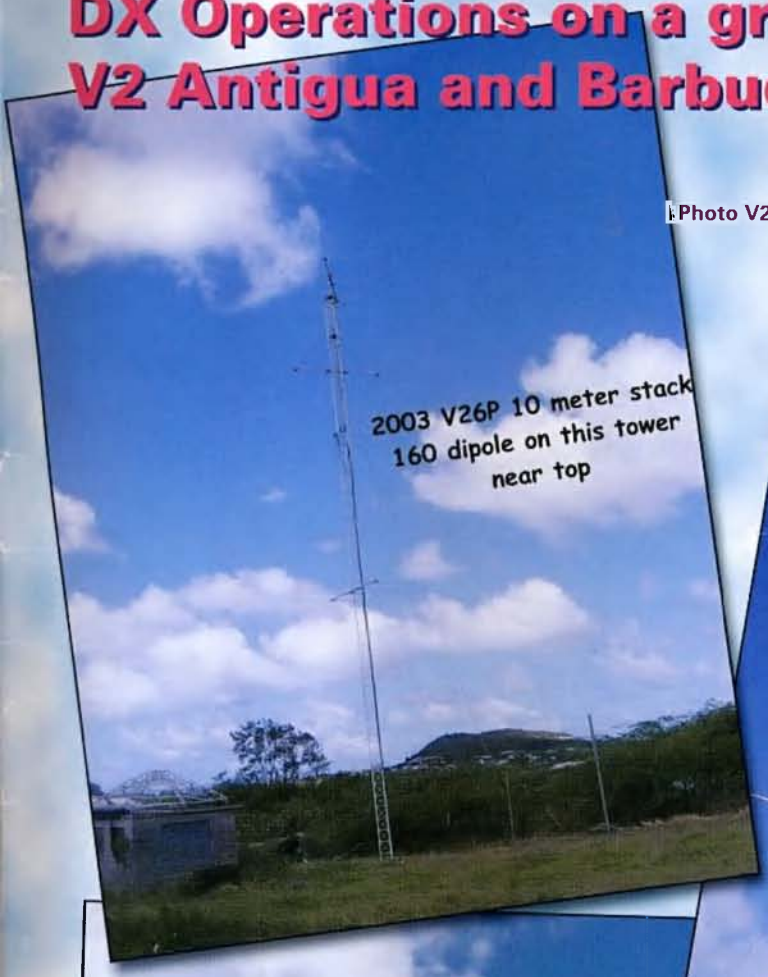

Photo V26P_10 Ten metre stack at V2

Photo V26P_15. Fifteen metre stack at V2 with the 20 metre stack in background. The 3 element 80 metre wire beam pointed at EU is between these towers

Photo V26P_80 Forty metre stack at V2

V2 operations by W5AJ covered ARRL DX SSB 1999, 2000 & 2003. The operations took place at the V26B super station W5AJ operator. KD5AAU traveled with me in 1999 & 2000 to tour the island
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Amateur Radio

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Our Cover this month

One of the many highlights of 2003 was the Great Australian Science Show (GASS). WIA Victoria and four of its affiliated clubs, EMDRC, GGREC, RWARC and NERG, combined their resources to mount a display at the Melbourne Science Museum on 16–18 August. The look on this young man's face as he encounters the wonder of Amateur Radio, testifies that the hobby is far from dead.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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Founded 1910

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Gilbert Hughes VK1GH
Keith Malcolm VK1ZKM
Glen Dunstan VK4DU

Editorial comment

Colwyn Low VK5UE

Is 2004 YOUR year to join the AR team?

Firstly Season's Greetings to all members and readers. This year has seen the start of a new era in Amateur Radio.

Some three years ago when I became Editor I predicted that Morse Code would be dropped as a requirement to hold an unrestricted Amateur licence and some readers thought it would never happen in their lifetime. Well as you all know by now, come 1 January 2004 there will be no Morse Code requirement to get on the HF bands. Further the DX window at 3.5 MHz will be expanded to 25kHz. Other changes are also in the pipeline and will be notified in 2004.

There is always a need in organisations like the WIA for more people to put their hands up when there is work to be done. We have a number of these dedicated people who run the WIA and have been a major part of the negotiations with the ACA, on the conditions under which Amateur Radio operates in Australia. Most of what is being done now is a direct result of the work of WIA volunteers, we are all indebted to them and we all need to express our thanks to them for their dedication. Notice of the Federal WIA AGM and Annual Convention appears in this issue. Please note that we are calling for volunteers to be nominated for the positions on the Federal Executive and the Co-ordinator positions necessary to keep the organisation alive and relevant.

This spirit of Volunteering goes beyond the WIA. About 60 WICEN and other amateurs helped make the Classic Adelaide Rally a great success. I know WICEN and other Amateurs in other States have made similar contributions to events there. WICEN has already been activated this Spring/Summer season to help with emergency situations. While still hoping there will be no major emergency requiring WICEN activation let us make sure we do have the equipment ready and the batteries charged in case we do have to respond to an emergency.

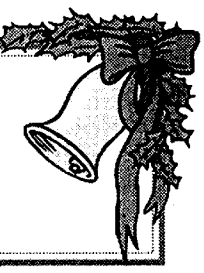
Andy Cory 3DA0TM has been visiting Australia for the World Rugby Cup and I had the pleasure of spending a few hours with him when he visited Adelaide. Swaziland at present has two Amateurs operating on HF and about 16 on VHF. Andy has a monobander on 15 m, so I suppose that is where to look for him when he gets back home.

Now for a request for help. Ross Christie has had to relinquish the authorship of the DX column so we need a new author for "How's DX?" Ross is willing to give guidance and assistance to the new columnist. We also need someone to write the Contests Column. Ian Godsil had to give up the Federal Contest Co-ordinators position some months ago and we have been struggling since then. So please think about helping out for say 2004 and then let me know. We can then discuss what is needed.

As this issue is being finalised we have been saddened by the sudden death of Gil Sones VK3AUI. Gil has written Technical Abstracts for many years. He was a member of the Publications Committee up till his death and was a past Editor of the magazine. A full obituary will appear in the January/February issue of AR.

I wish you all a joyful Christmas and a peaceful and happy 2004 on behalf of the AR Publications Committee.

The President, Executive, Council and Staff of the WIA wish all our members, their families, and readers of AR magazine, a joyous Christmas 2003, and a happy and prosperous 2004.



Ernie Hocking VK1LK
Email: president@wia.org.au
PO Box 691, Dickson, ACT 2602

ACA drops Morse for licence from January 1

The benefits following years of activity by the Federal WIA have at last begun to emerge. On 13 November 2003 I received a late afternoon telephone call from the ACA notifying me that an important announcement would be made on Monday 17 November 2003.

Many of us I suspect correctly guessed the nature of the announcement if not the exact details. However the weekend was no doubt an anxious one for many. The wait was at the end of the day worth while with the announcement indicating that the ACA would formally remove the Morse code testing requirement for all grades of licence on 1 January 2004. Thanks to all the various people who helped to publish the news so quickly over that weekend, and especially our own Graham Kemp VK4BB who I know worked long and hard to record extra material from the ACA and WIA to ensure that as many people as possible could be informed on the WIA broadcasts over the weekend of 15/16 November 2003.

As a long time QRP and CW fan, I can state that homebrew, low power, and the sheer thrill of working CW in difficult conditions will ensure that I for one remain active using CW and would not be surprised to see activity increase rather than decrease over coming years.

Although amateur radio operators do not have a formal code of ethics I am sure that you will all respect the timing of the announcement and resist the temptation to operate on air a little earlier than 1 January. The WIA has a lot of negotiations to undertake with the ACA in a whole range of areas and jumping the gun on something as fundamental as this will not serve the long term interests of revitalising amateur radio here in Australia.

In order that we can both celebrate this historic occasion and provide some on air activity I have suggested that 1 January be designated an HF activity day. Jim Linton VK3PC has kindly offered to assist in setting up some simple rules to allow us to present a few awards for participation. The details of the day, along with rules etc will be made available on the various WIA web pages and via the divisional broadcasts. I can only encourage you to dust off your HF rigs and make 1 January 2004 a day to remember (and don't forget that from 1 January 2004 the 80m DX window [3.776 MHz – 3.800 MHz] will also be available for use)

The Federal WIA already has a Yaesu FT100D available for a prize and with any luck some more prizes will be identified so that more categories of winner can be defined. The intention is to encourage people who have not previously been able to operate and as such prizes will only awarded to calls who gain HF privileges on 1 January 2004. So if you know someone who is able to contribute a prize then please let me know so that we can organise things.

I also know that there are many who are very concerned about the ACA announcement with the implication of the disappearance of on air CW. On a personal note, as a long time QRP and CW fan, I can state that homebrew, low power, and the sheer thrill of working CW in difficult conditions will ensure that I for one remain active using CW and would not be surprised to see activity increase rather than decrease over coming years. So if you hear me on air on the 1st then ask for my FISTS, RSARS, and Australian CW Operators club numbers.

Sitting here on a cool Canberra morning letting my mind wander I can already hear some of the New Year resolutions drifting over the ether:

1. I will get that new all featured rig this year, and
2. I will improve my Morse code speed this year, and
3. I will convince Joe to convert his electronic qualification to an amateur radio licence this year

Seriously though this is a very important occasion for amateur radio and represents a great opportunity to recruit all of those friends of ours with electronics qualification to become amateur radio operators. I have already started telling many of my friends who have electronic qualifications that now they only need to sit the regulations examination and they can be on air on all bands and begin to enjoy the wonder of radio. Who do you know that you can persuade to join us?

The last part of the ACA announcements of 17 November is to alert us to the fact that further announcements will be made over the coming weeks as the responses are analysed. Realistically though I expect 2004 to be the big year for announcements about the major issues around entry level licencing and dealing with interference matters. As such I can see that 2004 will be another busy year for the Federal WIA

So I'll wish you all a happy Christmas and a prosperous new year. I look forward to working as many of you as possible on 1 January 2004 on the activity day. 73 to you all and I look forward to hearing your comments, either directly or via the divisions. All the best in amateur radio.

Ernie Hocking VK1LK

Hidden microhenries exposed!

Neville Chivers VK2YO
57 Vulcan Street
Kingscliff NSW 2487

Recently a circuit under construction by me required an inductance listed in microhenries, giving wire size, and number of turns on a specific type toroid. All very good information if you happen to have the correct wire size and specified toroid on hand.

If you are at all like me, you have acquired over the years different sizes of wire - but never the one specified - unmarked small toroids, along with other nondescript inductors without markings loosely deposited in an old tobacco tin labelled 'RF Chokes mH?'

I usually use the time-honoured method of loosely coupling my GDO to a coil and capacitor combination and reading off the frequency when the meter dips. This works OK with air wound coils, but is not much good with small inductances or encapsulated Radio Frequency chokes. Something more practical, as well as accurate, is required.

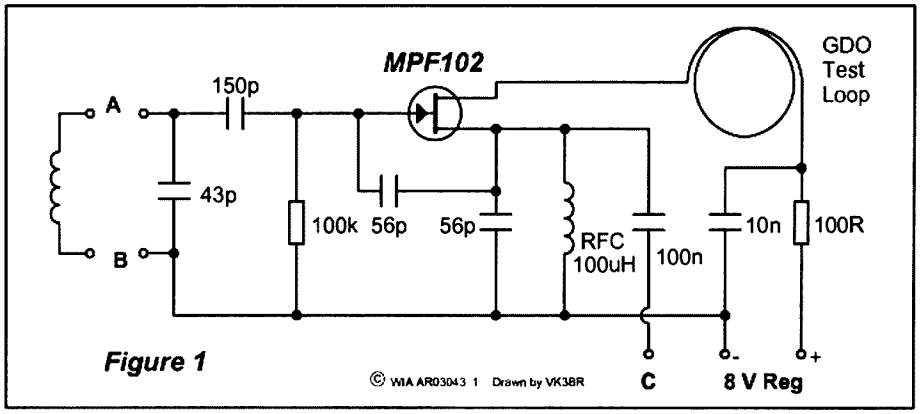


Figure 1

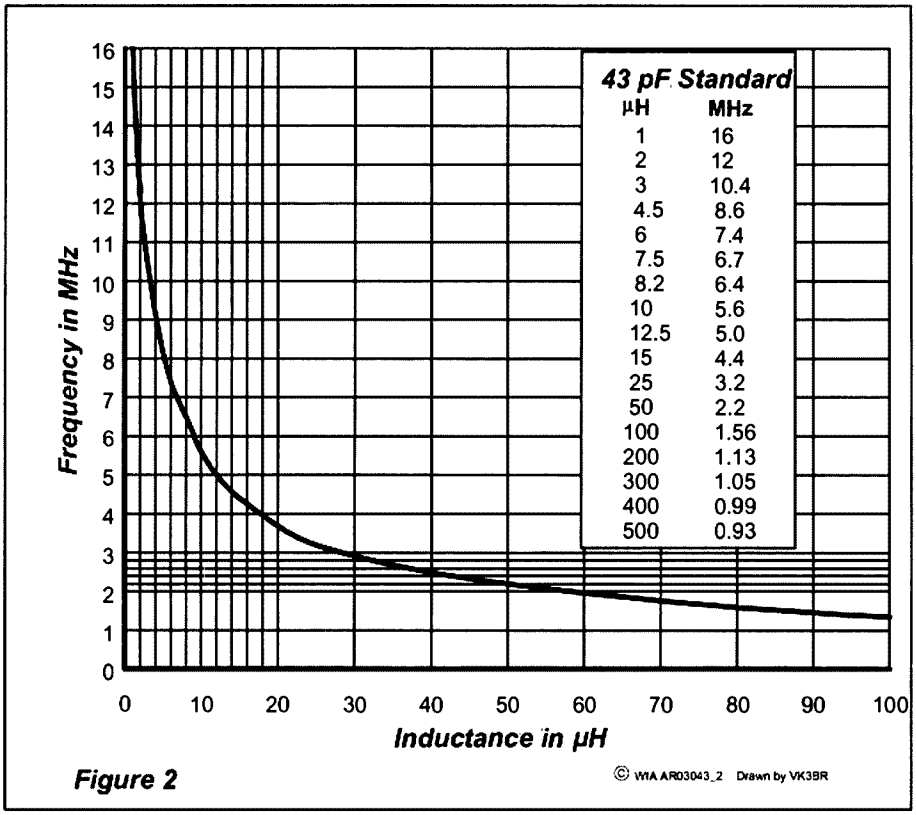


Figure 2

What to do? Look up the available technical literature on hand, in my case the recent back copies of *Amateur Radio* magazine and the 1998 edition of the *ARRL Handbook*.

In *Amateur Radio* I found articles by Drew Diamond VK3XU in the May 1997 and February 1999 issues, by Lloyd Butler VK5BR in June 1997, and by John Hassell VK6JAN in January 2000. All are well written, practical construction articles on the subject of small inductance measurement, but require a 50 µA or 1 mA meter which retail at about $25.00 if you don't have one in your junk box. And I don't!

In the *ARRL Handbook* there is an interesting constructional description which converts an unknown inductance in µH via a three stage And Gate IC to be read as volts on a digital voltmeter. This method looks to be even more expensive if you don't already own a digital voltmeter and have to buy one.

I like to make use first of all of what I do have, which is a digital frequency meter, a receiver with full coverage, and a gate dip oscillator. Using any one of these I can ascertain the value of small inductances with the circuit of the oscillator in Fig 1 and connected as shown. The principal is that the parallel tuned resonant circuit of unknown value inductance and fixed known value capacitance will produce a specific frequency which can be compared with a graph plotted with known values of inductance and a fixed standard capacitance, in this case of 43 pF.

The active device in the oscillator is an MPF102 JFET which, along with all the other components, is available from

How do you know if you are a real Ham ?

by Josef HB9CIC
Translated by Mike VK3KRO

Here's a little test:

If you answer the telephone with your callsign and then add : "This is HB9DOK, I can read you 5 by 9".

If the geography teacher telephones you and wants to know why your child is designating the countries as VK, VE, SU and CT3.

If you use telegraphic codes in business e-mails.

If you dig through your neighbour's hard rubbish pile on the nature strip to see if there is any material for antennas in there, and if your dog answers to the name Marconi.

If you notice that the blackbird on the roof is warbling Q-codes, and if your alarm clock wakes you with a cheerful H...H...H...H in the morning.

If in the search for new apartment, the most important criteria are HF positioning and antenna installation possibilities, and if you immediately visualise all potential cable ducts and wall feed-throughs.

If your child, in response to the question "where do you live ?" replies : "IARU Region 1, Zone 14, JN47HQ, Schaffhausen".

If the most important question relating to holiday planning is "How do I get a visitor's license ?" (provided that there is any money left after the station equipment purchases).

If when going on holidays, the XYL has to stay at home because with all the transmitting gear safely stowed in the car, there is no longer any space left for her.

If when purchasing a new car, the capacity of the power system, the ignition interference suppression and the HF-interference rejection capability of the electronics are the most important attributes.

If you leave the house only after you have checked that you have the HT, but at the same time forget to take the key to the door with you.

If you talk about a storm as "local QRN", telephone your work colleague and inquire about the "sked" of the bowling club and if, at the sport club, you answer only to your callsign instead of your given name.

If when you are on holidays, instead of buying postcards, you fill in those QSL cards you brought with you, put stamps on them and post them in the letterbox.

If you worry about which indicators show whether you are a real radio amateur filled with the ham-spirit.

... then you are a real radio amateur, you bet!

Hidden microhenries exposed! *continued*

the usual suppliers such as Jaycar and Dick Smith.

The unknown inductance is connected with the shortest practical leads across A – B. All component leads and wiring in the gate area of the oscillator should also be kept as short as possible to minimise stray inductance.

If you use a GDO to determine the frequency of oscillation, turn the GDO on until the meter needle just registers movement. Then place the GDO coil near the one turn loop in the drain lead, rotate the calibrated GDO dial and look for a forward kick of the meter needle and read off the indicated frequency of oscillation from the GDO dial.

If using a digital frequency meter then the test leads should be connected between C and -8 V as indicated in Fig 1.

If using a communication receiver, the antenna socket should be connected to C and the receiver earth point to -8 V, and a band of frequencies needs to be tuned until the oscillator is heard and the frequency determined from the digital display.

Obviously, the use of the digital frequency meter is the most efficient method.

Once the resonant frequency of the unknown inductance and standard capacitor is determined, you can read off the value of the inductor in µH by consulting the graph (Fig 2) I have plotted using a few RFCs of marked value with +/- 10% tolerance I had on hand.

I have plotted the curve from 1 µH to 100 µH on a scale of 1 µH to one division and 1 MHz to five divisions. If you wish to use a fixed capacitor other than 43 pF across terminals A – B, you will have to plot your own graph.

The oscillator was built on a small piece of perforated board and hard wired. Terminals A – B are solder lugs spaced about 1 cm apart to which I soldered the inductance to be measured.

This unit can also be used to check crystal activity by removing the 43 pF capacitor across A – B and substituting a crystal for the inductor shown.

Finally, a disclaimer. If someone has published a similar article in any technical journal in the past, I am unaware of it.

ar

A solid-state AM/CW transmitter for 1.8 and 3.5 MHz

Drew Diamond VK3XU
45 Gatters Road,
Wonga Park, 3115

For various technical and operational reasons, amplitude modulation (AM) continues to attract a significant number of enthusiasts. For instance, in and around Melbourne, a friendly group of AMers participate in regular nets, notably the "Coffee Break" session at 11 A.M. weekdays on (nominally) 1.825 or 1.843 MHz. Wednesday nights at 8.30 P.M. sees 1.843 MHz similarly activated. A large "round-table" group also meets on 3.566 MHz on Friday nights.

Many contemporary models of commercial transceivers do indeed offer AM as a standard fitted mode. Unfortunately, in some iteration, the quality of the transmitted AM signal leaves a little to be desired. Output power may also be severely limited. And so thoughts about "home-brewing" something for the job inevitably occur. The valve transmitter outlined in Ref 1 was one earnest attempt to answer this need.

In practical terms, an AM transmitter may be constructed and made operational with a minimum of test equipment. Younger readers may not be familiar with valves, or there may be difficulty in finding some of the necessary parts for such a job. Offered here are plans for a solid-state transmitter using quite readily available off-the-shelf components.

The prototype model has the following characteristics:

Bands:	1.8 and 3.5 MHz.
Modes:	AM and CW.
Output Power in 50 ohms:	20 W AM, 0 to 20 W CW.
Spectral Purity:	Harmonics at least -40 dBc. No spurs.
Audio Bandwidth:	About -6 dB down at 150 Hz and 6 kHz.

Circuit

As most AM activity normally occurs on just a handful of frequencies, the circuit may be considerably simplified by employing crystal control. See Fig 1. Crystal (or ceramic resonator) is maintained in oscillation with an MPF102 FET. A 300 pF (or thereabouts) variable capacitor permits a small adjustment of a crystal's nominal frequency, whereas a 3.580 MHz ceramic resonator may be "VXOed" from about 3.5 to over 3.6 MHz, thus covering the most popular segment of the 80 m band.

A 74HC04 CMOS hex chip has its first inverter configured as an amplifier by use of a 100 k resistor between input and output of the stage. A 1N914 clamp diode improves the sensitivity of the input so that only 10 pF of coupling capacitance is needed between oscillator and amplifier. To obtain the two "phases" necessary to drive the push-pull output amplifier, the signal is taken from each side of the second inverter. The two signals so created are applied to two pairs of two paralleled inverters, thus alternately switching the gates of the push-pull power output (PA) pair, comprising two IRF612 power MOSFETs (Ref 2).

Positive supply for the '612s is fed via broadband toroidal choke transformer T1. A stack of two cores was found necessary to handle the high frequency energy plus dc current demand without core heating. Signal developed at the drains is coupled to the output using a toroidal bifilar-wound broadband transformer T2. The drain to drain impedance is close to 50 ohms, so T2 may be configured as a 1:1 transformer.

The PA '612 MOSFETs are alternately switched hard on by the square waves applied to their gates (Class D), so the output waveform also resembles a square-wave. The amplified signal must therefore be passed through a low-pass filter to remove harmonic energy. The simple two-section filters shown reduce all harmonics to less than -40 dBc.

After much experimenting with push-pull power transistors, MOSFETs, and re-building a mains transformer to work as a modulation transformer, it was eventually realized that an almost ideal

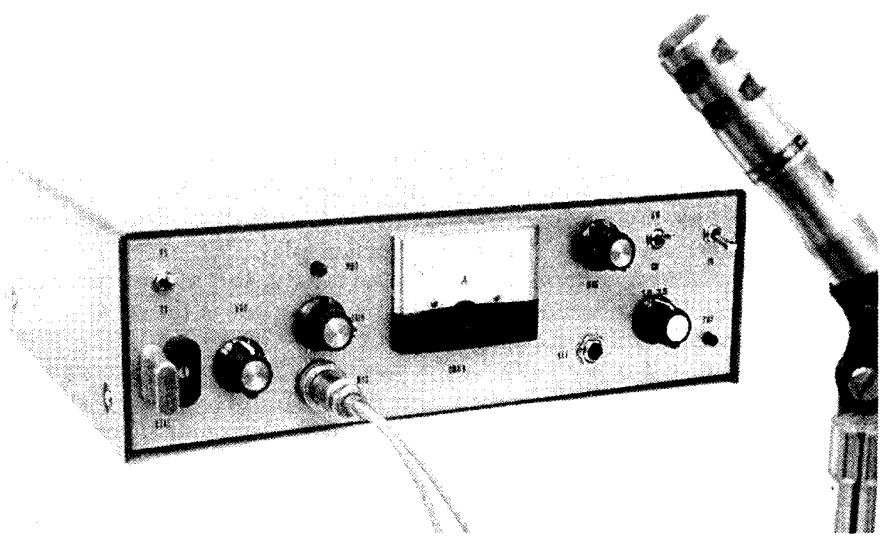


Photo 1 – AM/CW transmitter for 1.8 and 3.5 MHz.

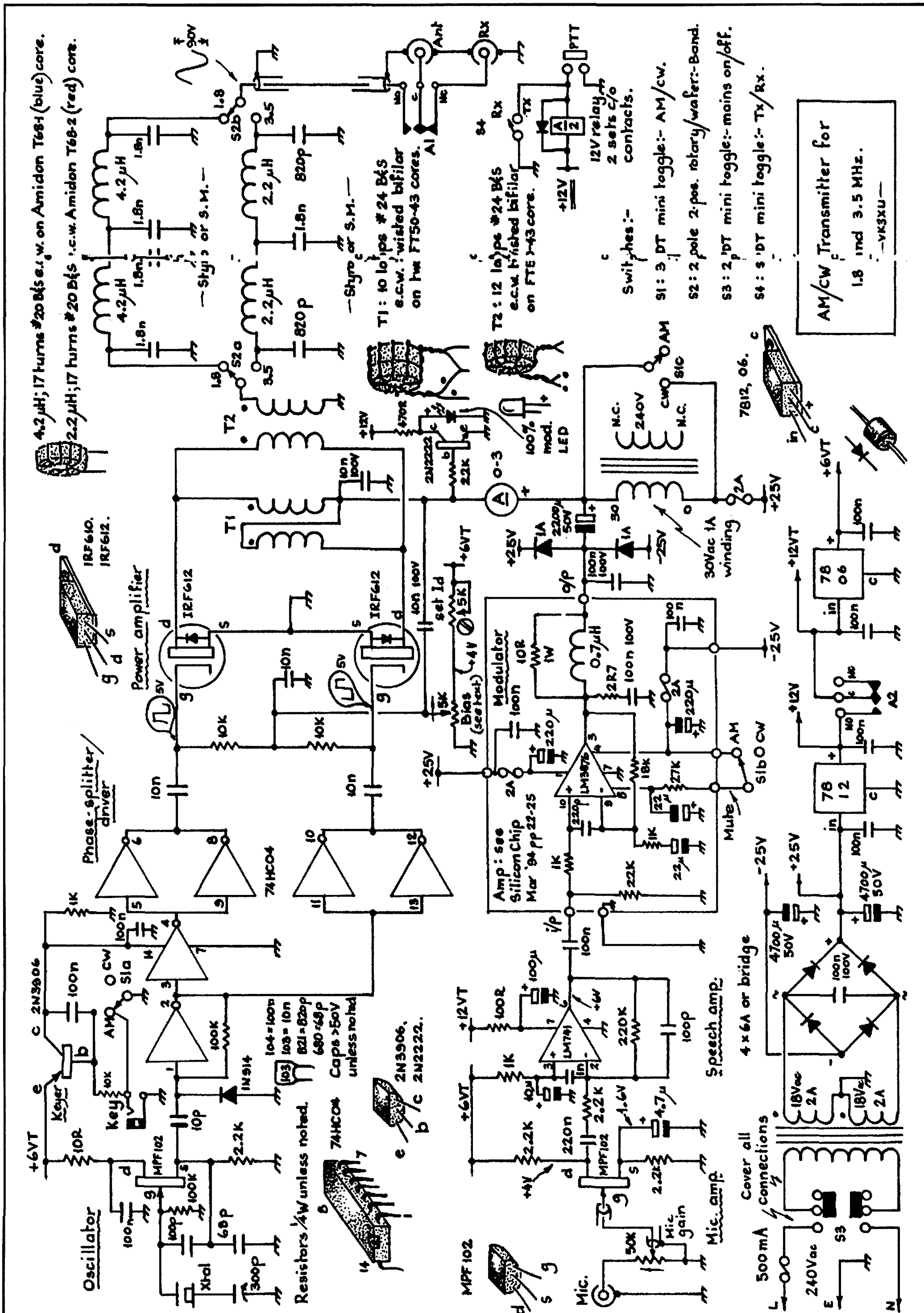

4.2μH; 17 turns #20 B&S c.w. on Amidon T68-1 (blue) core.
2.2μH; 17 turns #20 B&S c.c.w. Amidon T68-2 (red) core.
—Styro or S.M.—
—Styro or S.M.—
T1: 10 loops #24 B&S c.c.w. twisted bifilar on two FT50-43 cores.
T2: 12 loops #24 B&S c.c.w. twisted bifilar on FT50-43 core.
12V relay 2 sets c/o contacts.
Switches:-
S1: 3PDT mini toggle:- AM/cw.
S2: 2 pole 2-pos. rotary/wafer:- Band.
S3: 2PDT mini toggle:- mains on/off.
S4: SPDT mini toggle:- Tx/Rx.
AM/CW Transmitter for 1.8 and 3.5 MHz.
—VK3XU—
Oscillator
Keyer
Phase-splitter/driver
Power amplifier
Modulator
Speech amp.
Mic. amp.
Resistors 1/4W unless noted.
104=100n 103=10n 821=820p 680=68p
Caps >50V unless noted
Amp: see Silicon Chip Mar '94 pp 22-25
Bias (see text)
set Id
100% mod. LED
30Vac 1A winding
Cover all connections
4 x 6A or bridge
Mic. gain

Figure 1

modulator could be made from a conventional audio power amplifier I.C. A quick look through some electronics catalogues soon located a reasonably priced 50 W amplifier kit for a Silicon Chip amplifier (Ref 3). With +25 and –25 Vdc rails, the LM3876T produces about 30 W of clean audio power.

The problem of coupling the (modulation) amplifier output into the RF power amplifier (PA) was solved by simply employing the 30 Vac winding of an ordinary 240 : 30 Vac power transformer (which effectively operates as a 1:1 auto transformer). A 2200 µF capacitor is used to ac couple the amplifier's signal into the PA. Modulation characteristics are significantly improved by also applying a small amount of audio signal to the gates of the PA.

Sensitivity of the audio amp. module is about 1 V rms, so an LM741 speech amplifier is required to raise the microphone signal level. An MPF102 FET provides a little gain, but more importantly, interfaces the 50 k microphone input to the 2.2 k input of the '741 speech amp. circuit. There is a reserve of gain, so a wide variety of common microphone types may be used. The 100 pF feedback capacitor (around the '741), coupling and source by-pass capacitors have been carefully chosen to give an audio response (at the -6 dB points) of about 150 Hz to 6 kHz, which should suit most voice characteristics.

A toroidal mains transformer with two 18 Vac windings (18-0-18) of 2.2 A capacity, when full-wave rectified and smoothed, provides positive and negative rails of 25 Vdc for the audio amplifier chip. The +25 V rail also sources the RF power amplifier and supplies the +12 V and +6 V regulator chips, which power the antenna change-over relay and low-level stages.

100 % modulation is indicated with a simple transistor and LED circuit; PA voltage is sampled through a 22 k resistor, which turns the 2N2222 on, thus shorting the LED and preventing it from conducting. When the modulation cycle swings the effective PA voltage down to within a few volts of zero (about 95 % modulation), the transistor turns off, causing the LED to glow on voice peaks.

Construction

My homemade aluminium box/chassis pictured in Photo 1 measures 75 x 260 x 220 mm HWD. Any case of similar or slightly larger dimensions should do. An aluminium case allows us to use the bottom surface as heat-sink for the RF PA MOSFETs, and the rear panel as heat-sink for the LM3876T audio amplifier chip. A suggested layout for the major components is pictured in Photo 2. Not a great amount of waste heat is generated when the transmitter is run from 25 Vdc rails, so extra heat-sinking is unnecessary.

The Silicon Chip audio amplifier (modulator) should be assembled in accordance with the instructions supplied with the kit, which includes printed circuit board and all necessary components for that module. You may find, as I did, that the screws and spacers at the LM3876 I.C. end of the circuit board are redundant, because the audio

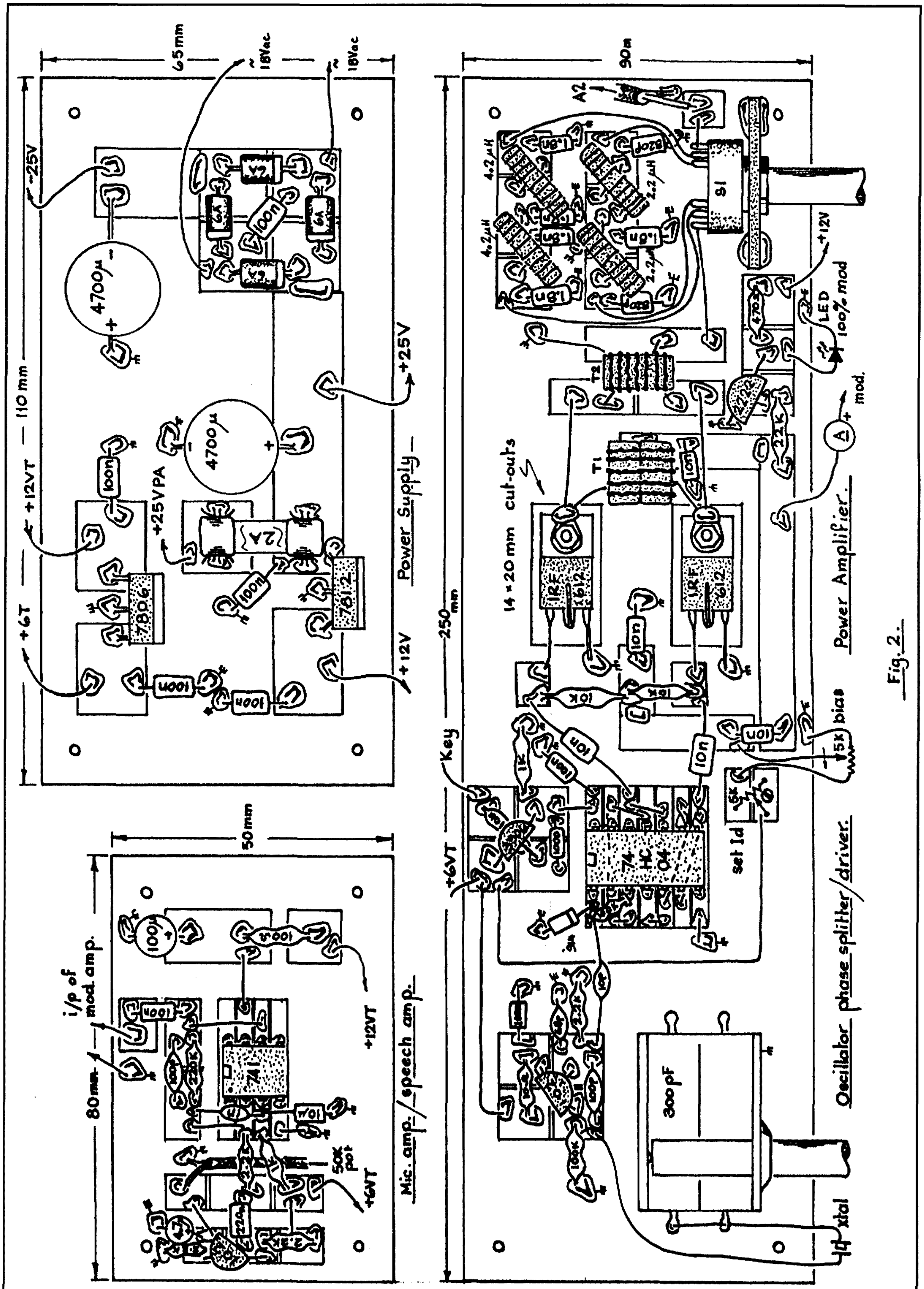

Power Supply
Mic. amp./speech amp.
Power Amplifier.
Oscillator phase splitter/driver.
Fig. 2.
110 mm
65 mm
50 mm
80 mm
90 mm
250 mm
14 × 20 mm cut-outs
+25V
-25V
+12VT
+6T
+12V
+25VPA
+6VT
Key
xtal
300pF
set Id
5K bias
LED 100% mod
mod.
i/p of mod. amp.
50K pot

Figure 2

board receives adequate support through the chip's mounting. The lug of the device is near -25 V rail, so don't forget to include an insulating silicone washer and mounting hardware.

Figure 2 shows 'Paddyboard' (Ref 4) layouts and board sizes for the mic/speech amp., power supply and oscillator/driver/PA boards. Ugly or neat 'blob' construction would also serve, provided that the RF and audio circuits are constructed along similar lines, and each circuit board, copper side up, is used as 'ground-plane'.

LM741 and 74HC04 chips should be fitted into sockets, these being soldered to 30 mm x 4-strip and 30 mm x 7-strip Vero off-cuts, strips uppermost. Run a junior hacksaw cut down the centre to create the individual lands. The socket pins poke through the Vero, so the socket and Vero must be super-glued onto the fibre side of a similarly sized scrap of circuit board. This 'substrate' may then be glued upon the circuit board as shown.

To allow the IRF612s to dissipate their excess heat into the chassis, rectangular holes of 20 x 14 mm should be cut in the PA board to allow these devices to be attached, using silicone washer and mounting hardware, upon the bottom panel of the chassis, as illustrated in Fig 2 and Photo 2. The PA board must be attached to the chassis base without spacers. The IRF612s should be fitted after the RF board has been installed.

Variable capacitor (any type with a maximum C of 300 or 450 pF will serve) may be mounted with solder lugs upon the RF board. To keep wiring to the low-pass filters short, band switch S1 may be mounted upon a 40 x 40 mm square of circuit board material, which in turn is soldered upright upon the RF board near the filters, as pictured in Fig 2.

Broadband transformers T1 and T2 are made as follows: Take two 300 mm lengths of #24 B&S (0.5 mm) enamelled copper wire. Fix the ends of the pair in your bench vice, twist the free ends together, then clamp the pair in the chuck of an eggbeater type hand-drill. Whilst maintaining tension on the pair, turn the drill until you have about three twists per cm. Give the drill a firm pull away from the vice to 'set' the twist.

For T1, carefully wind the pair onto two Amidon FT50-43 toroidal ferrite cores until you have about 10 loops. Snip the excess wire to provide leads about 20 mm long. Remove about 10 mm of enamel from each wire end. With your multimeter on ohms, identify the individual 'windings'. Winding starts are indicated on the circuit with a dot. Connect the end of one winding to the start of the other to form the supply end of the transformer. T2 is 12 loops wound on a single core in a similar manner to T1. Take care that the windings are connected exactly as shown on the circuit.

Power supply board may be attached to the rear panel as shown in Photo 2. Heat-sinks are not required for the regulator chips. The two audio output protection diodes and 2200 µF coupling capacitor may be accommodated upon an 8-lug tag strip attached to the rear panel.

Wire connections to the antenna change-over relay contacts A1 should be reasonably short, so the relay may be positioned near the (Ant)enna and receiver (RX) connectors. To prevent transmit power being accidentally applied to your receiver's input, fit a different connector type for each. Use miniature coax or shielded wire for the connection between S2b and relay, as shown in Figs 1 and 2.

All wiring connections on the primary (mains) side of the power transformer must be suitably covered with close-fitting plastic spaghetti or heat-shrink tubing to prevent accidental contact.

For more stable VXO operation on 3.5 MHz, an ordinary 3.58 MHz ceramic resonator may be fitted inside a defunct style 'D' crystal holder, as described in Ref 5.

Operation

Do a thorough inspection for accuracy of all wiring, parts placement and their polarity where applicable. Remove the 2 A fuse in the +25 V supply for the PA. Adjust the 'set Id' trim-pot initially for maximum resistance.

To test the audio amplifier, lift one lead of the 2200 µF amplifier output coupling capacitor and connect a hefty hi-fi loudspeaker of perhaps 8 ohms between chassis and the audio output pin of the audio module. Plug in your microphone. Turn the audio gain pot to zero. Apply mains power. In the RX position of S4 (open), measure your + and -25 Vdc rails. Being un-regulated, they may read a little higher or lower. Close S4 (TX position). Relay A must operate. All being well, advancement of

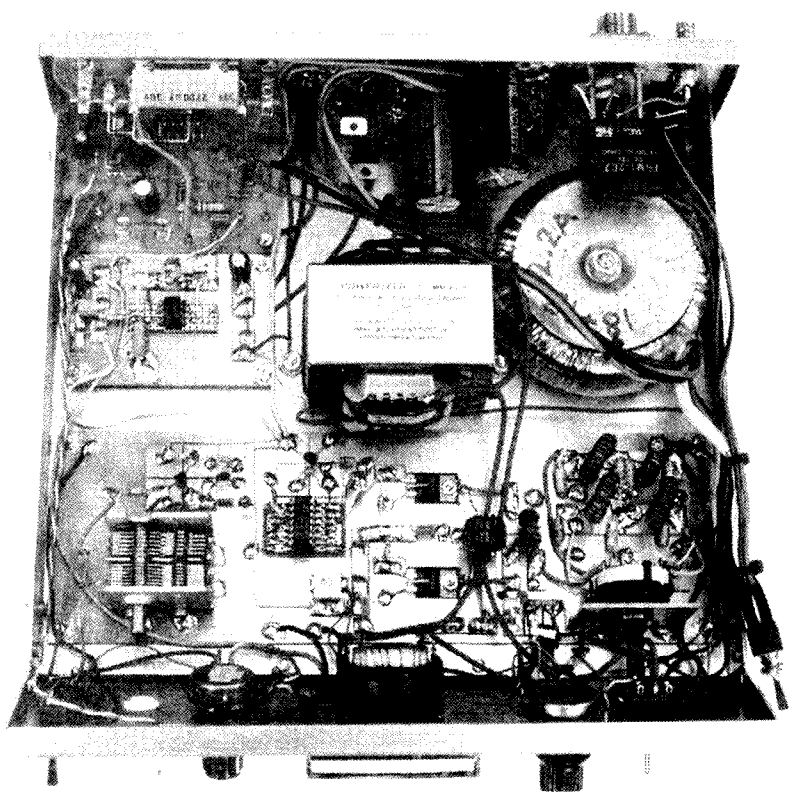


Photo 2 – Internal view – front panel lowered for clarity.

the 50 k gain pot will allow you to bring microphone speech up to a very high level. Your voice should sound clean and natural, with a reserve of gain. Measure the +12 V and +6 V regulated supplies. The LM 3876 should remain cool.

Switch off and re-connect the 2200 µF capacitor and replace the 2 A PA fuse. Insert a 1.8— or 3.5— MHz crystal, and set S2 to the corresponding band. Connect a suitably rated 50 ohm dummy load/power meter to the Ant connector. Plug a Morse key into the key socket. With S1 in CW position (key open), close S4 (TX). Indicated drain current (Id) should be zero. Rotate the Bias pot to maximum (arrow). Now adjust the 'set Id' trim pot for a no-signal standing current of about 0.2 A. Key closure should cause Id to rise to about 1.5 A, indicating that the PA MOSFETs are being driven properly. Output power should be about 20 W.

Switch S1 to AM. Whilst speaking, advance the 50 k gain pot until the 100% mod LED just begins to glow on voice peaks. Indicated Id should flicker a little around the 1.5 A level. If an oscilloscope is available, observe the modulated output waveform, where a steady whistle should produce (below 100 % mod) "text-book" bullet-shaped peaks and troughs.

Listen to the AM signal on your station receiver. Provided that the receiver is not overloaded, voice should sound natural, without excessive "whiskers" at levels below 100 % mod. Keyed CW signal should be similarly clean, without excessive clicks, chirps or ripple. Some salient voltages are shown on the circuit of Fig 1 to aid in any necessary troubleshooting.

The PA is very tolerant of serious load mis-match. However, load SWR should generally be held at less than 1.5. In AM operation, best modulation characteristics are obtained at full (20 W) output. On CW, the Bias pot may be used to set the power level from zero to full output as required. On a hot day, and after a long transmission, standing Id may creep up a bit. Simply re-adjust 'Bias' to bring the no-signal level (CW mode- key open) back to about 0.2 A (not critical- but should be less than 0.5 A). To net the XO or VXO without putting a signal to air, switch S1 to CW, and S4 to TX, whereupon the oscillator's signal will be audible with the key open.

Parts

All of the common components are collectively available from our usual electronics suppliers. Ordinary ceramics and some polyester capacitors incur a small loss when used in a low-pass filter, so silver mica (S.M.) or Styroseal/ polystyrene are recommended. Our local suppliers seem to have dropped these from their catalogues. However, they are available mail order from Ocean State Electronics (www.oselectronics.com) and Antique Electronic Supply (www.tubesandmore.com).

The 80 VA mains power transformer, which has two 18 Vac/2.2 A windings, is available from Altronics; Cat. No. M5118. For the "modulation" transformer; any mains transformer, which has a winding of 30, Vac at (about) 1 or 2 A will do. Mine is a Jaycar MM 2008. A generic (or A & R) type 6672 will also serve.

The suggested Silicon Chip audio amplifier module (Ref 3) may be a D.S.E. K 5606 (includes heat-sink- not required as the back panel serves) or Jaycar KC 5150.

IRF612s (or IRF610s) are known to be available at reasonable cost from Electronic World; ph 03 9723 3860, www.elctronicworld.aus.as (will answer mail orders).

Ideally, the PA current meter should be a 2 or 3 A fsd, but these are no longer a catalogue item. A stock 5 A meter would do. Some D.S.E. stores may still have "universal meters", which, with a suitable shunt, could be made to read 3 A fsd. Or it may well be possible for you to adapt a 2 mA (or similar meter) to read 2 A fsd by making an appropriate shunt.

References and Further Reading

1. "A 25 W AM/CW Transmitter for 1.8 and 3.5 MHz"; *AR*, Nov. '02.
2. Power MOSFET Transistor Data; Motorola.
3. "Build This 50 W Audio Amplifier Module"; D. Yates, *Silicon Chip*, Mar 94.
4. "Paddyboard Circuit Construction"; *AR*, Feb. '95.
5. "A Simple HF Signal Source"; *AR*, Oct. '02.

ar

5.7GHz ATV *distance record* – 111 km

Having been operational on Amateur Television for some time in the 3, 13, 23 and 70cm bands I decided to venture into other parts of the microwave spectrum available to the amateur service. Not only would this be a challenge but it would help to establish an amateur presence before data and video services completely take over, as we are seeing to some degree in the 2.4 GHz band.

L G Benjamin VK5RD

Which band to go for? 3 or 5 GHz, either would be interesting although power stages at these frequencies are expensive to purchase or indeed build. That question was soon answered when inquiries revealed that surplus 6.4 GHz 5 watt amplifiers (+37 dBm) requiring approximately 300 mW (-5dBm) of drive were available at a very reasonable price. Even better, for an additional small fee they could be supplied retuned or as it is called in the trade snowflaked to 5.7 GHz. Further inquiries revealed however that 3.4 GHz amplifiers or discrete components to build one were difficult to find, hence it had to be 5 GHz.

Having decided on 5 GHz it came to my attention that no distance record had been established in Australia for amateur television in this band or indeed the 3.4 GHz band. Why not create one?

To this end discussions with Barry VK5BQ with whom I have regular contacts over a path of some 70 km on various bands up to and including 10 GHz ATV resulted in the purchase of two of these amplifiers as the basis of a complete 5.7 GHz system.

Over a period of some months late last year two systems were constructed and tested culminating in an initial transmission from Barry VK5BQ in Stansbury to Maitland VK5AO located in Adelaide some 80 km to the East on the 5th of November 2002. Pictures received by VK5AO on a scale of (P1 to P5) were P5. This was very encouraging when one considers that although VK5AO is located some 300 ft above sea level he was only using a chaparral feed (no dish) mounted 30 feet above ground. Unfortunately at this time I was unable to participate as my own equipment although operational had been packed away ready for a record attempt at some time in the future. (Photo 4 test pattern)

As a result of VK5BQ's transmission and subsequent contacts it was decided that an attempt on the record would be made sometime in late November. However, before such an attempt was made both ends of the link needed to be tested to ensure reliability and satisfactory operation.

Accompanied by Graham VK5JD I traveled to Stansbury on Sunday the 24th of November where to the bewilderment of some locals and caravan dwellers we conducted tests with VK5BQ over a path of some 3 to 4 km. (Photo 5. The VK5BQ set up at Stansbury)

Buoyed by our success we decided to make an attempt on the record the following day, Monday the 25th of November. As dawn approached it was apparent that Murphy had moved in and no record would be created this day except perhaps annual rainfall for Yorke Peninsula. It was so heavy and cloud layer so low that visibility just a few hundred feet ahead was difficult. Forever the optimist, I persuaded Graham that by the time we got to Menglers Hill some 120 km from Stansbury the weather may have improved sufficiently to give us a chance of success although privately I was very doubtful. "It's unbelievable", I kept muttering to myself, "no bloody rain for almost 12months and it has to rain today of all days".

These doubts were confirmed upon our arrival at Menglers Hill. If anything the weather had got even worse with winds of

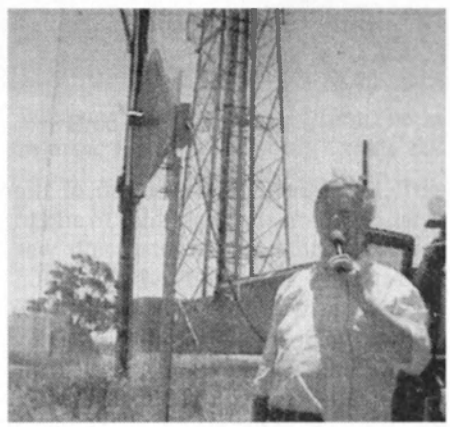


Photo 1. The set up at the Telecom site near Williamstown SA.

Photo 2. "You beaut!" Ben VK5RD

Photo 3. The team at Williamstown. Ben VK5RD and Graham VK5JD

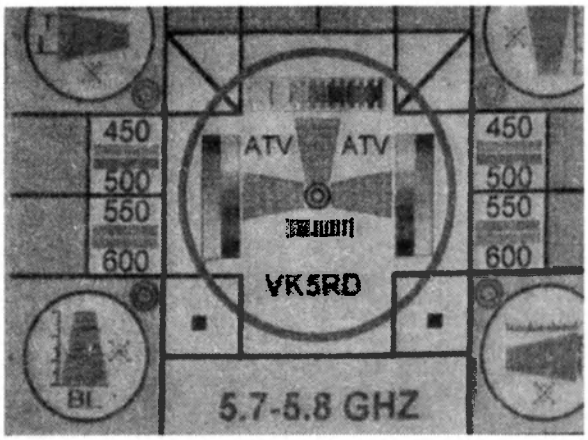


Photo 4. Test pattern

sufficient speed that erection of the antenna was near impossible. To add to our woes the ground underneath was muddy and waterlogged and in addition trees, large wet trees, the bane of all microwave operators stood between us and VK5BQ's QTH at Stansbury.

Dejected, cold and wet but not beaten, we adjourned to the local Hotel to (sorry for the pun) drown our sorrows. After the second or third beer the pain wore off and the barmaid started to look half reasonable. After a few more we returned home to Adelaide.

Discussions over the next couple of days resulted in another attempt from an alternative site some 10 to 15 km nearer to Stansbury but further East and at a greater altitude.

This time success, no rain, no wind and no trees.

On Thursday the 28th of November 2002 a 5.7 GHz two way national ATV record was established between Barry VK5BQ and myself Ben VK5RD at 12.40pm local summer time or 0210Z. The distance involved was 111km from a Telecom site some 600metres above sea level located approx. 5km east of Williamstown to VK5BQ's QTH 20 metres above sea level located 3 km south of the township of Stansbury on Yorke Peninsula. (Photos 1, 2, and 3)

Signals both ways were so strong that a much greater distance could have been claimed if an alternative site further to the East or North East could have been readily identified.

Not wishing to ignore the achievements of other operators in the band I am aware that much greater distances have been attained by FM, SSB or CW operators using narrow band emission. One must remember however that FM ATV is 18 MHz wide not a few Hz or 25 kHz wide. Having said that, each mode presents different demands on equipment in use.

Before concluding transmissions the obligatory bottle of champagne was consumed on camera before adjourning to the Williamstown Hotel for a late lunch. This time the barmaid looked half reasonable even before one glass of amber liquid was consumed.

On the way home Graham and I discussed what record we may be able to break and/or establish in the future and locating other suitable sites for future reference. 3.4 GHz was discussed amongst other bands but at that time suitable amplifiers etc were not available at least at prices most amateurs with long pockets and short arms can afford.

Since then however, 15 watt (+ 42dBm) 3.4 GHz amplifiers have become available requiring some 4 milliwatt (+6dBm) for full output. At the time of writing this article a 3.4 GHz system is under construction so maybe another record in the future.

For those technically minded, transmitting and receiving equipment used at both ends of the link were similar except for size of dishes and feeds employed.

The base band transmitter consisted of a phased locked loop controlled 1152MHz oscillator modulated by video and audio to produce a frequency modulated composite signal which when applied to a times 5 multiplier produced a signal on 5760MHz. With either a suitable pad or variable control of some sort, sufficient drive was applied to the final amplifier to produce 5 watt output. The audio subcarrier used was 6.5MHz.

The receiving system consisted of a GaAs Fet 5GHz converter to an analogue satellite receiver and video monitor. The IF chosen was in the order of 1 GHz.

VK5BQ'S antenna consisted of home made 1.2 metre mesh dish utilizing a chaparral feed exhibiting a gain of 35dBi at 5.8 GHz.

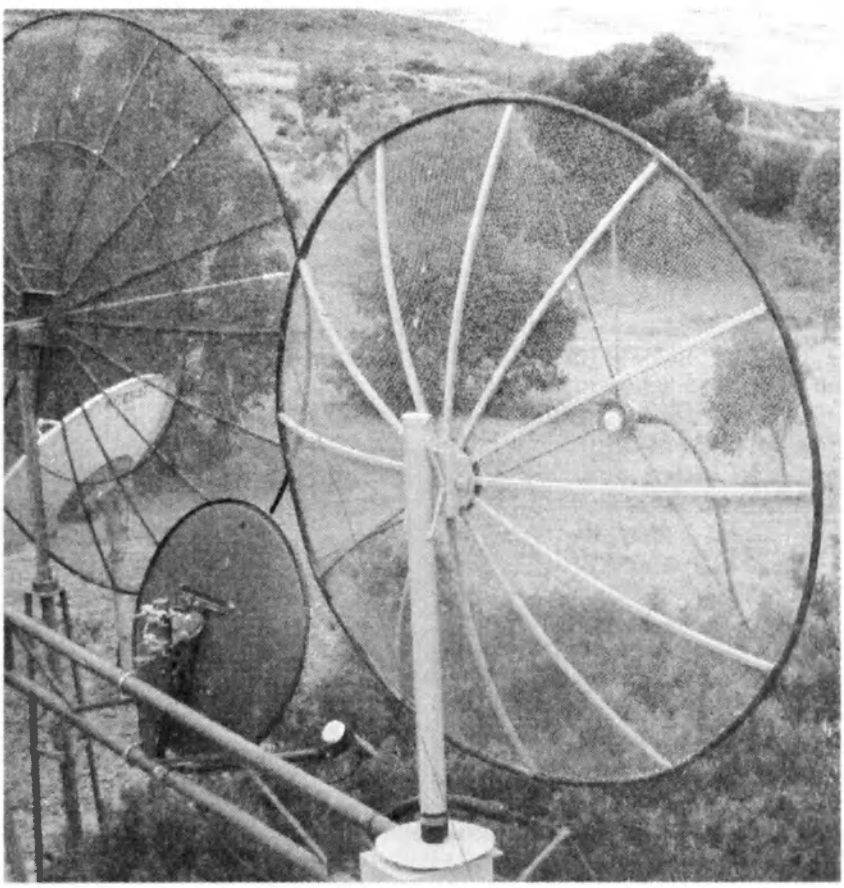


Photo 5. The VK5BQ setup at Stansbury

continued on page 16

A CW transmitter for 40 metres

Joe Rotenberg VK3BBN

Not long ago I wrote a letter to AR in which I said that in order to keep the art of electronics alive in Australia people who used to teach laboratory work at educational institutions ought to encourage hams to make something.

I remembered that I had once taught laboratory work at an educational institution. I then tried to remember whether I had ever encouraged any ham to build anything or indeed built anything myself, and at this stage I began to feel rather guilty.

This article describes a simple CW transmitter for 40 metres. There are only 11 components, not counting the morse key itself and the various sockets; and the output power is of the order of 1/2 watt depending on how carefully you make it.

Principle of operation

The circuit is a crystal oscillator with an untuned transformer that matches the antenna load to the collector. Oscillation is achieved by means of an additional "tickler" winding on the transformer that provides positive feedback to the base via a series crystal.

A low pass filter on the output cuts out harmonics, and supplies a "flywheel" to the output circuit. The purpose of the resistor is to provide some bias to start the oscillator off. It also provides the dc bias needed by the transistor during oscillation, as there is no other dc path to the base.

The purpose of the electrolytic capacitor is to provide some key shaping.

There is also a small capacitor across the electrolytic for decoupling. Without it the RF impedance of the power supply and morse key cables will reduce the RF voltage seen by the transformer, resulting in a reduced output power.

Choice of transistor

The transistor chosen is the BD 139, a cheap audio power transistor, which however has a very high top frequency (unity gain at 250 MHz). While not Intended for this application, it seems to give good service.

Construction

Because this is a transmitter, and a crystal controlled one at that and not a receiver there is no need to shield the circuit. Thus it may as well be assembled in a plastic rather than a metal box. (I find plastic easier to work with than metal, particularly when it comes to filing large holes.) For a circuit as simple as this it is hardly worth making any kind of circuit board and the components can just be glued to the inside walls of the case. Interconnections can then be made with stiff wire.

One possibly tricky part is to work out the correct value of the resistor. This should be done to give a standing collector current, with the circuit not oscillating, of 420 mA at a supply voltage of 12 volts. Before soldering in the transistor, measure its current gain. This can be done on most digital multimeters. The resistance in ohms is then given by:

R = Current gain x Supply voltage / dc current (in ampere)

Example: For a current gain of 168,

R= 168 x 12/ 0.42

= 4800 ohm

= 5.6 k, taking the next preferred value up.

If you don't have a means of measuring the current gain of your transistor, then to be on the safe side, design for a gain of 250, which is the maximum quoted by the manufacturer. This gives a resistance of 8.2 k. Doing this will reduce the power output for a lower gain transistor sample, but it should still work.

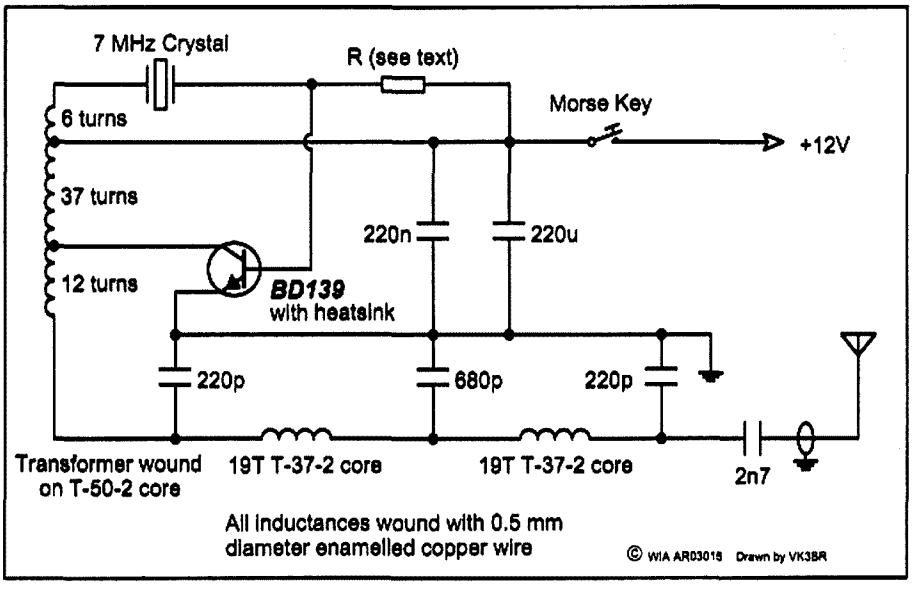
The other point to remember is ordering the crystal. In this circuit, the crystal is working in series mode, so make sure you mention this when buying the crystal otherwise it won't work exactly on the right frequency.

On the Air

Unfortunately I am confined to a small ground floor flat. I have restrictions that preclude putting up antennas and so all I have is a small piece of wire inside my study. With such an antenna and only half a watt all I could do was get across Melbourne, which actually is reasonably easy. Maybe I could have got further with more patience, but this is not one of my virtues.

I would be interested to hear of your experiences with the transmitter. I am QTHR in the callbook.

I know we all have black boxes which can work much better with much less effort, but the point of the exercise, as I said at the beginning is to keep the art of electronics alive



5.7GHz ATV distance record

continued from page 14

My own antenna consisted of a solid 600 millimetre aluminium dish utilizing a tapered wave guide with dipole and reflector feed exhibiting a gain of approximately 29 dBi at 5.8 GHz.

Both dishes were prime focus types with an f/d ratio of about 0.375.

My received signal at Stansbury was simultaneously recorded and relayed via 1250 MHz back to viewers in Adelaide making a round trip of some 185 km.

In conclusion Barry and I would like to acknowledge Graham VK5JD for his support in carting the gear around in his fourwheel drive over some roads which could only be described as unreal. Graham was also instrumental in locating a suitable site and filming the whole event except the barmaid. (Photo 4)

I would also like to mention Mark VK5EME who supplied many of the parts and kits from which our stations were constructed. In addition, thanks to Steve VK5SFA for the loan of his portable generator and 12 volt monitor.

Finally for those who may be thinking about ATV remember it was only a few years ago I was a dedicated HF man. Although having worked on the allocation of microwave services for a number of years I had no practical hands on experience.

With the help of other ATV operators and the availability of very reliable and easy to build transmitters and converters I have been able in a short period of time to construct phase locked loop, digital readout ATV transmitters for 1250 MHz, 2.4 GHz, 5.7 GHz and 10 GHz with associated receiving equipment, antennae and feeds.

It's really not that difficult provided you follow tried and proved rules of construction, testing and safety which if you ignore can cost you big money and a lot of grief.

A wide selection of kits and accessories is available from Minikits here in South Australia. For more information have a look on Minkits' web page: http://www.minikits.com.au Follow the instructions and you can't go wrong.

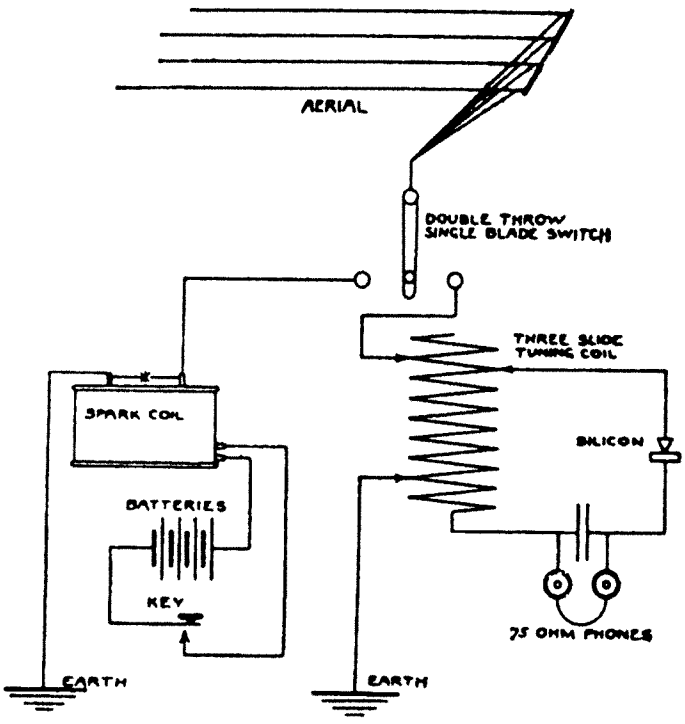
Well, what now since the record was established?

ar

The *Sparks* era

Malcolm Haskard VK5BA
"Windrush House"
RSD 1244 Bassnet Road
One Tree Hill SA 5114
Phone 8280 7192

To commemorate the centenary of the first radio transmission across the Atlantic on 12th December 1901 (by G Marconi) the Historical Radio Society of Australia (SA Branch) held a special meeting that focused on spark transmission. Mr Don Hosking, the current SA President, spoke and demonstrated his working models of spark transmitting and receiving equipment. Anyone interested in this Society should contact the Secretary Alistair McAllister on 8523 4462, or email - alizoo@,kern.com.au



This a complete station diagram? Yes, indeed, in the era when the spark coil and crystal detector were supreme. From the *Wireless Age* of June, 1914.

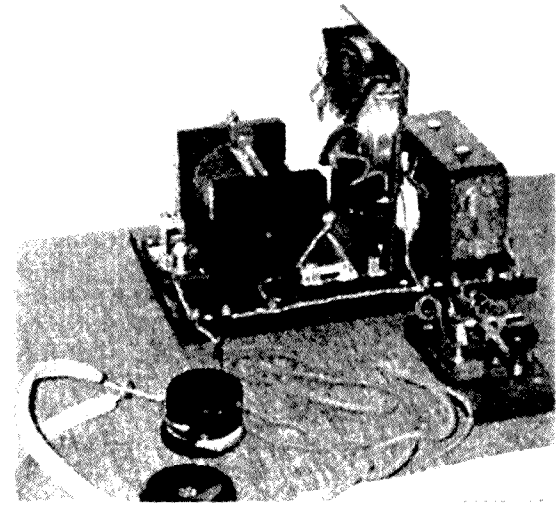
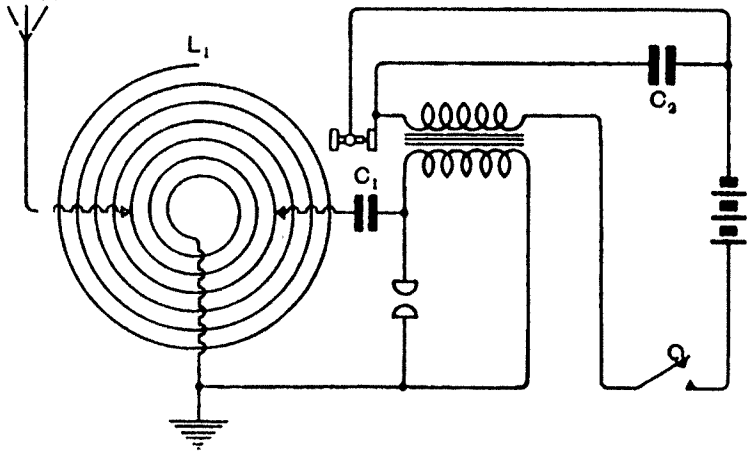


Photo 1.Reproduction of an amateur radio spark transceiver of the 1915 era. The transmitter is built around a model T Ford ignition coil while the double slide tuned crystal set receiver uses a silicon/steel detector. Built by Malcolm Haskard VK5BA.

SMALL SPARK TRANSMITTER—H.B. 89



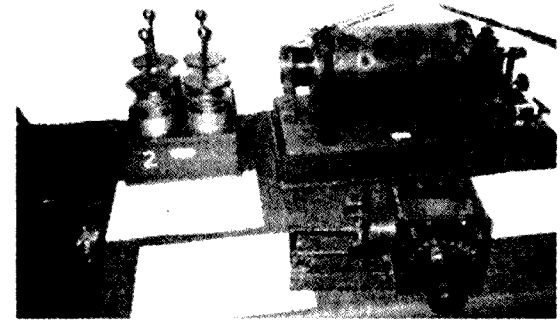


Photo 2. Commercial items from the early 1900s era loaned by the University of South Australia, School of Electrical and Formation Engineering. Box of four Leyden jars (each jar has a capacity of about 1000 pF); Large induction coil originally used to drive a five foot high Tesla coil (the base holds a capacitor, alternate layers of glass and tin foil sheets, to reduce the vibrator contact arcing). Tapped inductances variable coupler.

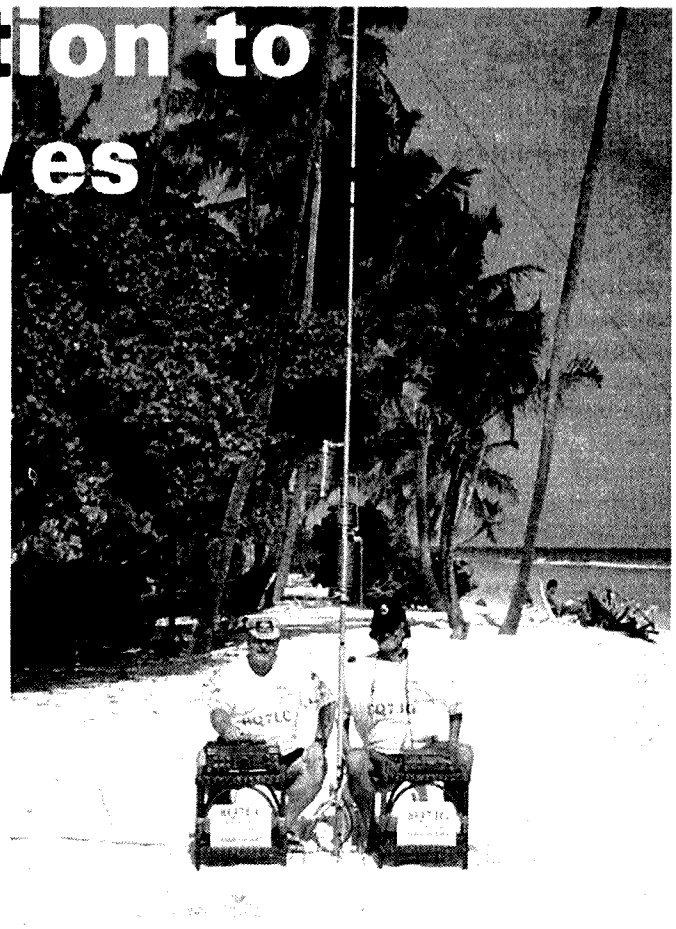
Our DX-Vacation to the 8Q-Maldives

July 2003

By Malcolm Johnson VK6LC(8Q7LC) and
John Gillespie K4JWG (8Q7JG)

(see also pictures on inside back cover)

After placing our 4wd DX-pedition East-West following the Tropic of Capricorn on hold, John and I decided to do something in style for a change. *No* tents and *no* baked beans. *No* back aches or nasty crocodiles. We chose the Maldive Islands for their warm weather and their Dx-location just above the Equator, as in July conditions were good from that latitude and very poor here in Australia.



The Maldive Islands are located approximately 500km east of the southern tip of India and run north-south for about 900km between the Arabian Sea and the Indian Ocean. They are 6,300km NW of Perth and 9,500km from Brisbane with 1,192 coral Islands to choose from. The Maldives was a British Protectorate until 1965 when the Country gained Independence. Prior to tourism, yellow fin tuna was the mainstay of the economy. It still counts for 40% cent of export earnings.

We now had the challenge of putting together a 100 watt portable station. The equipment was not the problem but our excess baggage weight was! We are allowed 20 kg only. Every kilogram over this will cost us $16 Aus. kg one way. My final weight came to 58 kg, FT990, FT840, power supply, coax, bits and pieces with a Butternut multiband Vertical and its radials. Between us both we totalled 40 kg, 18 kg or $576 Aus. over weight. We may have to go naked! So we had our toothbrush shorts and "8Q7" tee-shirt that was our tropical wardrobe for 18 days including transit. Singapore Airlines came to the rescue and gave us 30 kg donation. This brought our extra expenses down to $336 Aus. for the vacation, we thought. Wrong! On the return journey from Male to Perth my baggage was 59 kg less 35 kg, or 24 kg excess at a new carrier rate of $21.55 USD a kg. This equates to $517 USD or $858 Aus. Plus road freight $80 Aus. so my expenses to operate a 100 watt station cost $1,274 nearly the same cost for a return economy air fare.

For those that do not understand DXing, nothing is "free", including "QSLing". Next job was to road transfer 20 kg up to John in Mackay from Perth, this was his part of weight sharing.

After receiving our Maldives Licences and Customs Import-Export Licences for our equipment it was time to leave the cold weather behind and join the tropical temperatures of the Maldives. John and I left Australia, freezing, to meet in tropical Singapore for the day. Dave Rankin 9V1RH was our host. This was John's first visit to Singapore so there was much to see and taste. "Singapore Noodles" was right on the menu at Newton's Circus. Departing Singapore late that evening (Day 2, no sleep) we arrived on Hulhule Island, Male International Airport. This was the last place we could get a beer as the Maldives is a moderate Islamic State with a governing President. Just two kilometres in a Maldivian wooden ferry (Dhonis) and we were in Male, the capital island of the Maldives.

Male is about 3 square kilometres and accommodates around 270 thousand people, approximately a quarter of the islands' total population.

We were met by our hotel mini bus, and finally arrived at our destination quite dizzy as there are no main routes internal to the island, only small narrow paved streets that could just fit our mini bus. I guess we just died that night, and the big surprise came next morning when we looked from our hotel balcony. Everything was so crammed, and water was all round us.

We departed Male by sea plane, the general transport throughout the island resorts, again big problem for us and all our equipment. The general sea plane cargo was normally newly weds or honeymooners. What a pain radio operators must be to the air crews in a light aircraft. Our sea plane journey from Male to Kuredu Island Resort, 150 km north would take about an hour, so we and our equipment had to be split up. We decided this had to be our lucky day – the call sign on the sea plane "8Q-MAL". In fact it did turn out to be lucky.

En route the aerial views of the many atolls were an experience. The sights were so unbelievable, John's new digital camera sounded like a 50 wpm automatic Morse key. Deep, dark blue, tapering to a soft, aqua, light blue,

outlined the peripherals of the atolls and tropical Islands. We arrived at Kuredu Island Resort, our home for the next 14 days. We selected our air-conditioned 24 hour serviced beach bungalow right down at the end of the island out of everyone's way. Kuredu Island is located on Lhaviyani Atoll 05deg-33min N. 73deg-29min E. grid square MJ65rm. Zones CQ 22 and ITU 41. It's about 5 km long and about 2 km wide. The Island was just magnificent, very tropically wooded, protected by huge coconut palms. This we were to appreciate later for the shade and fresh coconut drinks on tap every day. Our bungalow was brick walled with a coconut palm styled roof, only 25 metres from the water's edge. It included a private beach where we mounted our vertical antenna and sprayed its radials all over the place which were later dug into the beach sand for safety. We could clearly see it at all times from our shack window and wooden terrace verandah, as well as the sunset.

We were met on arrival by a Maldivian Ham, Ibrahim 8Q7QC, who was the Kuredu Island Boat Master. Ibrahim was a warm friend to John and myself, giving us special treatment and ensuring we were made very comfortable. We had also the opportunity to try their special Maldivian curried tuna followed by ground coconut sweets.

Finally all the radio station was set up and time for a "cold beer" which we had to sign for as they are consumed and traceable. The European styled smorgasbord food at the restaurant was just unbelievable with friendly service. It was just as well we had a 2 km walk back through the tropical gardens to our beach bungalow after our meals, as we both ate far too much and needed to burn it off. No shoes on Kuredu. Just bare feet to tread the soft white sand.

During the World Wide IARU HF "ITU" Zones contest on 12th and 13th July my equipment was running red hot, but I could hardly keep my eyes open, so I have to confess I did not last the 24 hours. But I did really well on SSB and CW. By the end of the contest I had clocked up a thousand QSOs and written up around 102 DXCC countries. Conditions were excellent around the equator right through to South America, but no VKs. Propagation was not good to VK-ZL or North America. I thoroughly enjoyed the contest and was proud to represent the Maldive Islands this year.

Over the next week we just lazed around on the beach and enjoyed life Kuredu style. I went on the radio only 2 to 4 hours per day and this was enough for me. I retired from DXpeditioning and its hardships several years ago. I found a nice opening into North America in our early morning and worked many stations and my friends. Our island was about 5 hours behind Perth time and 7 hours behind Eastern Australian time. We were at one period running 5 time zones for our friends and UTC. Luckily I worked some of my friends on CW in Perth. It was very late for them. Kuredu Island Resort was on their own daylight-saving time, one hour behind Male time.

John kept in touch with our friends on the Australian 21.185 travellers net, the only contact we had with Australia for most of our vacation. For many days we could get into Darwin and Alice Springs only, then it happened on 10m working into Mount Barker and then 15m into Perth. John is still looking for his mates in Mackay. Maybe they all slept in! We did.

Weather was fine although the tropical rain appears each day and this is why it's so green and smells so fresh. The varieties, colours and shapes of the marine life were also magnificent. John enjoyed being out on the main ferry jetty each night to film the day's catch from local fishermen who supplied us with fresh fish daily. It was fun to feed the local tropical fish under the jetty's lighting. Every time you looked you saw something new.

Ibrahim 8Q7QC picked us up in his speed boat to visit his home, Naifaru Island, about 50km north of us. On the way we visited many of the islands, and were given a tour of the yellow fin tuna processing factory on Felivar Island.

At Ibrahim's home we experienced a typical Maldivian meal with his mother and father 8Q7AC, the first licensed ham in the Maldives. The day was spent strolling around his small island along the narrow paths and lanes to their village. We visited the very neat and clean local modern school where English is taught. Many educated Maldivians have been to Australian universities. They also have their own written language. John, being a retired male nurse, visited the Islands' hospital which was very modern, chatted with the staff and exchanged greetings from Australia to all. I, a retired electrical design engineer, headed for the power station and reverse osmosis cold water fountain.

It was beaut to ask and be asked questions with the Maldivians as there was not a language problem. We also created a rapport and friendship with the Island staff who were fantastic and enjoyed some Aussie humour. We did a lot of swimming both in the pristine swimming pool and around the Islands blue majestic waters. John and I can only say the professional staff and hospitality during the sixteen days on the Maldives Islands, plus the local Male Agents, Communications Authority and Air Taxi Transfers, would be something to beat.

I completed several thousand QSOs and clocked up 122 DXCC countries. Conditions through to Europe, Asia, Africa, Pacific Ocean and South America were the best for me and worked 10, 12, 15, 17, 20, 40 and 75m. Although it was difficult to work VK, I met a station from VK2 and within minutes we worked on 5 bands SSB. CW conditions were also very good as this location was noise free, but the pile-ups were too wide for me. My FT990 rig and the Butternut vertical performed without fault even through the tropic rain every day. My advice to other Hams considering a five-star holiday, is to have plenty of dollars if you intend enjoying your radio.

We spent our last day in Male where we hired a taxi for the day to see the sights and save our weary legs – remember we were doing this in style! We shopped, visited the markets, sampled local fruits and drinks, ice-cream and food, and stocked up with plenty of "Maldivian Curry" to bring home for our next 4WD trek across Australia – you guessed it! *Curried baked beans!*

Our last day went by quickly. We were noticing the heat now, not being shaded by coconut palms. Before we knew it we were back in Singapore and on our way back home to Australia.

Our operation was from 11th to 24th July 2003. 8Q7LC colour picture QSL is available. QSLing is direct only with return postage to VK6LC, 9 Abinger Road, Lynwood, Western Australia. 6147.

Thanks to the Maldivian People for a wonderful DX-Vacation.

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Technical Abstracts

Gil Sones VK3AUI
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Low pass filter

A low cost high performance low pass filter for all bands from 1.8 MHz to 50 MHz was described in QST November 2002 by Bill Jones K8CU. Such a design is useful now that many HF transceivers provide 6 metre coverage. The design was made to allow operation at 1.5 kW for operation within the American power limits. At our power limits it is

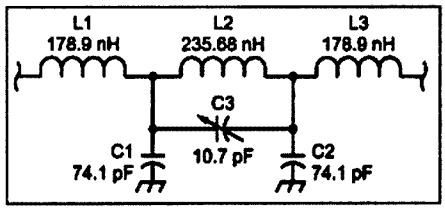

Fig 1. Low Pass Filter Schematic.
C1, C2 74.1pF. 2 inch by 2.65 inch brass sheet sandwiching 0.03125 Teflon sheet to enclosure.
L1, L3 178.9 nH 3.5 turns 1/8 th inch OD Copper tubing 0.75 inch diam form 0.625 inch long with 1/4 inch lead length to solder to brass cap plate and connector.
L2 235.68 nH 5 turns 1/8 th inch OD Copper tubing 0.75 inch diam form 1.75 inches long 1/4 inch lead length for soldering.

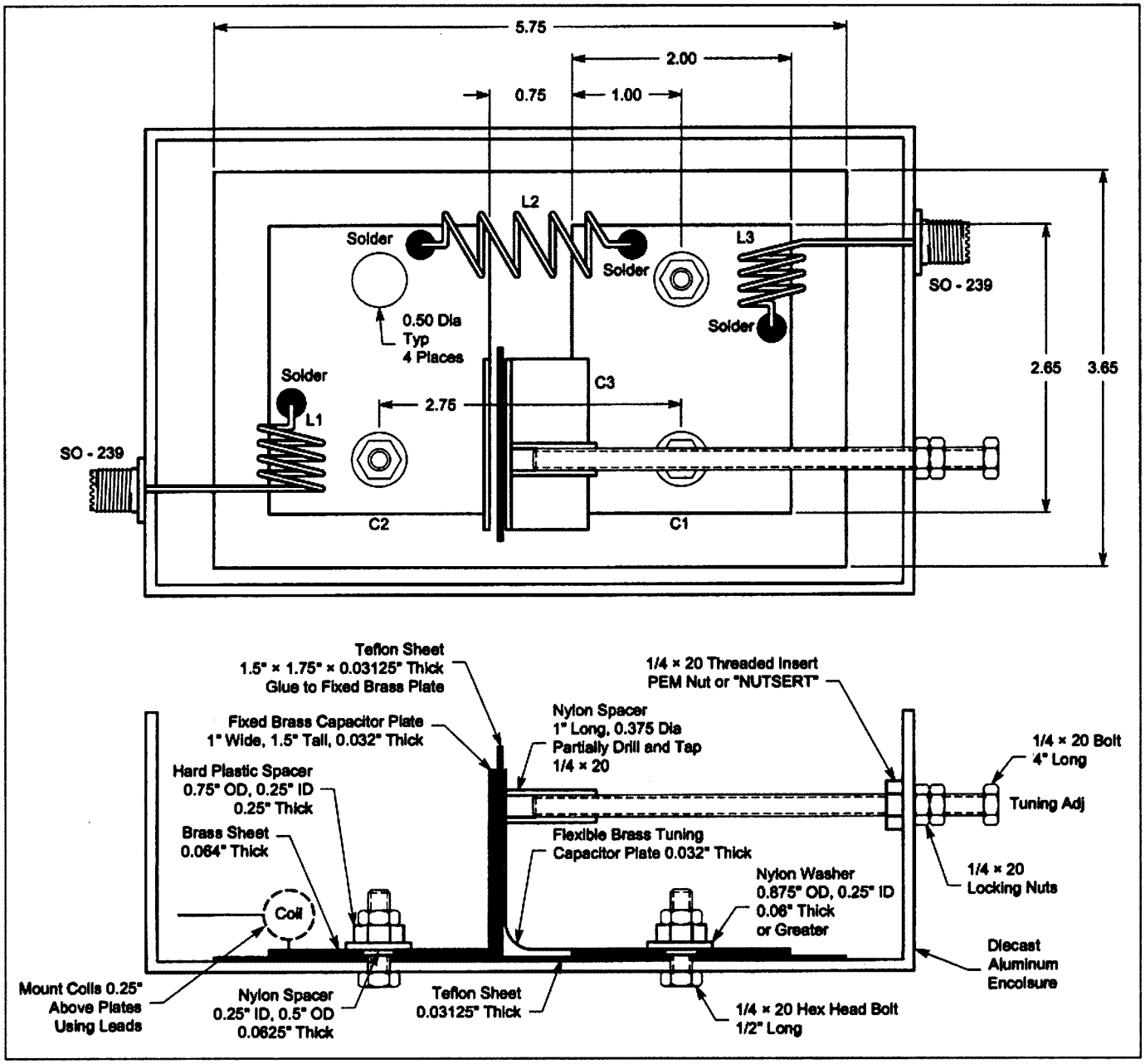

Fig 2. Assembly Drawing for Filter. All dimensions in inches

well within its design limits. The design should be easy to duplicate as the capacitors are fabricated from brass sheet and Teflon sheet.

The filter circuit is shown in Fig 1. The filter is built in an aluminium diecast enclosure. The filter layout is shown in Fig 2.

The adjustment of the filter is to optimise performance on the 6 metre band. C3 is set to a spacing of 0.1 inches. Terminate the filter in a 50 ohm load. Then using an SWR analyzer sweep through the 45 to 60 MHz region to find a region of low SWR. If this isn't found you should adjust the input coil L1 by spreading or compressing turns to find a low SWR in the 45 to 60 MHz region. If you want a symmetrical filter then it may be wise to reverse the filter and adjust L2 as well.

Then apply 100.2 MHz to the filter input and adjust the variable capacitor C3 for maximum attenuation through the filter. Recheck the SWR performance on 6 metre. If the low SWR region is not in the part of the band you use adjust L2 to bring it into the spot you want. Then readjust the 100.2 MHz attenuation for maximum. These adjustments may need to be made a couple of times.

If you cannot carry out the 100.2 MHz attenuation check a suitable result can be obtained by adjusting C3 and L2 so as to obtain a minimum SWR point in the part of 6 metre you use.

The filter response is shown in Fig 3. The filter SWR is shown in Fig 4 from 1 MHz to 55 MHz. The six metre SWR for the filter is shown in Fig 5.

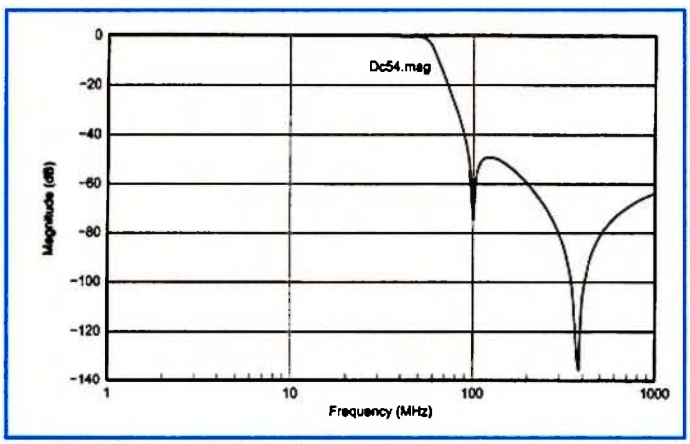

Fig 3. Filter Response 1 MHz to 1000 MHz.

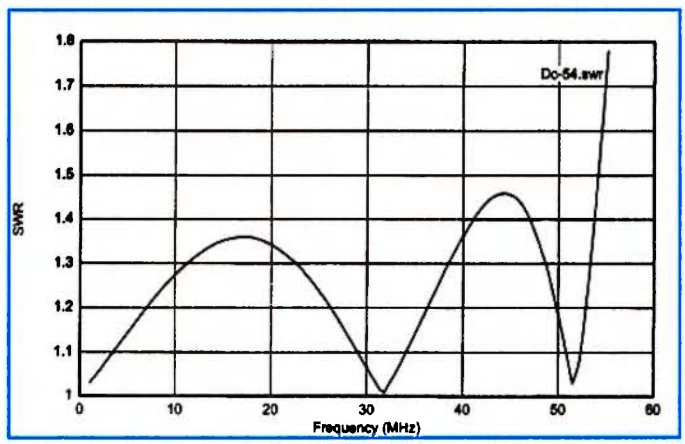

Fig 4. Filter SWR 1 MHz to 55 MHz.

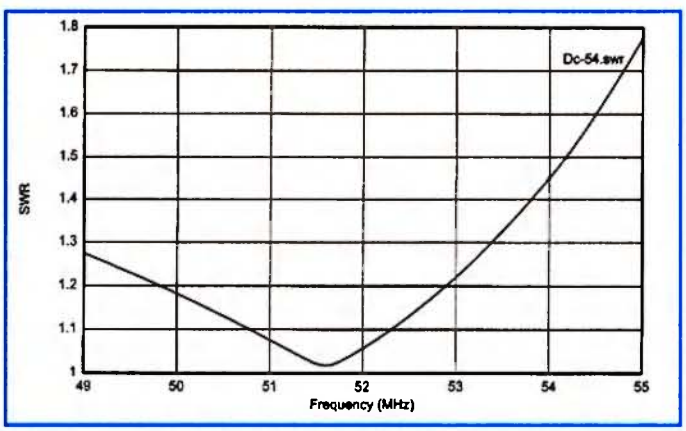

Fig 5. Six Metre Filter SWR

Silent Key

Gil Sones VK3 AUI

We are saddened to announce the recent passing of Gil Sones VK3AUI. A staunch supporter of Amateur Radio in general and *Amateur Radio* magazine in particular, his contribution to the community will be sadly missed. Obituary will be printed in January/ February AR.

Working 3B9C – a *How To* guide

Neville Cheadle G3NUG and Don Field G3XIT

(Adapted from RadCom February 2001 page 34 by VK5UE)

The UK-BASED Five Star Dxers Association (FSDXA) is mounting a major DXpedition to the Rodrigues Islands, Mauritius, in the Indian Ocean in 2004. The team expects to be on the air as 3B9C in March-April 2004 and operations will continue for four weeks including four full weekends.

The founder members of FSDXA comprise the UK-based core team that organized the February 1999 9M0C Spratly DXpedition (see RadCom April 98). The Association now owns the assets left over from Spratly. FSDXA is very closely associated with CDXC (Chiltern DX Club) - The UK DX Foundation

Objectives

There are two main and several subsidiary objectives:

- To provide the possibility for every amateur radio station in the world - even those running QRP or a very simple antenna - to make at least one contact with 3B9C; and
- To enable top DXers to put 3B9C in their log on as many bands and modes as possible. It should be possible for top DXers active on all bands and on all main modes to work 3B9C on at least 18 band / mode slots!

Other aims and objectives

- To use the DXpedition as a focus for increasing interest in HF amateur radio, especially among those new to HF, through magazine articles, presentations, an awards programme with categories for both new and experienced operators and clubs, etc.
- To use the skills of team members to help the islanders of Rodrigues through various activities currently in the planning stages.
- To test the StarSoftware server-based DXpedition software in the most demanding of environments, with a view to making it available to other DXpeditions in the years to come.
- To encourage activity on all bands and modes at a time when decreasing sunspots may be causing some operators to lose interest in HF and 6 m.
- To be one of the first major DXpeditions to link fully with the ARRL's "Logbook of the World" initiative.
- By setting and maintaining high standards of operation, to uphold and demonstrate the highest standards of DXing practice.
- To encourage amateurs to explore new bands and modes, by being readily workable on all bands and modes over an extended period (one of the pleasant surprises with D68C was the way in which many HF operators made their first forays on to PSK31 and on to 10 m FM especially to work the DXpedition). Specialist modes will include AO-40, EME and SSTV.

History

In 1998, 9M0C made over 65,000 contacts in 12 days. As a result of the feedback a "How to Article" was produced prior to the D68C 2001 DXpedition. The 2001 D68C operation covered all HF bands and modes, plus 6 m and satellite. There were 27 operators from 11 countries and some 168,000 contacts were made in 21 days.

How to

The following is an abstract from the 'How To' article and I hope some of the ideas in this article will be helpful to new operators on the HF bands.

DXpeditions, which are usually on the air for 10 to 12 days maximum, sometimes only cover a single weekend but this operation will run 4 weeks and four weekends.

Propagation charts from various locations will be available and they will be regularly updated on the web site at www.fsdxa.com/3b9c

Planned frequencies

The planned transmit frequencies will be on the web site. We will nearly always work split frequency and will regularly announce the frequencies on which we are listening. We will only make contacts on our transmitting frequency during the last few days of the DXpedition, if the pile-ups have disappeared. Regarding the frequencies, note that if there are other DXpeditions active in March/ April we may decide to change our transmitting frequencies to avoid confusion. Typically, a DXpedition SSB station transmitting on 14195 kHz will listen up in the range 14200 – 14220 kHz. If we find we are operating on the same transmit frequency as another DXpedition we will move down around 5 kHz, typically to 14190 kHz and we will then listen down between 14165 and 14185 kHz so as to avoid confusion.

Listen to the operator carefully. Each has been briefed to give the callsign at least every two QSOs and to announce the listening frequencies every five QSOs. Incidentally, we will not work by numbers; we feel that with good ears and equipment this is quite unnecessary

Best times/bands

Refer to the propagation charts on the web site

Suitable but simple antennas

A half-wave sloping dipole works well and measurements for seven of the HF bands are given in Table 1. This is a centre-fed antenna and one end should be sited as high as is practical with a

slope of round 30 – 45 degrees (not critical). The antenna should point in a north-westerly direction from Australia. As can be seen from the table, total length of a half-wave dipole for 24 MHz is only 5.7 m, so it should be a relatively simple antenna for most amateurs to erect by attaching the top end to a tree, chimney or gutter. Feed with 50 or 75 ohm coax, with the centre conductor to the higher half and the outer to the lower half. Seal the feed point to keep out moisture (e.g. by moulding Blu-Tac around it) and hey presto, an effective single-band antenna.

Believe, us, you will be able to work 3B9C with an antenna like this. For simplicity and effectiveness, we do recommend single-band antennas over many multi-band designs, which are often a compromise solution.

Band MHz	Dipole length feet	metre
7	66.0	20.1
10.1	46.3	14.1
14	33.0	10.0
18	25.8	7.86
21	22.0	6.70
24.9	18.8	5.73
28	16.5	5.00

Table 1: Lengths of half-wave dipole antennas

Working split

All well-organised DXpeditions nowadays work split frequency. What does this mean? DXpeditions transmit on one frequency and listen on a different frequency. For example they will transmit on 28495 kHz and listen between 28500 and 28520 kHz. Why? There are two reasons:

1. If the DXpedition station listens on the frequency on which it is transmitting, it will not be heard, by those calling because of the pile-up on that frequency.
2. The DXpedition operator will be faced with a huge barrage of calls and will not be able to differentiate between them if they all call on the same frequency.

Experienced DXpeditioners will tune slowly up and down their listening band. Listen to the stations working the DXpedition and establish the operator's tuning pattern. Work out where he is likely to be listening next and then call – bingo. Never, ever, transmit on the DXpeditions transmitting frequency unless the DXpedition says, "Listening this frequency".

Of course, you may have a transceiver, which doesn't allow split-frequency operation. In this case you may have to wait until later in the operation, or perhaps you can borrow a friend's rig. All transceivers built in the last 10 years or so allow split-frequency operation. On CW, generally all you will need to do is set your receiver to the 3B9C frequency and then use XIT (transmitter incremental tuning) to offset your transmitter by the necessary split (See your transceiver manual if you haven't had occasion to do his before). Activating RIT (Receiver increment tuning) will allow you to hear the calling stations, while leaving your main receive frequency on 3B9C.

RIT and XIT usually only work for splits of up to 10 kHz, which may not be sufficient for SSB operation. In this case you need to bring your second VFO into operation. Set, say, the 'A' VFO on the 3B9C frequency. Set the 'B' VFO on the frequency where 3B9C is listening and activate transmit on 'B', receive on 'A'. Again your transceiver's manual will explain how to do this,

When 3B9C responds to your call, the exchange will consist simply of an exchange of signal reports. Make sure the 3B9C operator has your callsign correctly. The reason for the short contest-style exchange is simple: the expedition operators want to maximise the number of people who get a chance to work 3B9C, so contacts are kept as short as possible. There will be a log look-up facility on the 3B9C web page so you can be sure that you are in our log. It not, do feel free to have a second attempt. If your contact is indeed OK, please try to work us on other bands.

Nevada Trophies

The *Nevada Comoros Trophies* offered as part of the D68C DXpedition for working band-slots were extremely popular with DXers, with the winners working *D68C* on 23 band-slots. Trophies were also available to clubs, to encourage their members to be active and work D68C either from home or perhaps from the club station. During the 3B9C DXpedition we will be running the *Nevada Rodrigues Trophies*. The rules will be broader than those used for the Comoros and there will be continental awards as well as awards for clubs outside the UK. There will also be special awards for newcomers to HF. Details will be available soon.

Sponsorship

A significant number of sponsors including Yaesu (UK) Ltd & Nevada, is already supporting this DXpedition. A colour brochure has been prepared about the project and this has recently been circulated to DX clubs throughout the world.

We very much hope this article has inspired those of you who are inexperienced in DXing to have a go and work 3B9C. You could be pleasantly surprised at what is possible. We look forward to putting your call in the log.

Further reading

DXpeditioning - Behind the Scenes, edited by Neville Cheadle, G3NUG, and Steve Telenius-Lowe, G4JVG, is "by far the most complete 'how to' reference available. (N7NG).

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How to get into ham radio and *why*

Scotty VK2KE

If you have never been into ham radio but are curious this might whet your appetite.

Ham radio has been around for a long time and it has suffered from a lot of competition. During wars, it is stopped so the Government can access a lot of frequencies and perhaps stop clandestine operators, so activity suffers until the war is over.

When TV started in 1956 ham radio took a back seat as everyone was captivated by the new medium. Then in 1974 colour TV came in and guess what? – everyone started staring at the goggle box big time. Then the video craze (read VHS and Beta) started and everyone was watching videos, so once again ham radio took a bit of a dive, now the TV rage is settled down, and video games and the Internet have come along.

So are there still some ham radio operators still around? Yes, but probably in reduced numbers.

One thing that ham radio can clearly do is to survive the onslaught of new technologies, however it does suffer as the telephone and now the mobile phone has no doubt had an impact. But ham radio will probably continue to survive because it is so resilient.

When you look at it, ham radio can offer you *so* much. Let's look at all the modes and activities you can engage in once you get your licence. There is working DX on the high frequency (HF – 0 to 30MHz) bands, competing in contests, operating on VHF or UHF, - either on simplex or via repeaters, slow scan TV, fast scan TV, field days, moonbounce, satellites, 'rag chewing', mobile and portable operating, marine mobile, aeromobile, hand held sets, fox hunts, DFing hidden transmitters, morse code, packet radio, teletype, and building your own gear- "home brewing" as its called. You can even chase contacts on air so that an Award Certificate can be attained. There's bound to be more but let's discuss these in a little more detail and then you'll be able to make up your mind if this hobby is for you.

Working DX

This where you operate on the HF bands and talk to someone across the country or overseas. In fact DX means "long distance", so you might be talking to Japan, the UK, Canada, the USA or NZ for instance. The best DX bands are 80, 40, 20, 15 and 10 metres. I would contend that the use of the ham radio bands will rise again because people will become tired of using the Internet and sending emails. The main attribute of ham radio is that you can talk to someone out there and have a decent live conversation with a person in real time and you really can't beat that. People like to converse with people and ham radio is great for that activity.

I liken ham radio, especially on HF to 'going fishing' as you get out there and you just don't know what you might 'catch'. Sometimes a contact can lead to a really great and very stimulating discussion with the other operator. Another activity still happening on the HF bands is 'nets'. This is where there is a net control station that controls proceedings and then everyone can call anyone in the net in an orderly way. Some people don't like this form of operating but others swear by it.

VHF and UHF Bands

Operating on VHF (30 to 400MHz) and UHF (400MHZ up). As you would probably know VHF and UHF are 'line of sight' bands, where range is restricted mostly to line of sight short range contacts. Sometimes, however, the range is considerably extended by aircraft condensation trails, meteorological conditions or meteor showers, so you just don't know what might happen on some days and nights when you're at the radio controls in the shack. You can operate directly to another station, who might be at home, in the car or portable and this is done on one frequency, so you each get a turn to speak to each other and sometimes this can be in a net with a number of stations together. This kind of operation is called 'simplex'.

You can also have extended range on these bands by use of a repeater. The repeater is located on a mountain top and receives you on one frequency (uplink) and then transmits you out with great range on another frequency (downlink). This is called duplex operation. By this means you can reach out to much greater distances than is possible on simplex. I was having a conversation with some operators in Melbourne one Saturday when a Tasmanian station was heard to break in. He was brought into the net and we had a long discussion. I rotated my beam south instead of north and he was rock solid for some hours. This was probably due to an inversion over the Bass Strait at the time.

Slow scan TV

Slow scan TV is a mode whereby you can transmit and receive pictures in colour. The images are 'still pictures' but they have pretty good resolution. You can send these pictures over very long distances as they are sent line by line fairly slowly thus giving good immunity to noise and fading problems.

Fast scan TV

Fast scan TV is limited to the UHF bands and can be a lot of fun as you can

transmit moving pictures and sound just like the ABC and commercial channels.

Field days

Field days are a lot of fun as there are many activities including trash and treasure stalls, demos, displays, technical talks, and fox hunts. They are held all over the country and are often run by local Radio Clubs

Moonbounce

Moonbounce is a very specialised mode where you transmit a morse code signal to the moon and it reflects the signal back down to earth over the horizon.

Satellites

Satellites are very prominent in ham radio and you can access a number of satellites to communicate over long distances, in a way they are a form of repeater but are orbiting in space rather than being on a fixed mountain top.

Rag chewing

'Rag chewing' or 'chewing the fat' is where you contact another operator, or maybe even on a net, and just talk and talk to each other for sometimes many hours on almost any subject.

Mobiling and portable

Many hams have operated mobile but as the laws have clamped down upon using a microphone while driving, it has certainly curbed a lot of activity. I used to drive to work each day in Melbourne and talk to the regulars from my car whilst in the traffic. We used to have the 'Monday mumbles', the 'Tuesday twaddle', 'Wednesday waffle' etc and a great many discussions were held. It was the real drive time of the day in the morning and at the end of the day. This was usually on the main Melbourne repeater 'RML' which gave great coverage, -it brought together many people who would otherwise not have been able to get in contact via simplex channels. Before repeaters, I can recall not long after I got my licence in 1958, we used to home brew a transmitter and make up some sort of receiver and talk on crystal locked channels from car to car as we went to and from work each day. Of course we contended with a great deal of noise and fadeouts as we got out of range of each other but it sure did relieve the daily monotony of fighting the traffic! Many of us used to go portable in national and state parks for a weekend and this was fun. I guess it still can be done if you have the wish to go out there and do battle with the elements and put up your own antennas. One field day, in the '50s the Moorabbin Radio Club set up a portable station in Wonga Park near Melbourne and we had operators on 80,40,20,15 and 10 metre and had a great deal of fun working all over the country and to overseas DX countries for a whole weekend. Some of our operators were on morse (CW) and some on phone (and this was AM (Amplitude modulation) not SSB (Single Sideband) if I recall rightly). Well this sort of activity is still possible if a small group gets together and organises it. (Our generator ran out of fuel at a critical moment in a contact (QSO) with a Norwegian ham, but that's all part of the fun of being portable).

We held one field day in a large

paddock out west of Melbourne at Rockbank. The name 'rock' was especially apt as the paddock was littered with sump-gouging rocks, but we had a great time and it was added to by a one radio club member who had a Jag and a large caravan in tow. On the drawbar he had a socket into which plugged a set of pipes and these pipes were telescoped into each other to become the mast on which a 20 metre beam antenna was installed. Needless to say a lot of good DX was heard and worked. This sort of activity can still be done if you want to go camping and have some fun. Nothing quite like finding snakes and spiders in your gear as you operate!

Radio clubs are great places to meet people who are into the same sort of aspect of the hobby as yourself and can get technical advice and assistance from each other.

Aero and marine mobile

I've tried my hand at aeromobile from light aircraft in a few places. Usually on 2 metre FM using a small hand held transceiver. The range of coverage from a few thousand feet is amazing. I once worked a ham who was flying 707 freight planes from NY to LA and he passed the time in flight by working DX on 20 metre.

Another contact I had was with a bloke who was ferrying light aircraft from NZ to Oz and he had a wire antenna out of the tail and worked us on 20 metre until he had to drop into Lord Howe island for fuel. Many hams go on marine mobile as there are plenty of people who cruise the oceans in their yachts and have ham radio on board. I once worked a YL (young lady) ham, who had her yacht in dock in NZ for repairs and defouling. She passed the time away by having HF contacts with all and sundry while in port.

One of the most fascinating contacts I've ever had was working a ham in Ecuador. He was backpacking with a very light low power transmitter up the sides of an active volcano in that country. When Dick Smith was chartering the 707s to go to the Antarctic, he had 20 metre radio on board, and we had some great contacts with his plane as he flew over the icy wastes down there.

Fox hunts

These can be a real hoot. I was in one once in a park near the Yarra when the rig started to create great volumes of smoke. We found we had a short on the 12 volt battery lines and the fuse was very rapidly pulled out to save the car. I can't quite recall if we found the fox in all the panic but it sure was fun. One of the most historic foxhunts was held in Parkville when the hidden fox transmitter was placed in a baby's pram and was being innocently wheeled around the park. None of the hounds was game to challenge the couple wheeling the pram as to whether the baby was secreting a transmitter in the blankets.

All of the above, and more I could go on with, should serve to show that ham radio has an amazing range of aspects to it. There's something for everyone in it. It's often just up to some imagination and drive to get something done and along the way you can have the experiences of a lifetime. It really is the communicator's hobby.

ar

Federal WIA Convention

Appointment To Federal Positions

The WIA Federal Convention and Annual General Meeting of the WIA will be held in Brisbane on 2nd, 3rd and 4th April 2004.

At this meeting, a number of positions will be filled. Nominations from interested persons must be received by the Federal Secretary at the registered office of WIA Federal in Melbourne no later than close of business on 20th February 2004.

The positions are:

(A) Federal Executive
- President
- Directors (3 positions to be filled)
- Company Secretary

(B) Officers and Coordinators
- Editor "Amateur Radio" magazine
- Publications Committee
- WIA/ACA Liaison Committee
- IARU Region III Liaison Officer
- ITU Conference & Study Group
- Federal Web Page Coordinator
- Chairman, Federal Technical Advisory Committee
- Federal Education Coordinator
- Federal Historian
- AMSAT Coordinator
- Intruder Watch Coordinator
- Federal Contest Coordinator
- Federal Awards Manager
- Federal WICEN Coordinator
- International Travel Host
- ARDF Coordinator
- Federal QSL Manager
- VK9/VK0 QSL Bureau
- QSL Collection Curator
- Videotape Coordinator

Nominations received direct will be considered but preference is likely to be given to Divisional nominees

Peter J. Naish, VK2BPN
Federal Secretary

Letters

from Lindsay Lawless VK3ANJ to ACA

Lindsay Lawless
Phone 03 5155 1380, email
linlawless@net-tech.com.au

Reference Radio Frequency Interference (RFI) from split system airconditioners

My recently purchased Fujitsu non-inverter type air conditioner produces severe RFI centred on 10 MHz. The interference makes WWV time and other information unreadable. The unit is located 15 metres from my communications receiver and the RFI strength exceeds that of WWV by 3 S points on the receiver S meter.

I believe that indicates that RFI emanation from the unit exceeds the specified allowable.

I referred the fault to the Fujitsu office in Sydney and was advised that the condition was probably caused by the system processor and associated circuitry. I was also advised by a Fujitsu rep. on 2/9/03 that a "service agent" would contact me and arrange an investigation and possible replacement of the processor and circuitry. I have had no further action from Fujitsu.

I would appreciate your advice please on what further action is available to me to obtain correction. It seems to me that ACA should enforce the RFI regulation by (a) installation audit or (b) requiring the installer and manufactured to record on the "Compliance Certificate" the measured RFI field strength or (c) provide written assurance by a suitably qualified technician that the installation does comply.

For my own information I would appreciate your specified maximum allowable RFI field strength emanation from airconditioners and similar devices which use microprocessor performance control.

from ACA to Lindsay Lawless VK3ANJ

RFI from Split System Air Conditioners

Thank you for your correspondence of 9 October 2003 concerning Radiofrequency Interference (RFI) from a Fujitsu split system air-conditioner. The Chairman has asked me to respond.

As you are aware, the Australian Communications Authority (ACA).lias established Electromagnetic Compatibility (EMC) regulatory arrangements, to manage incidental radiofrequency emissions from electrical and electronic devices. These arrangements require manufacturers and importers to declare conformity to standards that set maximum levels for conducted and radiated incidental emissions. The standard that applies to domestic single phase air-conditioners is AS/NZS 1044 (or its equivalents CISPR 14 or EN 55014). Three-phase air-conditioners are currently outside the scope of the regulatory arrangements, however three-phase air-conditioners supplied after 7 November 2003 must comply with the regulatory arrangements.

In your letter you requested information on the emission limits. It is beyond the scope of this letter to detail the applicable terminal voltage, disturbance power and radiated disturbance power limits, as these depend on the type of device, certain device parameters and frequency. I refer you to the standard, which can be purchased from Standards Australia. In regard to enforcement, the EMC regulatory arrangements provide that manufacturers and importers of equipment subject to EMC standards must keep documentation (for example test reports). The ACA audits this documentation on a random basis, or during the investigation of a written complaint. The ACA's audit program does not extend to audit of devices once they have been supplied and installed. Responsibility for compliance of installed devices rests with the owner of the device.

In your letter you said that the RFI was centred on 10 MHz, and made the WWV standard frequency and time signal unreadable. The ACA regards such shortwave radio reception as fortuitous, and does not as a rule afford protection to such reception. It is also important to note that while the standard applies to (mains) terminal disturbance voltages from 148.5 kHz to 30 MHz, the standard does not apply to radiated disturbances below 30 MHz.

The information you have provided in your letter is not sufficient to demonstrate that the air-conditioner is covered by the standard, nor does the presence of interference demonstrate that the device is non-standard. In order to investigate the matter our regional staff will be in contact with you to obtain specific details of the model of air-conditioner concerned. If the air-conditioner is subject to the standard, the ACA will investigate the matter you have raised by auditing the compliance documentation held by the Fujitsu. The ACA's role is limited to determining that Fujitsu hold the required compliance documentation substantiating compliance with the standard, and taking appropriate action if Fujitsu does not hold such documentation. The suitability of the air-conditioner for your particular circumstances, and the possibility of a fault condition in the device, is a matter between yourself and Fujitsu.

Should you have any further queries please contact Mr Tony George, Manager, Compliance and Technical Services, Customer Services Group, on (02) 6219 5352 or tony.george@aca.gov.au.

Yours sincerely

Maureen Cahill
Executive Manager
Customer Services Group
29 October 2003

Intruder Watch

Henry PHS7nk

Chasing the baddies

If any changes this month, there seems to be an ever increasing number of intruders taking over the Amateur Bands.

VK6XW reported over 130 Intruders, majority Indonesians, on the 14MHz band. Rest of them were other Asian Intruders, including fishing boats.

A lot of Indonesian fishing boats have been escorted into Darwin, as they were caught fishing inside Australian waters. They use amateur radio VHF frequencies for ship-to-ship communication.

VK2UW reports 'pirates' in the Pacific using amateur radio callsigns, such as VK4ZLY, ZL and American Callsigns/VK using the 14 MHz band that are a big nuisance to VK2UW NET. Very few amateurs have a good six element beam and accurate bearing readout, so almost impossible to locate these 'pirates'. They could be all over the Pacific from New Zealand up to Solomons, some French speaking and no French speaking amateur available for translation.

VK4 reports A3E station on 14230 at 2159 who was giving out a list of shortwave frequencies before closing down at 2200.

There are also pulse modulated stations 14225 and 14240.

Pyong Yang is still on 14250 on a daily basis. UI high speed data stations are also heard below 14100. VK4 also reported 14 unidentified intruders, majority also on the 14MHz band.

VK7GW reported the 'Asian CW' at the bottom end of 14MHz. These intruders have been heard just below 14MHz and also on 14100.

GOOD LUCK chasing the intruders.

Cheers de Henry in HUMPTY DOO PHS7nk

International Amateur Radio Union

Region 3

B.L.Manohar "Arasu" VU2M
Regional Monitoring Systems Co-ordinator

While non licenced Indonesian pirates are well known users of amateur frequencies in the 7,10,14,18,21 and 28 MHz bands, a parallel growth of users of amateur radio frequencies, are the Fishing Trawlers in South Asia. The foremost among them at the moment are the Fishing Trawlers from Sri Lanka. They were fabricated and equipped by Korean Companies, who have installed amateur radio equipment for the marine communication. These trawlers have found the amateur frequencies the most favoured and useful for their routine chats. They are found to use more than one frequency simultaneously on every band, viz, 7,10,14,1 8 and 21 MHz amateur bands.

They are proficient in Sinhala only and no other language. Have not heard anybody requesting them in Sinhala to vacate the frequency. But, several others, have tried other languages and found that the language of QRM is the only one which makes them move.

As no call signs or names or any other operator identification is not forthcoming, we are unable to file complaints to Sri Lankan Authorities through the established procedures. I am sure the RSSL Governing Council has noted all the reports that are listed in these newsletters, for possible reporting to their Authorities.

Another regular BC station heard on 14280 kHz, is in Pashto/Dari from around 0130 UTC till sign off around 0200 UTC. It has a strong carrier, but a weak modulation. A possible Id is "Radio Bernaani Azaadi". Is it from any Tadhzhikistan location ? Feedback from monitors in Middle East and Europe is requested.

VK Amateur Radio Calendar 2004

This is a first stab. The dates are those I have picked up from articles. Would event organisers please advise the Editor when dates are confirmed. I thought I could publish this every three months.

Contests

January	February	March	April	May	June
Ross Hull to 18th Summer VHF UHF Contest 10th/11th	ARRL International DX Contest	John Moyle MemorialField Day 20th – 21st	Harry Angle Sprint 24th	QRP Day 15th VK/Tasman Contest 22nd SSB	VK/Tasman Contest CW 5th Wadda Cup 80m
July	**August**	**September**	**October**	**November**	**December**
ZL Memorial 80 metre Contest 3rd ZL/VK 160 metre Contest 17th Jack Files Contest	Remembrance Day Contest 14/15th ALARA		Oceania SSB 2nd/ 3rd Oceania CW 9th/ 10th	Spring VHF/UHF 13/ 14th	Ross Hull 26th – Jan 10th 2005

Conventions and Field Days

January	February	March	April	May	June
	Central Coast Field Day Wyong Racecourse 29th Gosford Field Day VK3GH Hamfest Healesville	Eastern and Mountain District Field Day Heathmont 20th Bass Amateur Radio IRLP Group Hamfest, Boneo	WIA Federal Convention 2nd – 4th Urunga Field Day Midland Amateur Radio Convention Castlemaine	MDARC Hamfest Glenwaverly Brisbane ARC BARFest	Port Macquarie Field Day Oxley Region ARC, Buller Street SERG Convention Mt Gambier (Both on Queen's Birthday W/E)
July	**August**	**September**	**October**	**November**	**December**
Gipps Tech Churchill 3rd/4th		North Queensland Amateur Radio Convention James Cook University SUNFest, Woombe Old 11th Central Highlands ARC Monster Auction, nr Emerald	Riverina FD Wagga ARC	AHARS Buy and Sell	

International Events

July	August	September	October	November	December
	International Museums International Lighthouse weekend 21st/22nd		JOTA 16th/17th		

Amateur transceivers I have owned...

FT-707

Steve Mahony VK5AIM

Now that all amateurs have access to the HF bands we expect to see more activity and a group of amateurs looking for HF gear for the first time. Some of these up grading and newly licensed amateurs may not be able to afford one of the "new black box" transceivers, priced at $3000 or more. You do not need all the "bells and whistles" on your transceiver to get "on air" to have an enjoyable QSOs. Second-hand or "pre loved" AR equipment can and will get you on the air at 1/4 to 1/2 or less the cost of a new unit. It would be a shame to loose some of these keen new HF operators because they felt they could not afford a suitable transceiver. I hope over the next 12 months or so to review some of these "pre loved" transceivers.

The dos and don'ts of buying pre-loved gear

One warning I wish to make is to be careful of equipment in certain situations. If you visit the seller's shack: Is it reasonably tidy? Is the equipment in reasonable condition, clean, lights work, complete with knobs and controls? Can you hear and see it run into an antenna on all bands, all modes? If the seller has a good dummy load/watt meter, see that it puts out the correct amount of RF power. Ask why he/she is selling the transceiver! Has he/she bought a new replacement?

Deceased Estates can be a source of good working gear. It was probably being used and working well before the owner became a silent key. Unfortunately one usually can not try it out before buying. Beware of equipment used by heavy smokers. The tobacco smoke/fumes can get in everywhere and dirty electrical contacts, like switches etc. Cleaning can be difficult but if the price is right and you feel capable of cleaning the unit thoroughly, it may be a bargain! Club "Buy & Sell" days are another source of used equipment. The seller/owner is usually standing there offering the gear. You can size them both up. He/she can tell you why it is for sale. Some clubs offer a test site and with the seller's permission, you can try it out. A chat to fellow amateurs may reveal any idiosyncrasies of the particular transceiver. Buying from "Hamads" in AR or on the Internet can be a risk especially if it is from interstate. If the seller is in your state or even in your city it is easier. It's good to take a knowledgeable amateur friend with you in these instances. If you know the seller from QSOs you may have had with him/her its even better. You may have even heard the unit on the air. I have purchased simpler equipment i.e., ATU, SWR meters from interstate amateur sellers with no trouble. One piece of AR equipment that I owned and used over 20 yrs ago, was the Yaesu FT-707. The FT-707 came out in about 1980. It was an all solid state HF transceiver, covering 3.5 MHz to 29 MHz, LSB, USB, CW, & AM. Nominally 100 W SSB Out, 50 W AM. It required 13.5 V DC at 20 A to run it. All the usual features were available, VOX, NB, ALC, 2AGC ranges, and a clarifier. It also had IF band width control 300 Hz to 2.5 kHz. On the rear, besides the massive beat sink and cooling fan, it had the usual DC input socket, PL259 antenna socket, key, speaker, PTT, and 2 Din type sockets for the remote digital VFO.

My FT-707

The pictures show the front views of the transceiver and its accessories. The front panel is dominated by the large tuning knob, with a nice feel. The set has a nice digital display of 6 digits, 10s of MHz to 100 Hz, the knob also had analogue calibrations, all illuminated in a soft green glow. There is 100s of kHz on the outer, 10s of kHz on the inner, with calibrations of kHz in between. You could set the frequencies quite well with this dial. The "S" meter was a sign of things to come. A Led Bar Graph. Green to S9, Yellow to +20, and Red to +40/60. Excellent to read when mobile. It also reads ALC or RF Power Out. The rest of the panel was taken up by the usual controls. Starting from the left Mic gain, Carrier, Power On/Off, Phones, Mic socket, Mode Switch, RF/AF gain, Clarifier, IF Width Control and Band Switch. Along with push buttons for Mox, AGC, 25kHz Marker, ALC, FIX crystal locked frequencies, NB, and Clarifier. The VOX and VOX delay are 2 small knobs just below and each side of the lovely big tuning knob. The designations are white on the grey and

khaki painted case (popular at the time). It is relatively compact for the 80s. 93H X 24OW X 295D. It weighs 6.5 kg. With the name of the "Wayfarer" it is surprising that there is no folding handle on the side.

I used my 707 both as a home station and portable/mobile. At home it was used on 80,40,20 and 15 metres most times with no complaints. Strong locals did not worry it. Mobile operation in the metropolitan area is a waste of time to me. QRM from older cars, petrol stations, TAB shops, they radiate massive amounts of RF noise. I had motor bike's ignition noise obliterate "S9" +20 signals on 7 MHz. I believe the spark signal radiated from some of the motor bikes is greater than Marconi's first signal across the Atlantic! You can hear them before you can see them. Once you get out in the countryside it is much quieter. I have worked Gs, Ds, Es, and Ws, with the FT-707 into a Kenwood MA5 Mobile Whip on the VW Camper Van, bowling along a county road at 80 ks. The Noise Blanker worked well on my own ignition noise and other peoples.

I had the FV-707DM digital VFO, the FC-707ATU along with the FP-707 AC Power Supply. The Rack Mount shown in the catalogue looked as if it had been made with bits bought from your local hardware store, not worth the money. I held the Transceiver, the VFO, and the ATU together with a pair of aluminium side plates via the mounting screws. Painted a similar khaki colour it looked neat. If the preloved transceiver you have the opportunity to buy has the FV-707 VFO, it is worth having. It may not have all the memories the modern transceiver has, but it is excellent for mobile operation, along with the UP/DOWN buttons on the Mic. It also lets you work "Split" for the DX nets. It was a sign of things to come in transceivers.

The FC-707 ATU is neat and slim. The Internal 100 W dummy load can be useful. Another amateur and I had an amusing incident with this function. We were trying the set up our mobile in the campervan. I was driving and Tony was sitting in the back trying it all out. Next thing he says, "Something is wrong with it! It's dead on all bands, you had better stop, the antenna must have fallen off." We stopped and I got into the back to check things out. The antenna was OK but the set was "dead". I looked at all the controls. There on the ATU the little green Led above the dummy load push switch was lit. I turned it off and the set burst into life! We looked at one another and burst out laughing.

If you are a newly licensed Amateur and looking for AR equipment that won't break the bank, the FT-707, with or without the auxiliary equipment in reasonably good condition is worth having. Take my advice, along with that of other experienced Amateurs, and keep an eye open for such a transceiver.

For Portable operation the FC-707 ATU enables you to work into "Stealth" antennas. The SWR Meter is a good size and is illuminated at night. A 66 ft length of Green coloured hook-up wire can be thrown up into a gum tree, watch out for the Koalas, with the aid of a scruffy old tennis ball. An earth stake, an old screw driver is OK, driven into the ground and connected to the earth of the tuner, lets you work the "Longwire" against ground. Try using a big battery clip onto the Tap/water pipe often close to your caravan site. You may have to vary the length of the Longwire to make it load up on your chosen bands.

For Mobile use I modified the Yaesu YH-2 Boom Mic/Headset used on the FT-290R, to work on the 707. It worked well, rolling along the highways. With the VOX facility it made life easy, but there was a trap! As there is no switch to switch the VOX off or on, you had to remember to turn the control back to zero, other wise if you took your headset off, left it say on the dashboard, all the world heard all the chatter, coughs, sneezes and F ... s. I stopped using VOX after this happened.

The FP-707 power supply runs the whole station with ease. With the speaker built in, you don't have a loose speaker to worry about. The PSU has never blown a fuse, primary or secondary. In the warmer weather it has only got warm, along with the heat sink on the transceiver. An added feature is a pair of red and black terminals with the 13.5 V DC on the back. This enables other equipment, say 2m FM to be used at the same time. I used to run my FT-290R this way.

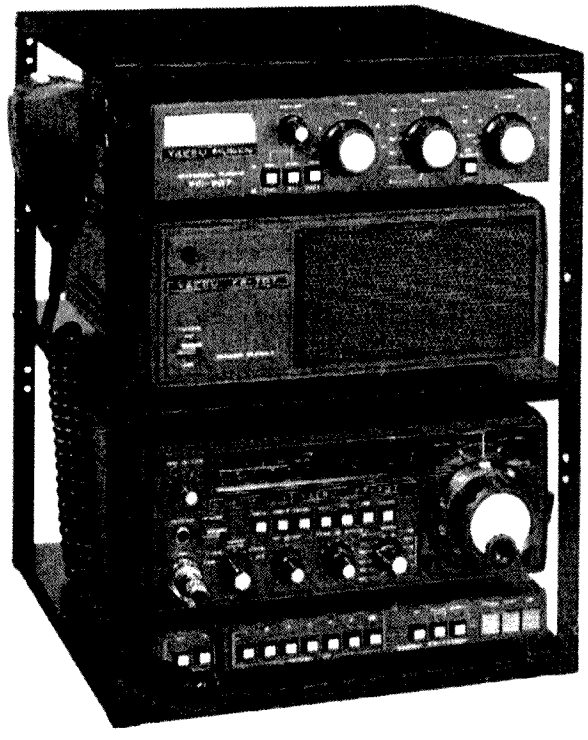
The whole set up, FT-707, FV-707DM, FC-707 ATU, and FP-707 PSU, makes a neat set up, for home or portable.

If you are a newly licensed Amateur and looking for AR equipment that won't break the bank, the FT-707, with or without the auxiliary equipment in reasonably good condition is worth having. Take my advice, along with that of other experienced Amateurs, and keep an eye open for such a transceiver. I still have an FC-707 ATU and an FP-707 PSU, which has been in almost daily use for the past 20 or more years with no trouble at all.

All the best to the new Amateurs on HF.

Steve VK5AIM.

ar



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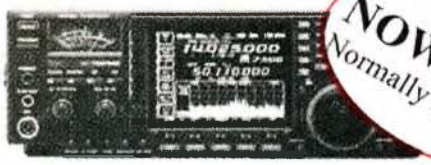

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Division News

VK1 News

Forward Bias

Peter Kloppenburg VK1CPK

The guest speakers at the October general meeting were Kerry Richens, VK1KRF and Gilbert Hughes, VK1GH. Kerry's subject was the measurement of antenna characteristics. This subject has come to the fore recently because the Division now owns an HF/VHF SWR Analyzer Model MFJ-259B for use by members of the Division. This device measures antenna characteristics such as Standing Wave Ratio (SWR) and impedance among others. An analyzer like this is very useful during the adjustment and tuning stages of antennas. It tells you whether the antenna is resonant and provides a pure radiation resistance or if the antenna has an impedance consisting of resistance and reactance (Inductive or Capacitive) at the frequency of interest. Kerry explained that the analyzer is also capable of measuring the velocity factor of coaxial cables, matching circuits, baluns, return loss and reflection coefficient, and distance to fault on lines.

With the use of graphics, Kerry explained how the analyzer's computer determines the magnitude and angle of the impedance presented to its input and how these factors change with frequency. A follow-on was a presentation on Time Delay Reflection (TDR). Kerry said that this technique is used mainly on coaxial cables and lines to determine if there are any irregularities or bumps along the length of the cable or line, and, if not, what the reflection(s) caused by the cable termination look like on a Cathode Ray Oscilloscope (CRO) connected to the pulse generator.

Gilbert gave a practical demonstration of how to the use the analyzer to find the resonant frequency of a dipole. He showed first what impedance the dipole presented to the analyzer when connected directly to the antenna terminals, and then how the impedance changed when the analyzer was connected to the dipole via a random length of coax. Gilbert said that when the dipole is operated at its resonant frequency, it presents a pure resistance of 72 ohm (in free space). Coax cable of 72 ohm (RG-59) will match this resistance perfectly. However, when this same dipole is operated off-resonance it presents an impedance that is not matched by the coax and as a consequence standing waves develop along the cable. The impedance presented to the transmitter is then not 72 ohms but an impedance with resistive and reactive components. Gilbert emphasized that an Antenna Tuning Unit (ATU) is then required to transform the impedance to a pure resistance of 72 ohms to match the output impedance of the transmitter. To borrow the analyzer for a couple of weeks, contact Gilbert on 6254 3266.

Keep in mind that the line from the external power supply affects the readings of the analyzer. When making critical measurements, operate the analyzer from its internal batteries! The next General Meeting will be held at 8.00 pm, on Monday, 26 January 2004 at the Scout Hall, Longerenong St., Farrer.

VK2 News

Tim Mills VK2ZTM

Hello there. On behalf of the Council and the various workers may we wish you all the best for the coming festive season and for 2004.

With the upcoming holiday season please note that the Parramatta office will close at the end of business on Friday 19th December and reopen on Tuesday 13th January. The Federal office is closed from 23rd December until 27th January. This references the first exams to be conducted at Parramatta in 2004. These will be on Sunday 8th February with applications closing with the office on Tuesday 27th January 2004. The first Divisional Council meeting for 2004 will be on the 30th January. The first Trash and Treasure date is 23rd March. The 2004 AGM has been moved back a week to avoid Easter and will now be on 17th April. The Conferences of Clubs for 2004 are set down for 15th May and 27th November. The first Homebrew Tuesday evening for 2004 will be 3rd February.

The last full VK2WI news session for the year will be on Sunday 21st December when they go into a morning only format until mid January for 3 weeks. Both sessions should resume on 18th January. Clubs and groups with news for the holiday break, particularly by mail or FAX should submit it prior to the office closure. Those who use the Hunter Radio Group Monday evening news highlight service should note that they take a break from after 12th December until about 9th February 2004.

Now for the commercial. The ***VK2 Bookshop*** serves Australia and the range of books etc can be found on the VK2 Website. If you need to leave a hint for presents for the forthcoming festive season leave the computer running on the site. If this does no good and you have to go shopping yourself have a look for a bargain. Glancing across the shelves shows more than we can mention here. To refer to a few – there are WIA watches and key rings, as well as log books and the new call book. Do you like reading *QST*? This is available for a posted price below those at the newsagent. How about back copy articles from *Rad Com* or *QST*. These are available on CD,

usually by the year. Do you still have an interest in the Code? There are cassette tapes in various speeds. So the list goes on. There has been a change recently in the way the price is displayed. Now the purchase price is shown. For WIA members a discount applies, which varies depending upon the item. To give a discount on an interstate transaction the Bookshop needs to know if the purchaser is a WIA member. The following Divisions have made arrangements with the Bookshop to pass on their membership details. These are VK1, VK5 & VK8. If your Division has not yet made these arrangements, you will need to establish a reference with the Bookshop. To do this, post your latest AR address label to Bookshop, P. O. Box 9432, Harris Park. NSW, 2150. Do this prior to making a purchase, it will speed up proceedings when you decide what you want.

Two ACA meetings were held in NSW. The first was on Tuesday 14th October at Bankstown and the second on Wednesday 15th at Hornsby. The combined attendance for both meetings was 139. A few Amateurs attended both meetings. We hope you took the opportunity to make submission.

It is pleasing to see an increase in membership applications. There were 9 in October and 14 last month. The VK2 website has recently been updated with Divisional information and forms which can be down loaded.

All the best for the forthcoming holiday season and a happy 2004.

73, Tim VK2ZTM.

VK3 News

Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

End of year

On behalf of the WIA Victoria Council, may I wish all readers season's greetings. It has been a momentous year beginning with the Bogong bushfires and ending with the ACA's review of amateur regulation.

The responses to the fire emergency and to the ACA on its review by VK3 radio amateurs were outstanding, demonstrating once again the strength of amateur radio in Victoria.

It was also the year that Broadband over Power Lines (BPL) raised its head as a threat to the use of HF radio in Australia. The campaign against the technology continues.

The New Year will see an expansion of the 80m DX window. This achievement is a credit to the work done in 1999 by WIA Victoria member Peter Forbes VK3QI, with assistance from Barry Wilton VK3XV who worked through the WIA/ACA Liaison Committee.

The approach taken by Peter VK3QI was to conduct a survey of the nearly 200 licensees who held a total of about 1,500 fixed and mobile service licences in the band 3776-3800 kHz.

The survey found that the licensees either did not use their allocated frequencies, or if they did it was during daytime. This supported the WIA's argument that the DX window be expanded from its narrow 6kHz allocation.

Effectively the 6kHz band (3.795-3800) could only accommodate a single SSB contact in Australia. From 1 January, 2004, as a result of being expanded to create an almost 25kHz wide band, the VK 80m DX window will be able to support up to five SSB QSOs.

Peter VK3QI explains that every country with an amateur allocation on the top end of the 80m band has a different DX window.

The expansion of Australia's DX window increases the likelihood of contacts internationally, and is good news as propagation on lower bands is set to improve with the 11 year sunspot cycle now in decline.

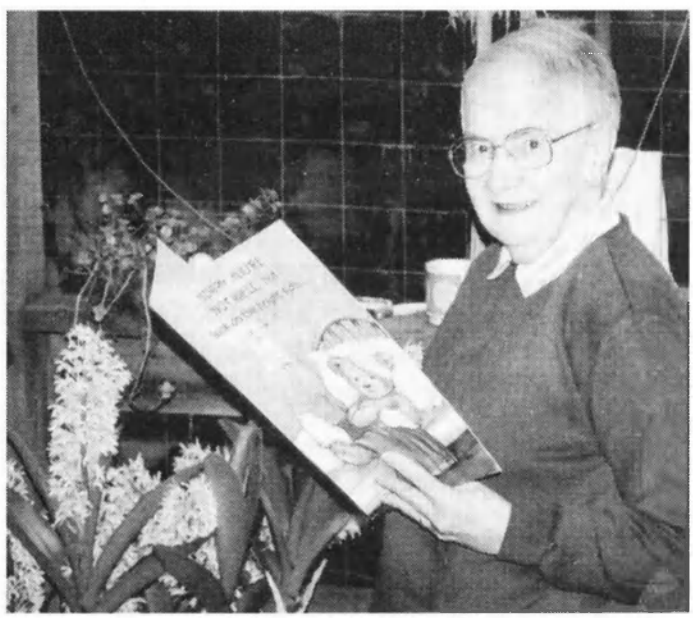
The year 2004 will begin with both the DX window expansion and code-free access to HF bands both on New Year's Day. A cause for celebration.

Brenda says "thank you"

No sooner had Brenda Edmonds VK3KT recovered from injuries suffered in a road accident, than she accepted an invitation to join the WIA Publications Committee.

This team works behind the scenes in the production of the WIA journal, *Amateur Radio* magazine.

The main task she undertakes is proof-reading of each issue and



Brenda Edmonds VK3KT with the "Get Well" card signed by WIA Victoria members, and her magnificent Dendrobium speciosum orchid.

attending the committee's monthly review and planning meetings.

A little time later someone mentioned to Brenda that there was not an editor for the Callbook and this was delaying its production, and after due consideration she put her hand up for the job.

While forced to take things easy after the car accident, her absence from gatherings of radio amateurs was noticed, and those at the WIA Victoria AGM readily signed a get well card.

Brenda was surprised to receive the card, and expressed sincere thanks to her fellow radio amateurs for their thoughts and wishes.

Awarded WIA Life Membership at the WIA Federal Convention in Adelaide this year for her long years of service, Brenda continues to make a contribution to the affairs of the WIA although retired from elected positions.

A number of other things are also occupying her time, including further work on amateur licence harmonisation in the IARU Region 3 to be reported to the Region's meeting in Taiwan in February, and tending to her garden.

Summer holiday arrangements

The WIA Victoria office will have its last day for the year on Tuesday 16 December and reopen on Tuesday 3 February 2004.

Urgent mail and email will be periodically handled during this period. The closure also enables the preparation of annual corporate and statutory reports for the Annual General Meeting on Thursday 27 May 2004. Notices of Motion for the AGM close at 2.30 pm Friday 20 February 2004

The final VK3BWI Broadcast will be Sunday 7 December 2003. Broadcasts will recommence on Sunday 1 February 2004

ACA review

Thank you for those WIA Victoria members who had their say by sending a submission to the ACA Review of Amateur Service Regulation.

The ACA has a big task ahead of it in reviewing the nearly 1400 submissions. The word is that VK3 tops the table for having the most submissions.

Each submission not emailed is being converted into electronic form in preparation for displaying on the ACA website.

From those released publicly by their authors it is obvious a range of views and opinions exist on a number of the issues raised by the ACA in its discussion paper.

This is a very healthy situation and hopefully after being exposed to the different viewpoints, further changes in the thinking of individual radio amateurs, clubs and groups, will occur.

The WIA Victoria Council believed it was essential that it submit a comprehensive document to the ACA review, reflecting WIA policy, and "intelligence" gathered through the ACA's series of ten public meetings.

The WIA Victoria submission is available on its website. If you have not read it, please do so.

The first outcome of the review was the ACA's announcement on 17 November that Limited and Novice-Limited licensees will be able to operate on HF bands from 1 January, 2004. Please listen for, and welcome them to their new bands.

This decision is no real surprise due to it having overwhelming support in the review submissions and by the show of hands at ACA public meetings. It is a welcome change from the ACA's previous plan to hold off on the Morse code issue until early 2005.

VK4 News

Qnews

By Alistair Elrick VK4MV

Gateway opener wanted!

We wonder if there is a person or club perhaps interested in setting up an HF APRS Gateway preferably on 30 m in or north of Rockhampton. There is one in Brisbane VK4DMI and one in the northern part of the state which due to skip etc would compliment each other very well. HF APRS at present is slow but growing and it is felt that two HF 30 m APRS gateways within the state would just about cover it very well, dependent on conditions. Brian VK4BBS recently undertook a trip from Brisbane to south of Nowra across to Goulburn and back the inland route whilst using the VK3 and VK4 30 m gateways and was tracked at least 95% of the way.

If you are interested you can contact Brian via packet or E-mail at bbeamish@bigpond.net.au or Des at vk4dmi@pacific.net.au

Busy by the Bayside

The Bayside District Amateur Radio Society Inc had a busy weekend recently. VK4WST Victor and VK4TY Tom were the mainstay of involvement with the Manly/Lota Scouts at Karingal Scouts Centre Mt Cotton.

VK4FG Cathy, VK4XR Eric and VK4TJE Eddie operated from Macleay Island.

On Sunday morning President Paddy hosted a breakfast for the Kilo Romeo CB Radio Club, they have been operating for 27 years! 5 Bayside Amateur Radio members are also members of Kilo Romeo.

Some changes in Cairns

The AGM for the Cairns Radio and Electronics club was held on 12 October. The outgoing committee was re-elected for another term. Glenn VK4DU attended and spoke to the club regarding WIA matters.

The Cairns 70 cm-Repeater has been revitalised with a new transmitter and a change of frequency. The frequency change was necessary to move away from interference problems. The new frequency is 434.850 (I hope this is in the hands of the Callbook people)

Also the Cairns IRLP node will be changing to a new ISP as the current Co-ordinator, Geoff VK4MTV is moving to Brisbane. It is hoped that the IRLP service will continue providing the excellent service it has provided over the past few years thanks to Geoff. Geoff is FNQ's loss but Brisbane's gain.

Good Luck Lyn!

Lyn Battle was in Townsville Thursday October 16th to do some Morse exams. We wish Lyn all the best for a positive result in the exams and hope that the trip all the way from Sweers Island in the Gulf of Carpentaria pays off! Now that's what I call keen!

Big bills for Qnews?

Recently Graham VK4BB was shocked to be informed, incorrectly as it turned out, that the QNEWS audio files on the net were costing some $165 per month from ISP host "PowerUp/Webcentral". Now after a lot of sleuthing, it has beendiscovered that was an annual figure, which the WIAQ had paid monthly for several months, now in credit to about the year 2005! Also the figure turned out to be for the QSL bureau not QNEWS.

Also seems the sleuthing has had another upside, some 1750 e-mails discovered on this site... what wasn't junk mail turned out to be council business. Dave Gulley says "strangely not 1 item of QSL business!" So if you think your input to Council has been ignored, there is the answer, just a full mailbox nobody was checking. Apologies to any Member affected by this oversight.

Home Hill Power Museum Switches 'ON'

North Queensland has turned the spotlight on its historic electricity and irrigation linkages, with Energy Minister Paul Lucas officially opening the new Home Hill Power Station Museum. This was part of the Home Hill Harvest Festival celebrations. The history of the Home Hill Power Station is fascinating, as it was built in 1922 to power the Inkerman Irrigation Scheme, which was the second State operated irrigation scheme. The power station brought electricity to the district before it arrived in Townsville, and played a crucial role in Home Hill's development. The original red brick power station building still stands, and is the most significant historical structure in the district, yet many people don't know it was ever a power station. By locating this museum in the main street, just down from the power station, it's now highly visible to the travelling public.

73s from Alistair

Division News

VK7 News

Justin Giles-Clark, VK7TW

Sewing Circle BBQ – A Great Success

On Fathers' Day, 2nd November, the Sewing Circle BBQ was held at the QTH of Ken VK7DY and XYL Wendy at Orielton, about 30km NE of Hobart. It was a great success with many amateurs and families attending. The Sewing Circle Award was presented to Don, VK7AY.

This year a special award was presented in honour of Terry Wilson VK7HTW, who become a silent key earlier this year. It was decided that the award should be given to an amateur who has not only been a good operator but has contributed to the promotion and technical side of the hobby throughout the past year. Ian VK7ZIF donated and presented a home brew brass Morse key to Clayton VK7ZCR. Clayton has spent many hundreds of hours helping and promoting Amateur Radio.

The theme of "Looking Forward - Looking Back" Show and Tell saw many items on display, ranging from a 1kW dummy load to an ex-flying doctor radio, WLAN antenna, regenerative receiver restoration and a steam engine.

All in all there were lots of good eyeball QSOs with little QRM! Thanks to all involved. Just a reminder of the Sewing Circle Net is held at 17:00 (local Tasmanian time) each day on 3.59 MHz for a general rag-chew session.

Branch Meetings

South

At our Southern Branch November meeting we were fortunate to hear a talk by Professor Peter Dyson who is Head of the Department of Physics at La Trobe University. Peter's talk started with an illustrated explanation of the effects that solar flares and coronal mass ejections (CME) from the sun have on the earth's magnetic field and what this does to the ionosphere and the auroral ring.

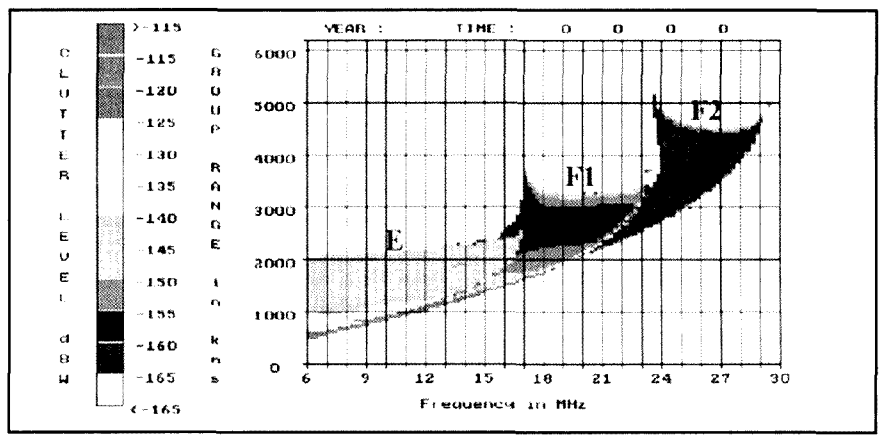
A sample backscatter sounding ionogram plotted group range in kilometres versus frequency (over the horizon radar).

The facility collects: group range, signal strength, Doppler spectral width and the angle of arrival of the return signal and from this information a range of maps can be created to investigate various properties of the ionosphere. Peter showed us many maps of various events and how the radar captures and represents these phenomena.

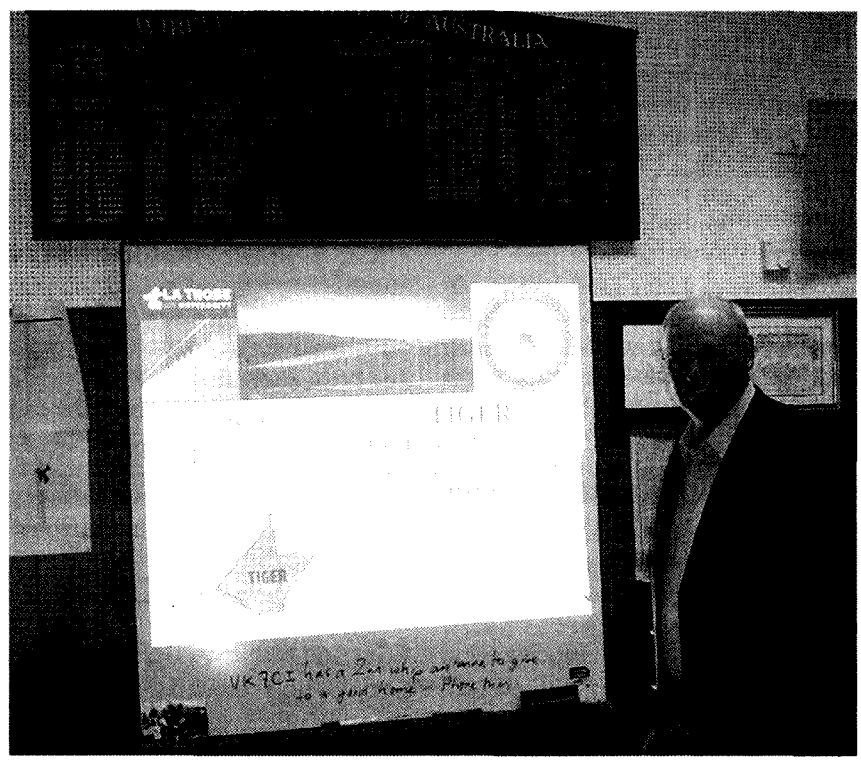
Thanks to Peter and his XYL Diane for coming along and giving this fascinating talk.

North

Just an update on the Northern Branch's meeting held in October. A record was set with 70 members and guests attending the night, and display by



Backscatter ionogram



Professor Peter Dyson

Gil Sones VK3AUI

Magnetic loop for two metre band

An interesting idea for a compact 2 metre band antenna appeared in the Antennas column of Arnie Coro CO2KK in the January 2003 edition of *CQ* magazine. The antenna was a small magnetic loop for the 2 metre band.

For use on two metres a magnetic loop has a maximum circumference of around 205 mm before it becomes longer than one tenth of a wavelength which is about the maximum size for a small magnetic loop. This results in a maximum diameter of about 65 mm. The loop is shown in Fig 6. The loop can be made out of 3mm diameter copper wire or 10 mm wide copper strip. The tuning capacitor can be one of the old beehive air trimmers (Philips) or a compression trimmer. The voltage rating will need to be quite high if more than a couple of watts is used. Also the RF current rating of the trimmer will need to be considered as loops are fairly demanding of the components used particularly if operated with more than a few watt of RF.

The antenna is matched by adjusting the tapping point of the coaxial feed cable inner on the loop. It is a miniature version of an HF magnetic loop antenna.

The antenna has a pattern with marked nulls.

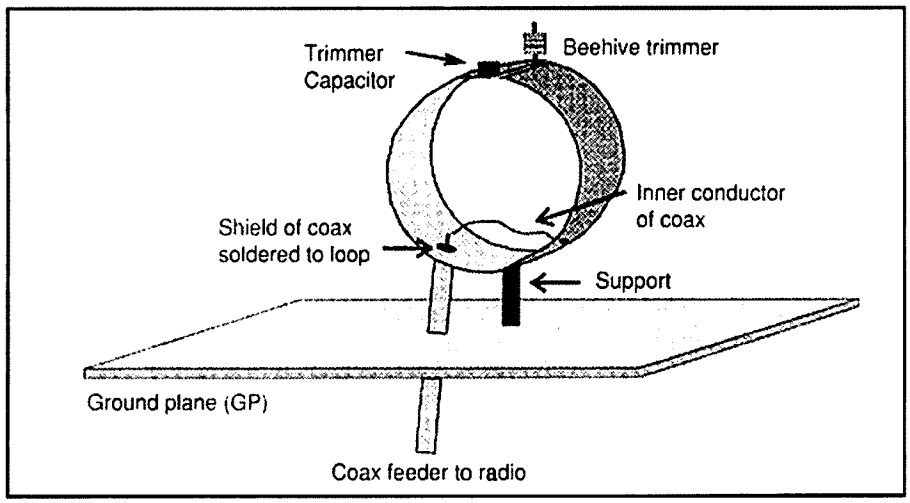


Fig 6. Two Metre Magnetic Loop.

Division News –

VK7 News *continued*

Strong Australia. Guests included Leon Senior and Ian Walker of Strong Australia and Brian Watson, technical director of Western Video. The evening culminated in a visual satellite display of the many facets of Digital and Satellite TV. The November meeting was a business meeting where the arrangements for 2004 were discussed.

North West

The Classic Challenge Car Rally was held on the first weekend in November and was very successful for those providing the communications despite the difficult location from a communications perspective. The technicians, Tony VK7AX and Mal VK7CA overcame all obstacles and with the field operators, did a great job.

The November meeting was a productive one with Tony VK7AX reporting that negotiations are progressing on a new location for the VK7RAE beacons. This new location is apparently as good as the old Kelcy Tiers site. The Joan Fudge memorial award was voted on and this will be presented at the end of year get-together.

ar

Silent Key

S F ("Sugar Fox") Medford VK7SF

On Wednesday 8/10/03 the Tasmanian Division's Northwest branch lost one of its oldest and most respected members with the demise of Sydney Frances Medford VK7SF, or as we called him, just Sugar Fox.

We don't know for sure how long Syd had been licensed. Ken VK7KH reckons it must have been at least 50 years during which time Syd endeared himself to all amateurs lucky enough to have known him.

Syd was born in Cardiff, Wales in 1918, and came to the Burnie area at the age of 11 with his family. His working life was spent mainly in the automotive trade but he always had a fascination for electronics and, through an old teacher friend who was licensed, got his full call.

Syd was a brilliant drummer, one of the few who could read a drum score of a musical show. He was very much in demand until a few years ago when age caught up with him. He rarely missed a Northwest W.I.A. meeting, always ready with some commonsense comments.

We all will really miss dear old "Sugar Fox" walking in the meeting room door with VK7KH. Perhaps he's up there somewhere catching one of our skywaves. Enjoy your peaceful rest Syd.

Justin Giles-Clark, VK7TW

Club News

Adelaide Hills Amateur Radio Society

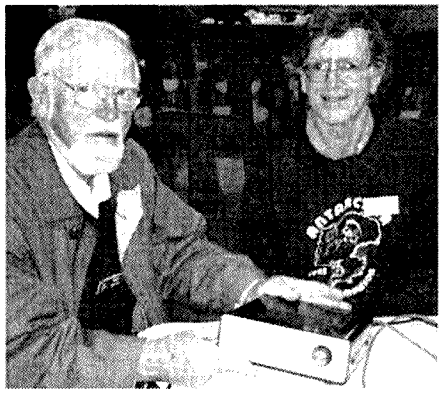
The October meeting was a very interesting "Show and Tell".

Darryl VK5JDS had made a frequency synthesiser that operated from 100kHz to 60MHz in 1Hz steps suitable for use as a signal source or as a variable VFO for a transmitter – with RIT facility included.

Rob VK5GR by using a somewhat modified tuning assembly from a Command receiver, had produced a 5 – 5.5 MHz tunable receiver, which included two Collins mechanical filters with relays and switchable crystals to cover all HF amateur bands

Jim VK5JST left his linear on the table at the back of the hall but was able to demonstrate how he had used dog food tins as covers and socket for valves, and the aluminium lids from Hoover washing machines to make the chassis and case for a very solid, very fine modified G2DAF type linear amplifier

Wally VK5TW had built a digital readout for his Yaesu 101 transceiver, from a design printed in the January 1978 edition of AR, written by Keith VK5OQ, which included a matrix of diodes for the frequency control. Once he found the modifications suggested in the March edition, the readout worked well and is still in use a number of years later. To his astonishment, Keith was to present an item later in the program, so they were able to compare notes.

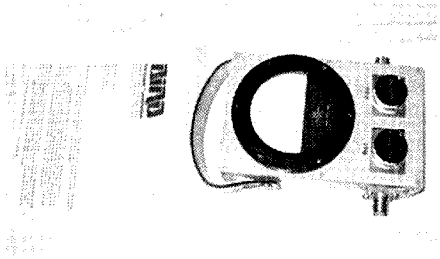


VK5TW, left, and VK5OQ

Lloyd VK5BR has had a number of queries about the comparative radiation from the cables and the antennas with which he experiments, so he had produced a sensitive RF meter which can be used to measure currents outside cables and around antennas.

Steve VK5AIM had three items for display. He had made up the antenna base recommended by "Practical Radio" magazine for use in field day situations which uses the weight of your car to hold the mast down. He had brought along an antenna tuner made from recycled parts which had won him a prize in a local show and he had the modified case he had made for a Bird Wattmeter.

Wishing to know about the extra plug-in unit available for the Bird, Steve had written to the company in the US and sent them a photo of the modified box he had made. In return he had received two extra plug-in units and a letter commending his workmanship in the box he had made. The meter and the letter were on display that night.



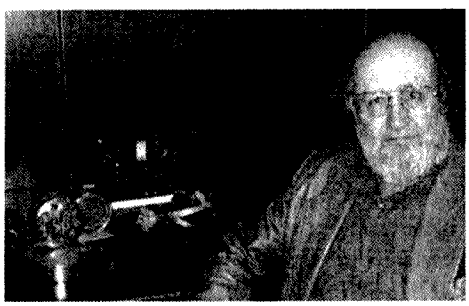
The last presenter was Keith VK5OQ who had made an electronic load for testing batteries and power supplies, made using 20 germanium PNP transistors, capable of dissipating 500 watts with constant current control.

Altogether a very interesting evening.

The South Australian Old Timers' Luncheon and Display

The Old Timers Network meets once a year for a luncheon in Adelaide. This year it was on 23rd October, at the Marion Hotel. At the last couple of lunches Vaughan Harvey, an announcer on the ABC for many years has brought along some items from his private museum.

This year he had two very early home made microphones, one made by the son of a handicapped operator VK5WS that could sit comfortably on his chest but still allow him to be heard.



Vaughan Harvey

Vaughan and his display, including the microphones and an early shortwave receiver are in the photo.

Whyalla ARC December 2003

JOTA is over for another 12 months I believe that we had one contact into Europe, several to New Zealand and many to the East Coast. Many thanks to the Group who set up radios for the Scouts at Weetera out of Moonta on Y.P. Your operators kept us busy on 2 metre

Our Club is busy with projects keeping all the gang busy. Making antennas that look like discones for the VHF Bands, they work too. The Club wishes Fred and Ted all the very best when they sit for their Novice on the 30th of Nov

We have started a Round Robin Group on 2 metre every night at 7.30pm at the present time on 146-800 MHz and as soon as our local repeater is back on air we will be on 146-700. All VKers are welcome to join in. We have already had contacts from all about, and as far as Adelaide.

The President of our club wishes to extend the Seasons Greeting to all and may your Xmas and New Year bring high expectations to us all.

Contest Calendar December 2003 - January 2004

Dec	5/7	ARRL 160 metre Contest	(CW)	
Dec	6/7	MDXA PSK31 DeathMatch	(PSK31)	
Dec	6/7	TARA RTTY Sprint		
Dec	13/14	ARRL 10 metre Contest	(CW/SSB)	
Dec	20	OK DX RTTY Contest		
Dec	20/21	International Naval Activity	(CW/SSB)	
Dec	26	Ross Hull Memorial VHF Contest	(CW/SSB/FM)	(Nov/Dec 03)
(to 18 January, 2004)				
Dec	27/28	Original QRP Contest	(CW)	
Dec	27/28	Stew Perry 160 metre Distance Challenge	(CW)	
Jan	3/4	ARRL RTTY Roundup		
Jan	10/11	Hunting LIONS in the Air	(SSB)	
Jan	17	070 Club PSKFest		
Jan	17/18	VHF+ Summer Field Day	(CW/SSB/FM)	
Jan	17/18	Hungarian DX Contest	(CW/SSB)	
Jan	17	LZ Open Contest	(CW)	
Jan	18	End Ross Hull Memorial VHF Contest		
Jan	24/25	CQ 160 metre Contest	(CW)	
Jan	24/25	REF Contest	(CW)	

Results CQ WW CW Contest 2002 (VKs only)

Single Operator High Power

VK5GN All Bands	907,392	
VK6LW	116,494	
VK5WU		62,186
VK2KM		55,476
VK4UC	28	251,368
VK4EMM	21	886,103
VK4XY	3.5	11,835
VK6VZ	1.8	2,666
VK2DPD	All	288,637
VK4UH	71,016	
VK2GR	70,231	
VK3DBQ	28,320	
VK4TT	28	151,368
VK2CZ	1,824	
VK4DX	14	477,432
VK2AR	42,372	

QRP All Bands

VK3JS	100

Correction

The following paragraphs are corrections to the details of the Ross Hull Memorial VHF-UHF Contest published in November 2003 AR.

Please particularly note the Contest final day is 18th January 2004 and Logs are required by 9th February 2004. ***Editor VK5UE***

The next Ross Hull Contest will be held between *December 26, 2003 and January 18, 2004.* The contest is open to all amateurs, and any mode can be used.

The target duration is three weeks. The actual length varies because of the fixed starting date of 26 December and a finish in the middle weekend of January. This causes the contest to become a day shorter each year. Last year it was down to 18 days, so this time it has been extended to 24 days. (It will drop back to 22 days for the 2004 - 2005 contest, because next year is a leap year.)

I have included a pro forma cover sheet and scoring table in my posting on the Internet, and it will make my job easier if you follow the layout of this sheet. You can send in your log by post or by e-mail. This year I will try out the option of sending out the results and certificates by e-mail. This will require Adobe Acrobat software to read PDF files, and a colour printer for the certificate. If you wish, you can still choose to have your certificate posted to you on nice parchment style paper.

John Martin (VK3KWA), contest manager

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

Duration

0000 UTC Friday December 26, 2003 to 2400 UTC Sunday January 18, 2004. In Eastern Summer Time, that is 11 a.m. on December 26 to 11 a.m. on January 19.

Entries

Paper logs may be posted to the Manager, Ross Hull Contest, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to jmartin@xcel.net.au. The following log formats are acceptable: ASCII text, Office 97 RTF, DOC, XLS or MDB. If you use Office 2000 or later, please save the files in Office 97 format.

Logs must be received by **Monday, February 9, 2004**. Early logs would be appreciated.

ALARA

Christine Taylor VK5CTY
vk5cty@vk5cty or geencee@picknowl.com.au

Seasons Greetings

The committee of ALARA wishes all members and readers a Happy Christmas and New Year.

"May all your amateur radio wishes come true."

Let us all enjoy our marvelous country and let us all share some Christmas happiness with family and friends. Perhaps even share our Christmas table with someone who would be alone otherwise. That way we will enjoy it all more and so will our guest.

Classic Adelaide

If you are a VK5 amateur, OM or YL, the chances are you will be offering your services to the Classic Adelaide organisers as a communicator. To participate in an event like this in any way gives you an excuse to see some beautiful and rare motor cars, with some very happy people driving them. The lovely setting and the beautiful weather that is springtime in VK5 is much enjoyed by all the drivers and officials.

Isn't it great to have a hobby that helps others have a good time? Let us support our WICEN oragnisers, even if it is only for one of the days of the Classic.

Those of you in the other states can watch it on TV and feel envious of us.

JOTA

Although I suspect there were other YLs involved with JOTA I have reports from only two. However, they are interesting in different ways.

Jeanne VK5JQ expected to be at Woodside, Scout headquarters camp for South Australia and home of scout station VK5BP, as she has been for the last three JOTAs, but at the last minute could not be there due to family commitments. Nevertheless she sent me some photos of the 1st Hillcrest Brownies and Guides.

Susan VK7LUV (our new President) had her very first experience of JOTA. In her own words:

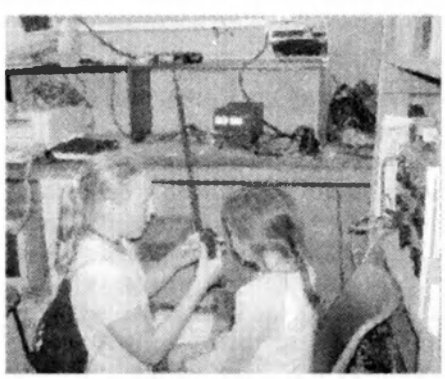
"We received a visit from one of our local scout leaders, who was absolutely desperate because all the ham operators who usually do JOTA for them were unavailable this year. Our scouts are in the Leven District, which comprises Ulverstone, 1/2 Ulverstone, Turners Beach, Motton Preston & Penguin.

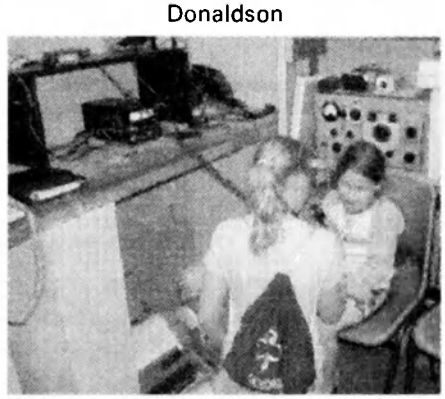
Alan and I have never been to JOTA before, though our son Jade went to JOTA camp in 2001. Everyone worries about the young people being mike-shy, so Alan and I were petrified of spending a whole weekend with this bunch of young people! Eventually, we decided to go out after lunch on the Saturday, and we stayed until everyone packed up on the Sunday afternoon. Our fearless scout leader (Nobby) climbed the tower to repair the 40m dipole, which was a job well done and there is no way you will get me up there!

I have no idea what normally goes into a JOTA logbook! We managed to contact VK1, VK2, VK3, VK4, eventually VK5, and our favourite was the 1st Fremantle Sea Scouts VK6. We heard several New Zealand stations, however they were quite busy so we didn't manage to contact them, but we were pretty busy with all the other stations we were able to work. All in all, our 25 scouts managed about 4 QSOs each, amid much laughter and only a small amount of shyness.

In order to obtain our willingness to attend JOTA, the scout leader offered us a bunkroom to sleep in, as we had all the children to take with us also. We did feel a little guilty going to bed in our nice warm (heated by log fire) bunk room. However when we surfaced in the morning to find several of the scouts had been 'rained out' and were trying to find somewhere to dry their gear, we were mighty pleased we weren't in tents ourselves!

Brownies: Danielle Aspinoll and Lauran Donaldson

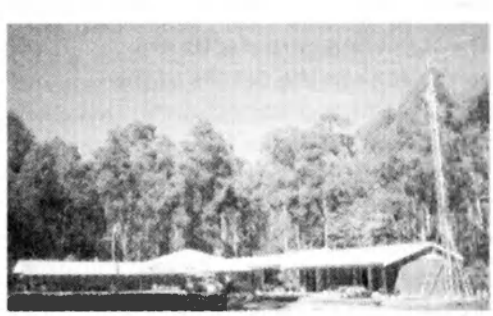




Guides: Kristy Aspinoll, Caroline Cousins and Page Heywood

The weather on Saturday was beautiful and warm (14 degrees) and the sky was quite clear when we headed off to bed (at 2am Sunday, I might add), however it rained quite heavily while we slumbered and then it drizzled most of Sunday morning.

I am attaching a photo of Paton Park, which was the site of this educational weekend - it is the main camp for the Leven District scouts. "



Paton Park

The Central Coast hosts the Southern Hemisphere's largest Hobby Radio and Communications Expo

On Sunday 29th February 2004 the Central Coast is host to the largest gathering of Radio Amateurs, Radio Communications Enthusiasts, Computer and Electronic Hobbyists in the Southern Hemisphere. More than 2000 people from 40 clubs and organisation from all over Australia and the Pacific will converge on Wyong Racecourse to display and trade the latest radio communications equipment. Exhibits and operating displays will show and demonstrate:

- All facets of Amateur Radio
- CB Radio
- Shortwave Listening and Scanning
- Packet Radio - Computerised Communications
- Television and Multimedia transmission and reception demonstrations
- Interesting technical lectures, seminars and workshops
- Electronic construction
- Exhibits of Vintage and Historical Radio collecting and restoration
- Volunteer Emergency Communications
- Satellite Reception
- Hobby computing
- Internet communications
- Radio Fox Hunting

Truckloads of pre-loved equipment at give away prices in the flea market and disposals areas.

- See all major Radio and electronics equipment suppliers together under one roof with many dealers showing the latest offerings and great bargains.

Throughout the day there will be several seminar sessions and workshops on topical subjects, with presentations from experts and equipment suppliers, including talks on the latest technology.

Plenty of off street parking is available within Wyong Racecourse grounds. Tea, coffee and biscuits will be available from 8.30 am to 3.00 p.m. at no charge in the Dining Room. Hot and cold food can also be purchased within Wyong Racecourse.

Anyone with an interest in radio communications or electronics can contact the event organisers, The Central Coast Amateur Radio Club, by phoning 02 43402500 for more

Gates to the Racecourse will be open to the public from 8.30am Entrance fee: Adults $10.00, Seniors Card, pensioner concession, students $5.00, Children under 12 free.

Ian James David Dalrymple VK2XU

Ian was born on 31 March 1926 in Castlemaine, Victoria to parents Emily (nee Fenton) and Len. He lived a full life, devoted to his family, a man who was a great provider. He had a love for life enjoying playing cricket in his younger days and in latter years watching rally cars, cricket and golf. He has been a member of the Probus Club, Golf Club, Oxley Region Amateur Radio Club (ORARC) and the Wireless Institute of Australia.

Most of his working life Ian spent working for the PMG, which in later life took him to the top of Middle Brother Mountain as OIC of the Radio and Television Relay Station, a position he enjoyed until his retirement. The family moved around having spent time in Melbourne, Orange, and Darwin and in 1964 to Port Macquarie where they spent many happy years.

Ian, as a member of the ORARC, was a member of the Repeater group for many years and was a source of technical knowledge to be reckoned with. He was in the forefront in assisting with the communications for the original Southern Cross Car Rally, which was run in the forests about Port Macquarie. He is known to have assisted many of our local Hams and Scouts with technical advice and, as DX Engineering, was the local Kenwood agent.

Although he enjoyed the local VHF activity Ian's favourite band must have been 20 metre, for this is where he kept in contact with his overseas friends. He was also a keen photographer and video enthusiast.

Ian had not enjoyed good health over the last 12 months and departed this life on 25 September 2003. He was predeceased by his wife, Betty in 1995 and is survived by children, Susan (Sue), Jane, Robert, brother Leonard, sister Marjorie and grandchildren Aron, Jessica, Libby, Lily and friend Miriam.

Vale Ian VK2XU

Submitted by Bill Sinclair VK2ZCV

ALARA *continued*

Luncheons

In Adelaide there will be ALARA Luncheons each month, on the second Friday, meeting at Berties Pancake Parlour at 12 o'clock.

In Melbourne there will be ALARA Luncheons on the odd months meeting at the Travellers Aid rooms in Swanson Street

In Perth there will be ALARA Luncheons on the third Friday of each month at the Hyde Park Hotel

In Adelaide in October we had a new face, Jana, not yet a member, but a welcome addition to the group. We were also visited before lunch by Cecily, XYL of Gary VK5ZK, who especially came by at that time to say "Hello".

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Ham Shack Computers

Alan Gibbs VK6PG
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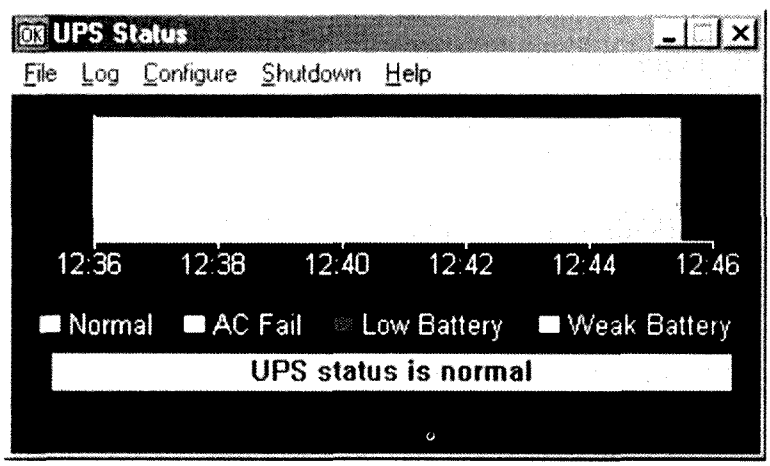
Part 32 – Power BackUPS

We all take for granted the reliability of power supplied from local electricity authorities. In the 70's, Western Australia was standardised on 254-volts AC and 240-volt electric globes would pop off regularly. Just imagine what damage was done to imported AR equipment designed for 220-volts AC! Today, thankfully, the reliability has much improved and is standardised on 240-volts. However, for readers living in the Australian outback, reliability can still be volatile – especially where the community is supplied from mine-site power generation. Enter computers! Now what happens when the power supply is plagued with glitches, variations and/or cut off?

The answer is an UPS or Uninterrupted Power Supply.



UPS Options

Most computer users are always worried about damage to hardware and software in an attempt to preserve their effort in file creation and keeping systems operational. Just one power glitch when in the middle of writing an article for this magazine, can set the writer back by many hours. However, if the glitch causes the hard drive to crash, this is a major disaster and maybe days of effort just to get back to square one! Serious users take precautions to back up files in an attempt to protect their data and valuable time and effort. Even if the backup process is efficient, and a dreaded glitch strikes, anything can happen – unless users find a solution to prevent the glitch in the first place. There are options to avoid glitches:

1. Run a laptop computer from a float-charged battery power supply – commonly done by contesters to protect electronic log keeping. Essential during field days when the AR equipment is being run from diesel/petrol generators etc.
2. Use questionable so called "spike guards/quenchers" sold through emporiums. These are useless if the supply is suddenly cut off!
3. Spend extra money and install a proper Un-interruptable Power Supply or "UPS" for short.

What's an UPS?

Mains powered computers use switch mode power supplies to generate the key computer supply potentials for the motherboard and peripherals. A nasty power surge can not only blow up the power supply in the computer, but also destroy most other parts of your machine in a fraction of a second. Sadly fuses are not an option these days because they are much too slow to offer protection. Have you noticed the lack of fuses on your computer!

If the supply input can be accurately maintained at 240-volts under adverse conditions, then the reliability of the computer can be maintained along with your valuable data. To achieve this an UPS device is connected between the household general-purpose outlet (GPO) and the computer. The UPS device consists of these parts:

1. A "through" condition where the mains is passed through the device to the input of a computer. However, the UPS condition is monitored by software and operational data is recorded.
2. Power fail or surge condition when the UPS fast switches to "isolate" condition and runs an internal switch-mode power source to keep the computer active (safely). This is done with an internal, sealed lead acid 12-v battery. Again, software records the interruption warning the user that the computer will automatically shut down in (say) 120 seconds. Imagine that you were writing this article in MS Word with MS XP and a severe 20-second power break was to occur. The above image would indicate an AC fail, the software emits a loud "beep", the duration is logged and a warning message appears on the screen that the computer will shut down in (say) 2 minutes. This gives you plenty of time to save the document and gracefully exit XP and shut down the computer. All this is done whilst the UPS has switched to battery power keeping everything running within the capacity of the battery.

Applications where an UPS is

essential include mission critical operations like packet radio bulletin boards, nodes, HF forwarding links, Internet servers and storage systems, firewalls, spam filtering and e-mail servers. Even Amateur Radio operators use the UPS to maintain data, keep PSK and other data modes alive. It's far cheaper to use an UPS than to rebuild your computer system after a lightning strike and power blackout! The cost of purchasing an UPS varies between $200-$500 depending upon the desired UPS capacity defined in VA for one or more computers. It all depends upon the depth of your pocket.

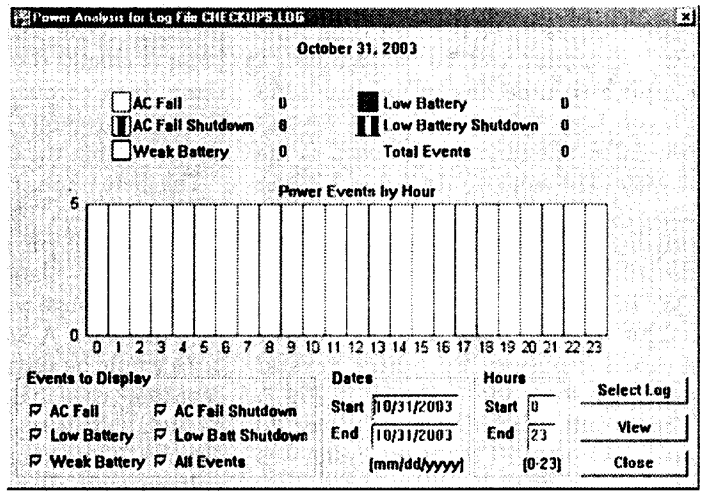
Software

There are many types of software available on the Internet. Some are complex and limited to specific operating systems. Others are "generic" and simple to configure and use. Whatever the system chosen by the reader, all that's needed is a spare communications port (serial or USB) and configuration code from the UPS handbook. The image opposite shows a generic UPS software package where the timing, on-screen messages, polling etc can be configured easily.

More complex packages allow remote modem access (PowerChute from APC. 2) to control the system. These are used by BBS's, repeater and node links where the hardware is installed in remote locations and distant from sysops and other controlling AR operators. The majority of readers will stick with the generic UPS applications and accept both the protection and the ability to control computer operations locally from the shack.

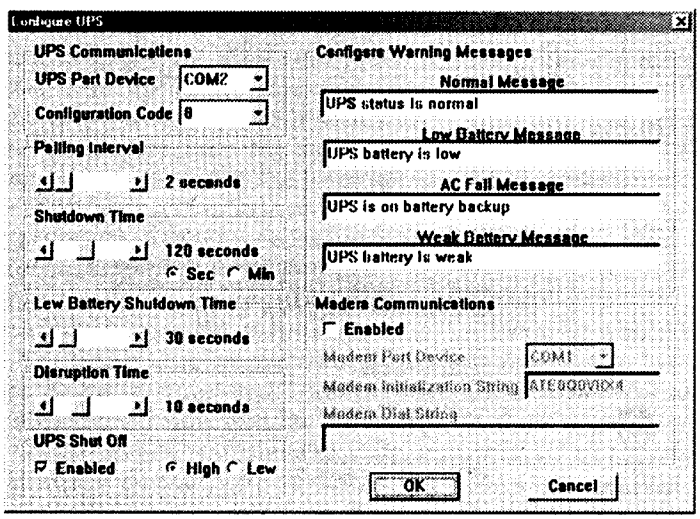
Power Logging Data

In the above image, power logging information is stored ready for analysis and statistical information. Information is stored in an UPS logging file with data on time, date, months, year, type of failure and how long each failure was logged. Useful information if your location is power volatile and you intend to take up issue with your power supplier! This may sound far-fetched, but readers working from remote locations such as mining towns and the like would take this very seriously indeed. Other generic software options include a calender by month review, and the ability to select data statistically that can be inserted into reports and AR logs. Very sensible in a pro-active, modern computerised Ham Shack.



UPS Batteries

These resemble small lead acid, fully sealed "motor cycle style" batteries. They vary in capacity, the most common being 12-volt at 7 A/H (DSE-S3321, Jaycar SB-2486 or Altronics S5090). These make ideal general-purpose batteries, are easy to charge, not plagued with problems like the Nickel Cadmium rechargeable – and they last for years and years. They are commonly used by QRPers and portable stations because they have a high capacity and are comparatively light to carry around. Ideal for UPS applications, and in some cases can be "hot-swapped" maintaining the operational needs of your computer service. In cheaper UPS, unfortunately the UPS must be disconnected and the case removed when the battery needs replacing. On a single computer, they can last up to five years which is very cost effective in protecting your valuable computer data and hardware.



Summary

If you value your computer, data and applications, a sensible addition to your computer protection arsenal is an UPS. They cost around $250 but are well worth the investment – especially in locations where the power supply regularly hiccups!

Ham Tip No. 32

Regularly test your UPS capacity by simulating a power failure. Your computer should run for at least two minutes before the UPS battery starts sagging. More than enough time for you to close down gracefully!

Ham Shack Computers - Part 33

Next **month** – discusses "The Ultimate QRP Project" for Radio Amateurs.

(1) Ham Shack Computers Web: www2.tpg.com.au/users/vk6pg

(2) American Power Conversion (APC): www.apc.com

73s de Alan VK6PG

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Technical Abstracts

Gil Sones VK3AUI

T5

In *QST* January 2003 Steve Johnson WD8DAS described the Two Tube Tuna Tin Transmitter, T5. The transmitter is a simple two tube design using a 5763 Power Amp driven by a 6C4 crystal oscillator. The tuna tin was used as the chassis. The tuna tin used was a larger size, 12 ounces, than that used for the original tuna tin solid state transmitter described by Doug De Maw W1CER in QST in 1976.

The design uses a 5763 power amplifier driven by a 6C4 crystal oscillator stage and is shown in Fig 7. The circuit can be used on 40 or 80 metre. An older FT243 style crystal was used.

For tune up a pilot lamp is used as a visual indicator of the power amplifier plate current. The pilot lamp used was a #49 panel lamp mounted in a rubber grommet. This is a 2 volt 60 mA lamp and any locally available lamp with a similar current rating would be suitable. Be careful with the mounting as the full 250 volt plate voltage is on the metal parts of the lamp. Using a lamp holder could present a hazard as the metal parts of the lamp would be accessible and could be at the full 250 volt anode potential if the bezel were removed in order to change the lamp. Soldering the lamp into circuit and observing it through a grommet helps by keeping the danger within the chassis.

The plate tuning capacitor C10 is a 200 pF air variable. The loading capacitor C11 is a 750 pF mica compression trimmer. The plate tank coil L1 is 32 turns of 20 gauge wire 2 inch long and 1 inch diameter. A B&W miniductor type 3015 would be suitable if available. The capacitors used in the transmitter should be high voltage types suitable for valve circuits. They should have a working voltage well above the plate voltage used.

For safety the circuit should be operated with an additional RF Choke connected across the loading capacitor C11. This should have a substantial current rating as it will need to blow the High Tension fuse in the plate supply in the event that C9 fails. The pilot lamp monitoring plate current of the 5763 will probably blow first if the safety RFC is in place but make sure that the RFC is capable of blowing the HT fuse.

Wiring should be insulated and all wiring and components at a high voltage potential should be within the chassis.

Also for your safety you should be aware that a high voltage appears across the key contacts. You should take care to prevent contact with the key contact. This was a well known hazard but is not a common hazard today with low voltage rigs. Be careful.

With regard to safety you should always switch off the rig before working on it and earth the plate supply line so as make sure the circuit is safe to work on. Also when working on valve circuits you should work with one hand in your pocket to help prevent inadvertent contact with high voltages and electric shock. Remember that we are all used to low voltage rigs and circuits and high voltages should be treated with considerable respect.

In the *QST* article a suitable power supply was described which used back to back transformers to produce a suitable plate supply voltage. However due to the differences in the AC supply systems it is not directly applicable locally and the circuit has not been reproduced.

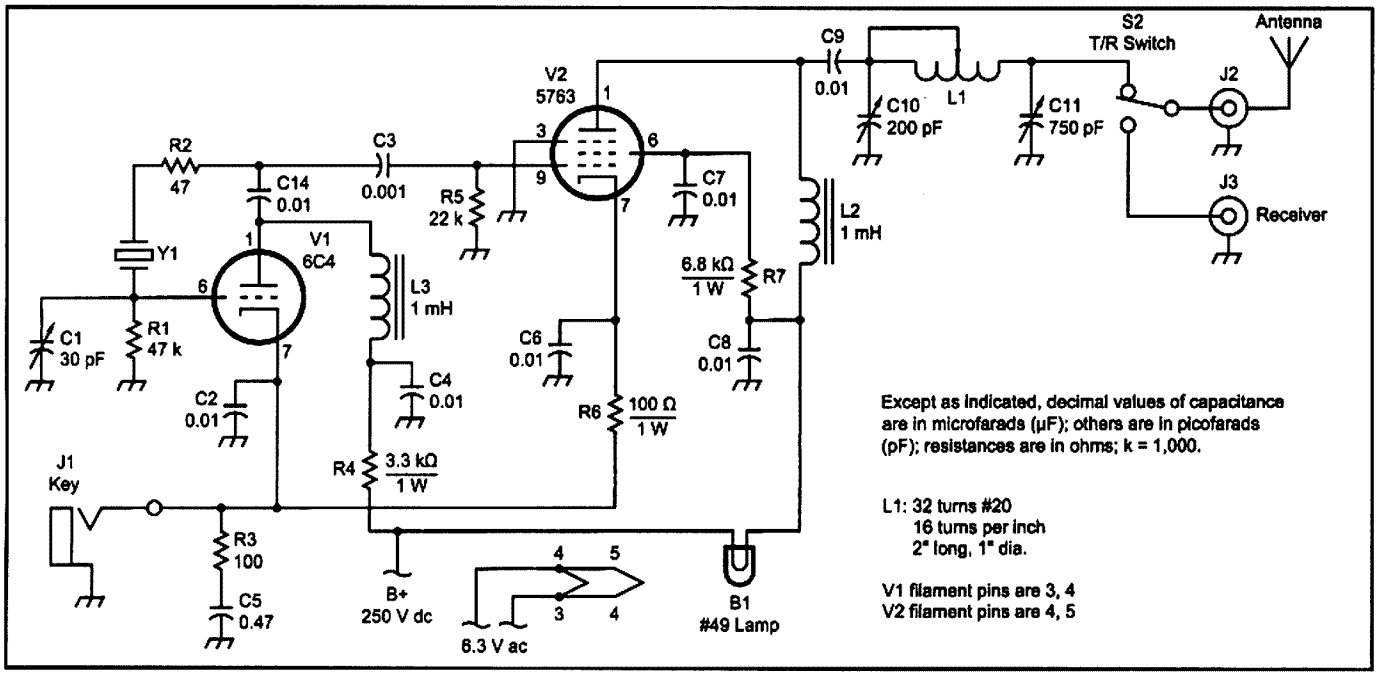

Fig 7. T5 Transmitter Circuit.

Robin L Harwood VK7RH

2003 was a bit shaky. What will 2004 bring?

It is truly amazing that another year has come to a close. Quite a lot has happened over the past 12 months with a war within Iraq, the Coalition Forces occupying it and followed by a bloody guerrilla campaign from a combination of diehard loyalists of the former regime, probably assisted by external terrorist groups such as "Al Qaeda". The situation between the Israelis and the Palestinians rapidly went downhill with the so-called "roadmap" in ruins following repeated suicide attacks from terrorists with the inevitable tit-for-tat response from the Israelis.

As well there is still tension on the Korean Peninsula with the United States backing its South Korean Allies after the North Korean regime admitted that they had acquired nuclear weapons through reprocessing spent plutonium rods, in violation of an agreement between the two. It currently remains a stalemate with no sign of either party backing down.

In the middle of the year, Australia led a multinational force in to the Solomon Islands after law and order completely broke down in this small Pacific Island nation. Troops and Police quickly restored order without any bloodshed to the extent that the intervention force has been scaled down much earlier than anticipated.

These three conflict zones still feature prominently over shortwave radio. It was also apparent this year that shortwave is rapidly being abandoned by the players, both big and small. I reported recently that the Norwegians are terminating their external HF relays on December 31st. This caused problems for the Danes who were leasing time over the senders. It now seems likely that they too will abandon HF on the same date.

The small Costa Rican station "Radio for Peace International", which was based at the United Nations University of Peace campus, was told to vacate their buildings on the campus. Mediation talks broke down in early November and things got very nasty. This station may have already disappeared by the time this gets into print.

The Voice of America in Washington DC surprisingly axed broadcasts in English to Australasia when they ceased English programming between 0700 and 1200. 9645 and 6165 used to provide excellent signals into this region, with 9760 and 11715 but not as good. Programming does indeed resume at 1200 to southern and eastern Asia. Also the morning release formerly on 17735/740 at 2000 has also gone. 9670 from Thailand does come in at 2100 but this is primarily for SE Asia.

Radio New Zealand International resumed broadcasts via shortwave in mid October, following their unexpected silence after the sender and antennas were zapped by a lightning bolt. RNZI is now running 24/7.

In early November, I received my copy of the 2004 edition of Passport to World Band Radio, edited and published as usual by Larry Magne. It is a 592 page book with the usual receiver reviews plus tips on how to find the various world band broadcasters, by time or by country. There is a review of the situation in Burma or as it is currently referred to - Myanmar, from the perspective of HF broadcasts to the nation. Very few broadcasts emanate from this nation which has been isolated from the international community. The familiar blue pages are at the rear, containing frequency occupancy charts and I find these very useful, but far from being infallible. It costs $22.95 US plus $9.95 postage direct from the publisher which was approximately $40 AUD. This is less than 2002 because the exchange rate has risen over the past 12 months.

I wonder what 2004 will bring? DRM commenced in June but the number of DRM broadcasts has actually decreased. It does depend on how many DRM receivers are manufactured and what the consumer demand will be. IBOC, the American equivalent, also got off to a shaky start. At present there are even fewer IBOC receivers than DRM . IBOC on the AM band seems to be doomed but perhaps would work on FM. The European DAB concept is picking up, especially in the UK. Australia is presently conducting trials in Melbourne and Sydney just above 200 MHz to ascertain if it would work under Australian conditions. No IBOC trials have been organized so far for here. One interesting trend for broadcasters using DRM via HF is for pooling resources. The Canadian senders in Sackville NB are relaying programming blocks on one frequency, minimizing congestion and interference from multiple senders. This trend looks likely to continue.

Well that is all for 2003 and may I extend my best wishes for the Season and look forward to 2004.

Robin L.Harwood VK7RH.

Try this: Your computer as a sound recorder

Peter Parker VK3YE
12/8 Walnut St, Carnegie, 3163
Email: parkerp@alphalink.com.au Web: http://www.alphalink.com.au/~parkerp

If you want to test how far you can wander with your handheld transceiver and still be within simplex range of home, what do you do?

You could co-opt a bored family member to listen at home and take notes of where they can hear you. Or you could hook your set up to a tape recorder. Then you'd have mostly silence, punctuated with the occasional test transmission. A VOX tape recorder would help but has disadvantages of its own.

The widespread use of computers in the shack and a simple freeware program means there is now a better way. By feeding audio into the sound card, and using the *Scanner Recorder* program, you can now do monitoring and recording on the computer. And it's not confined to FM handheld range tests either. When you need to monitor a VHF DX calling channel while you're out, record a few grabs of audio on an obscure frequency, or hope to record a broadcast or net, *Scanner Recorder* has numerous uses around the shack. Clubs will also appreciate it for monitoring usage of their packet BBS or repeater. With an in-built activity time, it will come in handy when assessing likely transmitter duty cycles and power supply needs.

Scanner Recorder can be downloaded from the Shareware Music Machine website at http://www.hitsquad.com/smm/ . This site has numerous other programs, but the Scanner Recorder appealed most due to its VOX function and simple operation. All it does is convert incoming audio into a .wav file. This can be played on the Windows Media Player that comes standard on most computers.

Accustomed to multi-megabyte software, *Scanner Recorder* was a pleasant change, comprising a .zip file just 129k long. Even with a slow connection it's no more than a few minutes to download. If you want to get *Scanner Recorder* direct, without looking at all the other programs, just visit http://www.hitsquad.com/smm/programs/ScannerRecorder/ Before use, you need to unzip it. This can be done by right-clicking on the file at the location you saved it in Windows Explorer.

To start *Scanner Recorder*, first create a new file to do your recording on (by selecting File, then Open). Then set the squelch back from the point where the recording starts with no incoming signal. Once you've sorted these out, you will find *Scanner Recorder* an easy to use and worthwhile addition to the shack. And the price is right, too!

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Beyond our shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

WRTC 2006

The next World Radiosport Team Championship (WRTC) will be held in 2006 in Brazil. That announcement came October 11 from the World Radiosport Team Championship Sanctioning Committee, the Liga de Amadores de Radio Emissão (LABRE) http://www.labre.org/ and the Araucaria DX Group (GADX) http://www.inepar.com.br/araucaria/radio.htm. Steve Morris, K7LXC, chairs the WRTC Sanctioning Committee.

Last held in Finland in July 2002, the WRTC is a competition among two-person teams drawn from among the world's top Amateur Radio contest operators. This event brings competitors together in a single geographical area. It determines the best of the best!

The on-the-air portion of the event is held in conjunction with the International Amateur Radio Union (IARU) HF World Championship http://www.arrl.org/contests/announcements/rules-iaru.html, although WRTC rules differ in some respects from those of the IARU event, and scoring is done separately.

WRTC stations run 100 W and have comparably modest antenna systems—typically a dipole for the low bands and a triband Yagi for the higher bands. The idea is to minimize the variables associated with radio contesting, thereby emphasizing each team's operating skills.

In 1996 your column writer, together with Martin, VK5GN (now VK7GN) had the privilege to represent Australia when the event was held in San Francisco and be assured, it is an event that remains in your memory for ever. Hopefully a two-person team from Australia will be represented at WRTC-2006. Volunteers needed.

(ARRL N/L)

Power line communication

As you are aware from previous readings in "AR", there is considerable concern about power authorities using power lines for communication purposes using frequencies between 2 and 80 MHz. NZART reported that a PLC trial has been held in Karaka Street, Takapuna, ZL, in June. Reports are that it had "mixed results". The problem found is that the HF modulation will not pass through the pole-mounted step-down transformers but it worked fine on the low voltage side.

Tests over the 400V and 1100V lines gave the same problem. It is understood that development work is being done on a "bypass" to allow PLC data to get around the pole transformers and to use PLC over the high voltage network.

No information has been obtained on whether or not the tests considered the level of HF radiation from the lines.

Broadcasters themselves also have exhibited increased concern about the potential of PLT/BPL to prevent their signals from reaching listeners. The Research and Development branch of the highly regarded British Broadcasting Corporation (BBC) has released a White Paper reporting on a brief trial in Scotland. The two competing PLT/BPL systems in operation in the town of Crieff both interfered with HF reception. Tests were conducted at four locations. The BBC engineers described the interference as varying between "'annoying' and a level sufficient to make the broadcast completely unintelligible."

According to ARRL N/L 22/42, Manassus, Virginia, is about to use power lines for high speed internet service. One wonders how they will succeed with their step up/down power transformers. The ARRL and FCC will be monitoring the outcome very closely.

(NZART)

Pirating in the UK

In England, new powers of arrest were introduced on 18th September in an attempt to combat pirate radio stations. The police, working with the Radiocommunications Agency investigators, will now be able to arrest a pirate broadcaster or anybody suspected of supporting or facilitating illegal broadcasting. UK Communications Minister Stephen Timms said: "These new powers will be an important weapon in the campaign against pirate broadcasters. By interfering with communications services which are vital for public safety, pirates can put lives at risk". Pirates detained under these new powers could face an unlimited fine or up to two years in prison. For other transmitting offences such as unlicensed use of business, marine, or amateur radio the maximum penalty is a £5000 sterling fine and/or 6 months in prison plus forfeiture.

(rsgb)

Morse Code

While we have been swamped with the hype to remove Morse requirement from existing and future licences, it was interesting to read in the ARRL Newsletter that the FCC has put out petitions, known as round 2, for comment by Nov 7. One proposal is to retain 5 wpm for General/Extra Class licences. Describing CW as "the purest, most accurate, efficient, reliable and economical form of radio communications ever devised," Frank Napurano, K2OKA, requests that the FCC retain the 5 WPM Morse requirement "in the interest of public safety, the preservation of a radio art and as a tribute of support for a prized and respected avocation."

World Radio Amateur Callbook

The call book now includes email information. If you would like your email information added to your call entry, please email Thomas Gudehus, DB3ZX at kamper@wichte.de or visit www.callbook.com

AMSAT

Bill Magnusson VK3JT

Increased availability of SO-50 satellite

A recent report from Noel VK3FGN indicates that SO-50 is available on some 95% of daylight passes over Australia. Matt VK2DAG, Noel VK3FGN and Trevor VK3TI are all acting as SO-50 activators. That means that virtually whenever it is over Australia SO-50 will be turned on and stations can use it. Noel said that only a few stations are using SO-50 regularly and it would be nice to see some more activity. Full details of frequencies, modes etc. are available on the AMSAT web site and in my half-yearly updates in July and January but here is a shortened version.

SO-50

Uplink: 145.850 MHz

Downlink: 436.795 MHz

Mode-J FM amateur repeater, using a 67.0 hertz tone on the uplink, for activation. SO-50 keps are available from the usual sources, either on packet radio BBS or AMSAT News Service on the Internet, or direct from www.celestrak.com on the world-wide-web.

More on AO-40 FEC telemetry

Stacey Mills, W4SM has posted this latest update regarding FEC telemetry on AO-40.

"We are running FEC on as many orbits as possible, working around the need for pictures and other command functions. FEC mode requires loading the IHU-2 each orbit and this is not always possible; however most orbits have FEC active. We have modified the FEC routine to allow the option of cycling between normal mode telemetry including message blocks and event blocks, and FEC mode telemetry (A-blocks only). With this option, the normal mode is currently active from 0 to 16 minutes of the hour, and the FEC mode is active for the remainder of the hour. This allows time for users to read the message blocks and for event blocks to be collected. During transition between these two modes, up to 1 minute of beacon "idling" (hex50) may be heard before the new mode starts". If you are intending to operate on AO-40 it would be advisable to get late breaking news from some electronic source such as packet radio or the Internet as things can change almost from day to day, especially during the current eclipse season.

Some hints for operating with AO-7

Since this satellite unexpectedly returned to service after many years of silence there has been an interest in exploring the possibilities it offers.

From time to time I'm asked for advice on how to have the best chance of using AO-7 successfully. It's not easy and many newcomers who were not around when this kind of satellite was the only kind available may be expecting too much. But - it is possible to have very successful contacts via AO-7 and it's fascinating to think of your signals coursing around through all those now almost ancient circuits on board this remarkable spacecraft. AO-7's main claim to fame was and still is its relatively high orbit. When it was newly launched I can recall making contacts from southern Victoria into New Guinea. VK6 to ZL was commonplace. AO-7 orbits high enough that all of Australia, New Guinea, New Zealand and some of Antarctica can be in its footprint at once. Contacts within VK would routinely last for 20 minutes or more. In the past few months there have been a number of responses to similar questions on the AMSAT-NA bulletin board. I have attempted to summarise this advice. Before you begin it's well to remember that AO-7's batteries went dead a long time ago and it runs on solar power only. Don't bother to listen for it at night. It must be in sunlight to switch on - and - it can switch on in either mode-A or mode-B. Begin by listening for the beacon on 145.970 MHz. This will be subject to Doppler shift and will appear a kHz or two higher when you first hear it and will drift slowly down in frequency a few kHz during each pass. If you don't hear the beacon on 2 metres the satellite may be in mode-A and you should hear the beacon on the 10 metre band around 29.5 MHz.

1. Tune your receiver to 145.945 MHz (if you can hear the 2 metre beacon) and your transmitter to 432.148 MHz and select CW mode. If mode-A is on tune your receiver to 29.450 MHz and transmit on 145.9 MHz
2. Wait for Oscar 7 to rise a few degrees above the horizon. If you have a tracking antenna you should hear it immediately of course but many newcomers will be using omni-directional antennas and noise can be a problem on the 10 metre downlink.
3. Start sending very short bursts of CW dits. A keyer is ideal for this but keep the strings down to just a few dits at a time.
4. Leave the transmit frequency alone for now and slowly tune your receiver up and down just a few kHz to search in either direction until you hear your short strings of CW dits returned from AO-7.
5. You can then call on CW if you wish or switch to SSB and try for a phone contact.

There is a lot of debate on whether you should tune your transmitter or receiver to compensate for Doppler shift.

The weight of opinion seems to come down on the side of tuning your transmitter and leaving your receiver alone as much as possible. This helps to avoid contacts drifting into each other's passband but it's not infallible. Full computer control of both frequencies is the only total way out of this problem. But don't let that spoil your enjoyment of AO-7. Follow the above rules and you should be able to have successful contacts on this amazing satellite - and when you do - spare a thought for all those old circuits on board AO-7 that are passing your signals through. The above may sound complicated and somewhat daunting to a newcomer but there's no easy way. You just have to get in there and grapple with it all. Practice makes perfect.

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an e-mail mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA. 5034

Graham's e-mail address is:
vk5agr@amsat.org

AMSAT-UK makes a substantial contribution to new satellites

AMSAT-UK is funding the development of two new amateur radio satellites by donating £10,000 to each of two projects in the USA and Germany.

In making these grants, the committee, on behalf of all members of AMSAT-UK, wished AMSAT-NA and AMSAT-DL every success with their projects. The two projects are of course, Project Echo and Phase 3E Express. Echo is due for launch in March 2004 with P3E likely to follow in 2005/2006.

Record breaking solar flares affect HF communications for weeks.

But- so far no damage or deleterious effects on amateur radio satellites have been reported.

Despite the record breaking solar flare activity of Oct/Nov 2003 it appears that amateur radio satellites have emerged unscathed. Some commercial satellites were not so fortunate. After a month long period of intense solar activity including several major interruptions to HF propagation, another massive flare occurred at 1955 UTC on 4th November 2003. This flare is reported as saturating the instruments on observing satellites for about 15 minutes during the peak of the flare which made accurate measurement of the flare's intensity difficult. At that time I was making breakfast and listening prior to my regular morning HF radio sched on 80 metre. There was the usual light crackle of static, not moving the "S" meter but audible and of course the usual very weak Asiatic stations again just barely detectable. Suddenly the receiver went absolutely silent. The stations disappeared and the static disappeared as if someone had thrown a switch. The solar flare had worked its magic. Propagation had dropped out like a light. No contacts took place that morning or later that day. Even local ground wave signals were severely attenuated. Such was the intensity of this particular flare that HF conditions remained completely out for the remainder of that day and into the following day. This is a very rare occurrence. We usually have to wait for the "stuff" of the Coronal Mass Ejection to hit some 24-48 hours after an event before the HF bands are wiped out to that extent and indeed the immediate radiation from such an event usually results in enhanced propagation conditions for several hours. We did experience several smaller flares some 24-48 hours prior to this event but the timing seems to have been too much of a co-incidence to not have been caused in some way with this record breaking flare. Here's part of what the NOAA Space Weather site had to say. "The scientists and engineers who designed the original sensor equipment back in the 1970s had experienced events that caused saturations at much lower levels. They redesigned things to handle X17-class events, thinking that it would be enough. This time, it was not. Since we do not have any accurate record of flare intensity prior to the 1970s, our perspective of this latest series of flares is somewhat limited. Certainly, X-class flares of this magnitude are not regular events. But, they are not unheard of. To pull out a rough estimate, but with very little confidence on this number, on how often we might see such activity, we think this is something we could see every 20 to 40 years". Certainly, the geomagnetic storming of the last few weeks is one of the highest in many years. NASA is planning to launch in November 2005 the "Stereo Mission" which will place an observing space craft leading the Earth's orbit, and another space craft trailing the Earth. They will be able to see around the Sun at what is coming and what has gone. Here's hoping all the amateur radio satellites get through this latest testing situation unscathed.

AMSAT-VK net Echolink proposal

A proposal to overcome the difficulty in communicating Australia-wide on HF.

The AMSAT-VK net has been meeting on HF for many years now and it's always been difficult to settle on a frequency that suits everyone. The best we've been able to come up with so far is to alternate the nets between a summer frequency and a winter frequency. This has still meant that large parts of the country, in particular VK6, experience very difficult conditions and consequently Australia-wide participation has been limited to those occasions in the (distant) past when Graham would conduct the net via Oscar-10 when it was in view of the

whole continent. I well remember these nets as being a highlight when all of VK and ZL could participate on equal terms. For some time now we have been looking at the Internet-based program "Echolink", not as a replacement for the HF net but rather as a possible adjunct to it. In particular VK6 to the eastern states has always been a difficult RF circuit on HF no matter what band is used. Tests have been conducted in the past couple of months and they have proved the viability of using Echolink, HF and VHF linking as a potential way of conducting the AMSAT monthly net. True - Echolink has some problems when used via a dial-up modem and normal telephone line. The number of stations that can connect together is limited to 2 or 3 and packet drop-outs are common giving a rather disjointed air to the conversations. It really comes into its own on broadband however. I have been doing some tests via the AMSAT-NA conference server, which has good broadband capability. It has proved possible to have many stations connected with very good audio and virtually no packet loss, even on my dial-up Internet service. Couple this to the possibility of using HF and local VHF relays and you have a system, which in theory should be able to cope with a truly Australia-wide net. Some time this month (November), Graham and I will be doing a "full dress rehearsal" for the net using either his broadband hub or the AMSAT conference server. We will be trying to get stations in all states to take part. If it all works as hoped we will announce a time and attempt to conduct an Australia-wide AMSAT-VK net as a trial. We are all learners at this new medium so please bear with us in the early stages but do come and join in. You may even be able to help with an RF relay to your local area. If you are an experienced Echolink operator you may be able to give us some pointers to improve the efficiency of what we are attempting to do. More on this topic in the next issue.

Yet another satellite tracking program

Yes folks - it's happened again. Another satellite tracking program has appeared on the scene.

The program is called "Satellite Explorer" version 2.4 and it is available for download from fttp://perso.club-internet.fr/f1orl/index.htm. The site is in French but English pages are available. The tracker has the usual array of goodies and it could be worth a look if the goodies match your requirements.

Half-yearly update

Since this column will be published in the December 2003 magazine, which will hit the streets in early December 2003, I will hold the half-yearly update over to the Jan/Feb issue, which should be with readers in late January 2004.

ISS Amateur Radio equipment upgrades on the way

Russian cargo ships are taking some new and more powerful amateur radio gear up to the International Space Station.

For some time now, following the most recent Space Shuttle disaster, things have come almost to a halt in the further development of the ARISS amateur radio station. However Frank Bauer, KA3HDO, recently outlined the delivery of the so-called Phase 2 Ham equipment to the ISS. A Kenwood TM-D700E VHF/UHF transceiver has already made the trip to ISS. The unit will mean a significant boost to the power output of the ARISS initial station gear from 5 W to 25 W. Next it is planned to send up a Yaesu FT-100D and SSTV equipment, along with some new headsets. That flight is scheduled for January 2004. The next batch of gear will not go up until the space shuttle returns to flight in September 2004. Current plans call for the Expedition 8 crew of Mike Foale, KB5UAC, and Alex Kaleri, U8MIR, to install the Phase 1 and 2 70-cm hardware after ground tests are complete. Previous crews already installed four Amateur Radio antennas to cover HF, 2 metre, 70 cm and microwaves. Software for the D700 has been set up with five program modes, phone, crossband repeater use, APRS, packet and an emergency mode. APRS probably will be the default mode when a crew member is not actively using the ham station. Most recent reports indicate that ISS has been digipeating packets again so get on and try it.

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PLEASE NOTE...

The *WIA Exam Service* will close on 22 December 2003 and re-open 27 January 2004.

Exams for marking must be received in this office by Monday 8 December to ensure the results can be posted to candidates before Christmas.

Any orders for exam material must also be received in Federal Office by Monday 8 December.

Any material or orders received after that date cannot be guaranteed to be dealt with before the break and may have to wait until the exam service re-opens.

Group leaders are welcome to place an order on a "just in case" basis. If used the results will not be sent out until early/mid February. This material may also be held for 45 days and then returned for a 100% refund.

VHF/UHF - an expanding world

David Smith VK3HZ - vk3hz@wia.org.au
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Weak signal

David Smith - VK3HZ

Unless you've been in hibernation recently, you would be aware that, in late October, some of the biggest solar flares ever recorded erupted in the direction of Earth. The resulting particle storm caused havoc with HF communications, giving a number of HF DX expeditions substantial heartache.

On the VHF/UHF bands, the sun noise rose to significant levels. However, one positive side to it all was that the auroral zone expanded significantly, resulting in a number of strong auroral openings on 2 m for stations in the mid to southern regions of the country. On the evening of 28th October and the mornings of the 29th and 31st, strong conditions were enjoyed by numerous VK1, VK2, VK3, VK5 and VK7 stations. A gaggle (or should that be "gargle" – if you've heard aurora, you'll know what I mean) of stations descended on 144.100 causing a huge dogpile. Unfortunately, nobody seemed to be doing much tuning around – my calls on 144.120 went mostly unanswered.

Contacts were had with stations at latitudes that are normally too far north for auroral propagation. VK2DVZ in Taree was worked from Melbourne and VK3ZUX in Moe reportedly worked VK4NP in Brisbane. VK3PA in Dunolly in western Victoria also reported working several VK6 stations on CW. Interestingly, the best direction for working the northern stations from Melbourne was at a heading of about 160 degrees, not due south as expected. Also, nearly all stations exhibited a negative Doppler shift of up to 800 Hz.

The second week of November saw good propagation weather conditions descend and park across the southern part of the continent. The Hepburn web site predicted "fair to good" tropo conditions for an extended period and, once again, it was pretty close to the mark. For a number of days, the Mt Gambier and Adelaide beacons were enhanced at "fair to good" levels. A number of contacts were had from VK3 into Adelaide.

Then, on 11th November, the Esperance beacon was heard in Mt Gambier at reasonable levels. Finally, on the evening of the 12th and morning of the 13th, Wally VK6WG in Albany was worked in Melbourne and further east on 2 m. On 70 cm, he also worked Roger VK5NY in Adelaide and Colin VK5DK in Mt Gambier. The Esperance 2 m beacon was also heard at good strength in Melbourne. As I write, the opening is still in progress – very distracting!

Field days

The recent VHF/UHF Spring Field Day over the weekend of 1st-2nd November saw a fairly disappointing turnout of portable stations.

A number of factors were against them, not the least being the arctic weather conditions over the weekend. Some of the higher sites around Victoria had received several centimetres of snow in the days preceding the event and were not the place to be. Several Hamfests had also been scheduled for the same weekend, attracting a number of people away. The only club station that I heard was the Geelong AR Club in the Barrabool Hills near Geelong. These hardy souls had every band up to 10 GHz covered. Unfortunately they could not find any takers for anything above 2.4 GHz and only one station on that band.

Rex VK7MO spent a cold Saturday afternoon on the top of Mt Wellington with conditions that were the poorest he has experienced. His only "DX" contacts were with VK3AFW on 2 m SSB and 70 cm JT44 and to VK3HZ on 2 m JT44. Hopefully, conditions for the Summer Field Day will be much improved.

New beacon

A new 23 cm beacon has been activated in the Melbourne area. Clint VK3CSJ reports that John VK3YTV has commissioned VK3RLP running 3.75 watt on 1296.535 MHz. Antennas are two corner reflectors facing west, one facing north and one facing due east. The beacon runs FSK ident every 20 second. Its grid locator is QF21nu. Reception reports are requested to Phil VK3YB at PPAVEY@bigpond.com.

Submissions to ACA

As part of the recent submissions to the ACA, it is good to see that a number of weak signal operators have put up submissions for a revision of the VK maximum power limits. It is puzzling that Australian amateur radio operators are limited to 400 W SSB / 120 W CW whereas the US operators, with similar living conditions, are allowed 1500 W on all modes. It puts the VK operator at a substantial disadvantage for the likes of EME operation, where CW is the norm and giving away 11 dB of power is critical. Provided that the station complies with the recently introduced EMR regulations, then we should be able to use equipment of equal capabilities to that available to amateurs in other countries.

Long distance communication

To finish with a report about the far upper reaches of UHF, it was interesting to hear of a recent QSO between WA1ZMS/4 and W4WWQ/4. On 11th November, they communicated over a distance of 0.521 km on 403 GHz. Weather conditions were good but still resulted in atmospheric loss of 14.4 dB per km.

Further attempts will be made during the colder, dryer winter months in the hope of breaking the 1 km barrier.

continued next page

EME

Doug McArthur VK7UM

The first weekend of the two-weekend ARRL International EME contest was held over October 18-19, 2003. If we pick a higher northern declination moon for contests then, down here, I will be working with permanent ground noise! Unfortunately it was not much of a first weekend for me as I had moon set 13 minutes after the contest started and the second active European window did not start until after the contest finished. I also had gale force winds which prevented me getting on for the first North American window and then again for only one hour during the only second European window. All up I had less than 4 hours operating for 30 QSOs and only 17 multipliers. The good thing is that I have left plenty of stations to work during the second weekend! Only new station worked (apart from Gudmund at JW) was KJ7F.

During the only real period I had into Europe, the polarity was a little different from what I would class as normal. This is probably due to the high declination of the moon. It seemed that my signal was quite down on normal (although the echoes here seemed normal) and I ended up doing the chasing instead of being chased! A novel experience for me! I would guess that Faraday etc. left my signal into Europe at 45°. I noticed on Saturday that Gudmund was totally vertical incoming (like all Europeans except HB9Q [circ]). I thought he was circular polarised? This seemed to be the case where on Sunday his transmission was equal in both horizontal and vertical as I expected. I was transmitting horizontal for all European QSOs. The North American window was however pretty normal. A little libration on moonrise (Sunday) but all except VE6TA, were coming in vertical (USA and JA) and I was transmitting vertical as well. I don't know what Grant runs or how long he may have been calling me, as I was not looking horizontal as often as I should.

What with all the wind (over 80 kph) and the frustration of not being able to get on, I entertained myself by watching the various loggers. I don't know whether to be amazed or disappointed at the audacity of many "QSOs" seen taking place. One nice thing was that I did not see one on 70 or 23 cm. It will be interesting to see the eventual ARRL logs. I have cut and pasted the call signs and comments for enlightenment! Spotting however seems to have got out of hand and I was somewhat relieved to not find myself "spotted".

Again a lot of fun and frustration with, in the most part, great CW operating.

Digital Modes

Rex Moncur VK7MO

I should call this article The "JT44 ONEs and ZEDs" Mystery.

When using the WSJT program in JT44 mode, I have noticed that when sending Rogers and a report (e.g. RRRR191919), the numbers seem to decode much better than the letters. It seems that with weak signals in the range -18 to -24 dB, "1s" have a 2 to 3 dB advantage over "Zs". In direct computer to computer tests using my interface box, the issue shows up even more markedly with about a 6 dB difference. I think the reason it shows up better in an off-air test is that for real tropo signals there is quite high variability during a 30 second period which masks the effect.

Tests were run by a number of stations, many of who reported similar findings. After much detective work, I discovered that my laptop was generating tones that were slightly off frequency. The problem appears to be in the computer soundcard. Using the FSK441 "Tune" mode to obtain a steady signal, the nominally 2205Hz signal was found to be 2 Hz low. An informal poll of other stations revealed that many of them were also generating tones off frequency – up to 15Hz high. Interestingly, laptop computers seem to be the prime culprits here with 5 out of 6 showing 10Hz or worse error, while all the desktop computers were within 1Hz of the correct frequency.

JT44 can cope with frequency offsets, as it must cater for slightly different station frequencies. However, once the "sync" signal frequency has been found by the program, all other tones are expected to be quite accurately located relative to the sync tone. Unfortunately, in the case of the laptop computers, this is not the case with the higher tones being increasingly inaccurate ("Z" is the highest). The result is that the high tones fall off the edges of the digital filters, resulting in poor decoding.

Joe Taylor, W1JT – author of the WSJT program – is looking into the problem. As he said, "Apparently I underestimated just how far some computer makers will go to save a dollar or two".

Joe also mentioned that he is working hard on a new digital mode to replace JT44 that is showing performance gains of 4-6 dB. He hopes to have some code ready for on-air testing before too many more weeks.

2 m & 70 cm FM DX

Leigh Rainbird VK2KRR

Well ... what can I say about 2 & 70 FM DX for the month of October? Nothing much really. It has been rather disappointing in the south of the country. No major duct openings for 2 months at the time of writing. We did however have an incidence of a rather unusual propagation mode, at this stage noted as "Non Ducting Tropo".

But, for the operators on the northern half of the Queensland coast it's been quite a different story with some red hot ducting conditions as far as Papua New Guinea and New Caledonia.

If you weren't on air earlier in October you missed out on contacting Felix VK4FUQ who was portable for a few days at Hallorans Hill on the Atherton Tablelands. Felix was running 2 m only with a 3 element Yagi and about 45 watt output. Felix had some good contacts both simplex and via repeaters. Some of the simplex contacts were VK4HSV in Townsville and VK4FNQ near Charters Towers, both around 300 km. Felix also made it to the Townsville repeater and to Mackay, 600 km.

Midway through the month and mentioned earlier was "Non Ducting Tropo" or NDT. What is this I hear you say? Put simply, it's an enhanced signal condition when there is actually no ducting. It provides better 70 cm conditions rather than 2 m.

I had noted this only once before where 70 cm was better than 2 m but took no notice. What really brought this out in the open, was extra reports from other operators on the FM DX Group E-mail list.

Initially I think Chris VK3VSW in Geelong was the first to report: "Just worked VK7LCW - Peter on both 2 & 70 cm this evening at around 10:15 UTC. Signals on 70 cm were very very good, 5 X 9+ 20dB, 2 metre were 5 X 3 ... Interesting ..."

Then Brian VK5ZMB in Gawler: "There has been good 70 cm ducting tonight between my QTH (Gawler 40 km north of Adelaide) and Pt Lincoln, approx. 250 km. The Pt Lincoln 70 cm repeater has been a steady S7 to 8 all evening and I managed to work VK5RF via the repeater. Strangely though I could not hear the Pt Lincoln 2 m repeater which I regularly can hear and was S9 most of yesterday."

Bill VK5ACY on Kangaroo Island did not send an email, but reported on the VK/ZL Logger about good 70 cm conditions to Mt Gambier beacon, but not as good on 2 m.

At The Rock, I noted extended range with reasonable signals during the day, but with very bad fading or QSB. At times I would describe it as 'violent' crashes of the signal into the noise then back up to something like S9 in some cases. At times this could occur every 10 seconds or so. I also noted an extremely low background noise level, much lower than normal, which gradually rose again later in the afternoon.

I did not note the exact timing, but some time around 10 pm I noted signals from 2 m repeaters were quite good, and were extremely stable, no QSB at all. Bendigo, 314 km away was constant S9, Macedon 324 km was S7-8. Someone triggered the Macedon 70 cm repeater, which caused me to check 70 cm. I noted Bendigo 70 cm at S9+40dB, though I did not turn the antennas directly on to Macedon 70 cm, it was something like S9+10dB. I could also get the Grampians 70 cm at 471 km at about an S7 nothing from there on 2 m.

Some points on NDT -

1. Is commonest during high pressure conditions. *NDT is often best when the high pressure is in decline and moving east.*
2. Occurs at VHF, UHF and higher frequencies, *longer wavelengths do not usually enjoy as good NDT as shorter ones.*
3. Best conditions usually occur early morning or *late evening.*
4. *Fading (QSB) is a problem.* May be slow and very deep. May include faster 'flutter' fading.

From the above points, I have underlined some parts which I thought were of particular relevance to what was observed.

From point number 1, we were in the tail end of the current high pressure system moving east.

Point 2, 70 cm was much better than 2 m.

Point 3, late evenings was generally noted.

Point 4, although none of the other stations that submitted reports mentioned QSB, I did note very bad QSB here during the day.

Ducting graphs from around the time of the various reports show *no ducting at all.* Also at the time there were high winds and rainfall occurring in the area. Very interesting.

In the latter part of the month, things really got moving in the far North Queensland coastal areas. The Hepburn Charts gave indication that some good ducting may be available, and indeed it was. Many stations passed signals back and forth making very good contacts.

Creating a good deal of attention has been the presence of Jim P29JB's signal along the VK4 coast. Jim is transmitting from Papua New Guinea and is running a 4 element quad antenna and anywhere between 15 to 90 watt. Jim has been noted making contacts into the following 2 m repeaters – Townsville 1088 km, Mackay 1315 km, Gladstone 1655 km and Gympie 1958 km.

Mike VK4MIK in the Atherton Tablelands has been having a big go and making the most of the conditions. Mike's most distant repeaters worked have been Hodgson Range near Clermont, 640 km, then into Mackay at 560 km. To Mike's surprise he has also been able to get into the Hayman Island repeater a number of times which is 450 km.

Felix VK4FUQ at Ingham has on occasion been able to work into the Mackay and Mt Seaview repeaters, distances being around 415 km.

Late reports from Gary VK4ABW near Townsville indicate the path from VK4 to New Caledonia was present at times. Gary worked FK8HA and FK8GX through the Noumea repeater on 146.800 and was then able to work them simplex. Well done Gary, approximate distance is 2074 km! I believe Gary has also been working simplex to Jim P29JB in Papua New Guinea with an approximate distance of 1100 km.

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HF Predictions

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diumal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

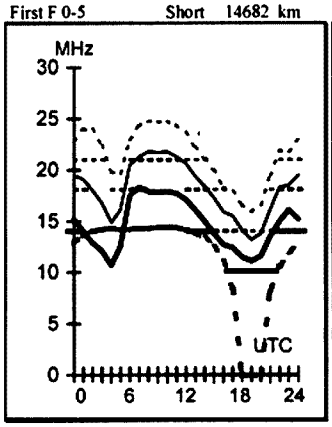
Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

December 2003
T index: 45

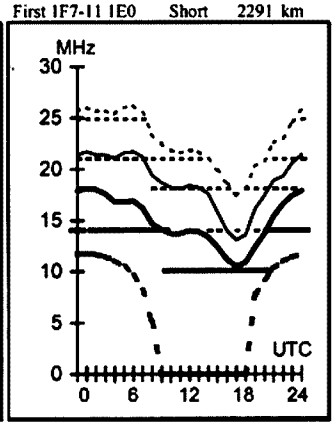
Legend

Frequency scale
UD
E-MUF
OWF
F-MUF
ALF
>10%
>50%
>90%
Time Scale

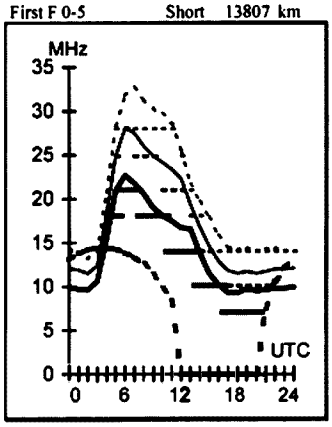
Adelaide-Accra 242
First F 0-5 Short 14682 km



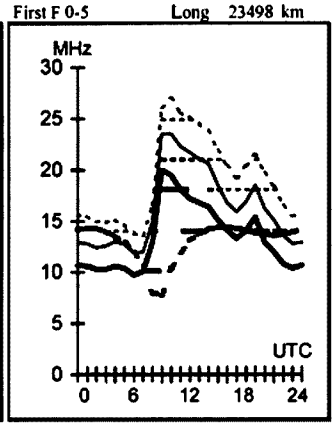
Brisbane-Auckland 123
First 1F7-11 1E0 Short 2291 km



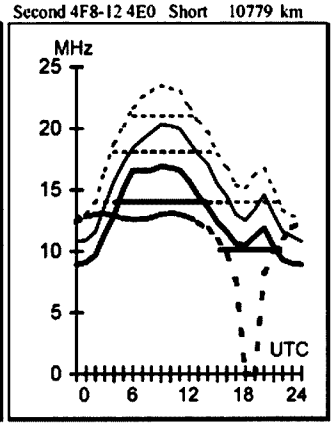
Adelaide-Moscow 318
First F 0-5 Short 13807 km



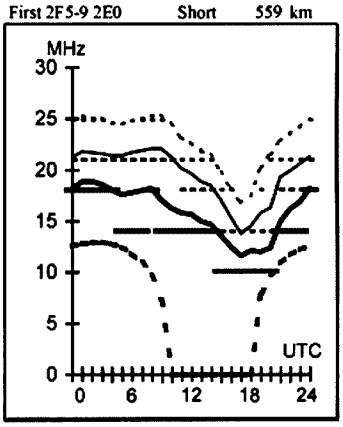
Brisbane-London 147
First F 0-5 Long 23498 km



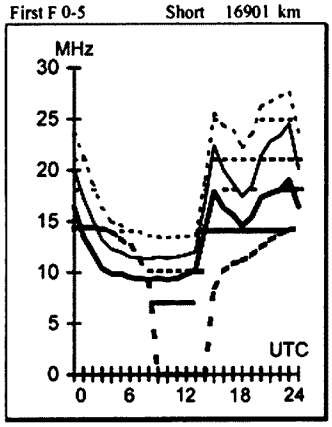
Canberra-Capetown 219
Second 4F8-12 4E0 Short 10779 km



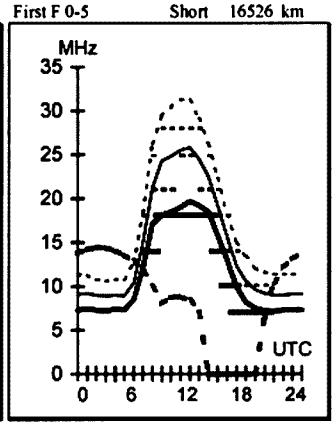
Darwin-Invercargill 144
First 2F5-9 2E0 Short 559 km



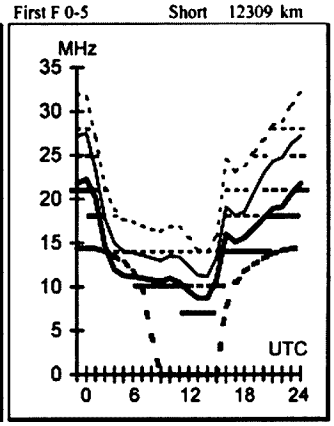
Adelaide-Ottawa 58
First F 0-5 Short 16901 km



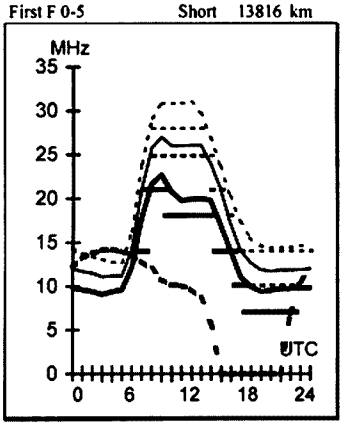
Brisbane-London 327
First F 0-5 Short 16526 km



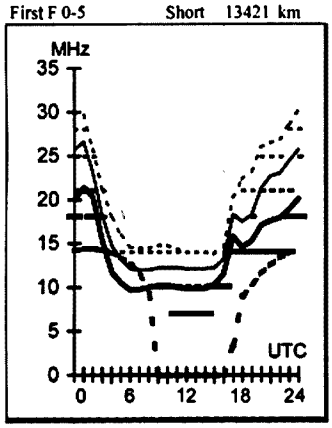
Canberra-Los Angeles 62
First F 0-5 Short 12309 km



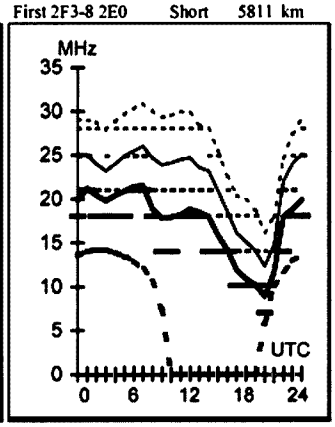
Darwin-Paris 322
First F 0-5 Short 13816 km



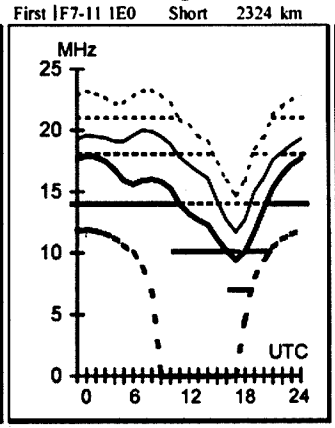
Adelaide-Vancouver 49
First F 0-5 Short 13421 km



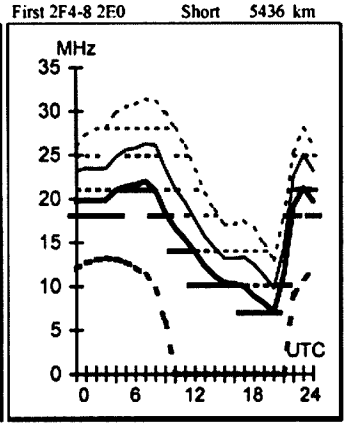
Brisbane-Manila 320
First 2F3-8 2E0 Short 5811 km



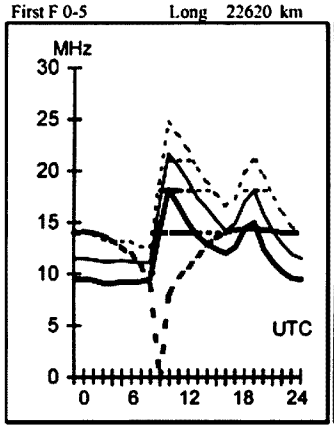
Canberra-Wellington 115
First 1F7-11 1E0 Short 2324 km



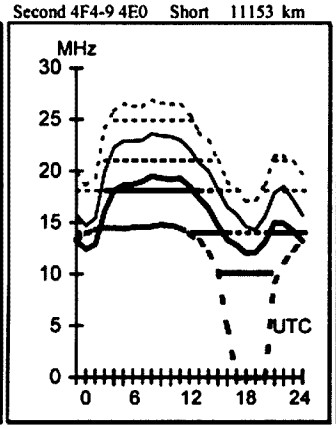
Darwin-Tokyo 10
First 2F4-8 2E0 Short 5436 km



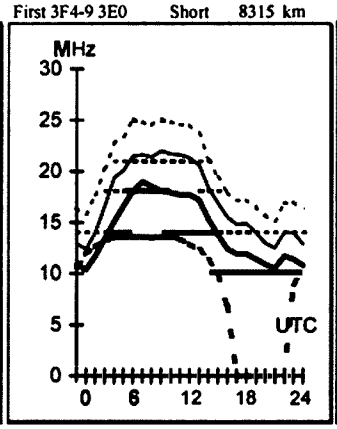
Hobart-London 123
First F 0-5 Long 22620 km



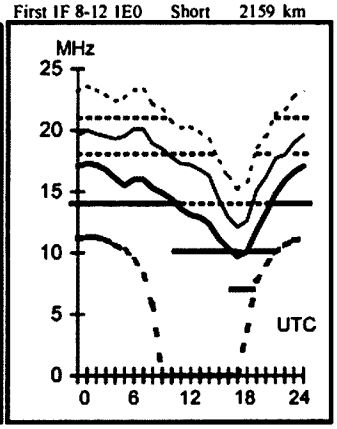
Melbourne-Lusaka 241
Second 4F4-9 4E0 Short 11153 km



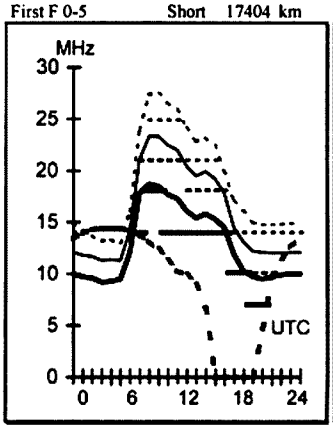
Perth-Johannesburg 248
First 3F4-9 3E0 Short 8315 km



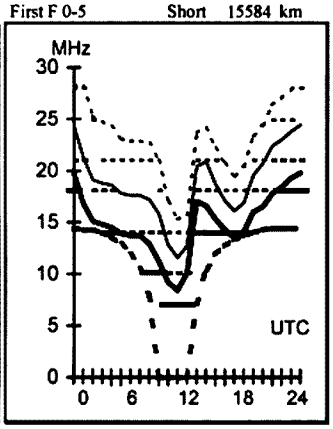
Sydney-Auckland 106
First 1F 8-12 1E0 Short 2159 km



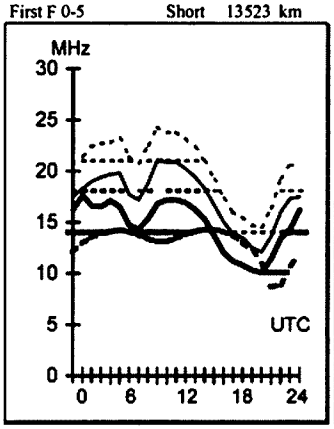
Hobart-London 303
First F 0-5 Short 17404 km



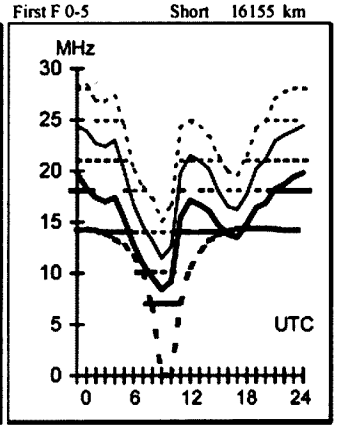
Melbourne-Miami 94
First F 0-5 Short 15584 km



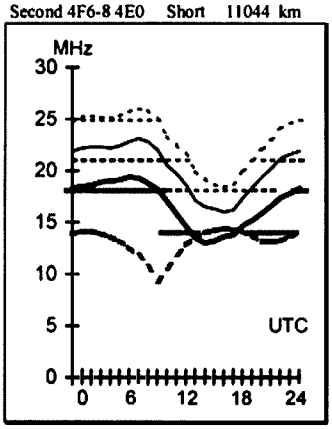
Perth-Rio de Janeiro 203
First F 0-5 Short 13523 km



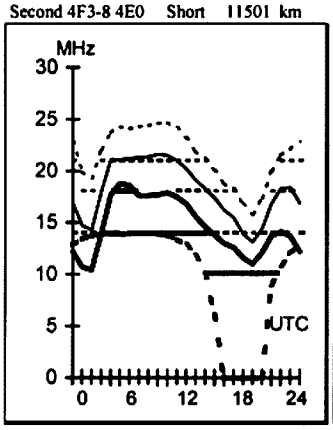
Sydney-Barbados 119
First F 0-5 Short 16155 km



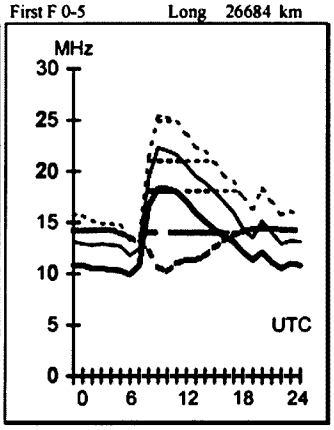
Hobart-Montevideo 161
Second 4F6-8 4E0 Short 11044 km



Melbourne-Nairobi 258
Second 4F3-8 4E0 Short 11501 km



Perth-Rome 123
First F 0-5 Long 26684 km



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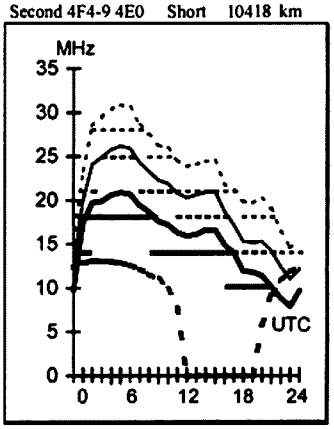
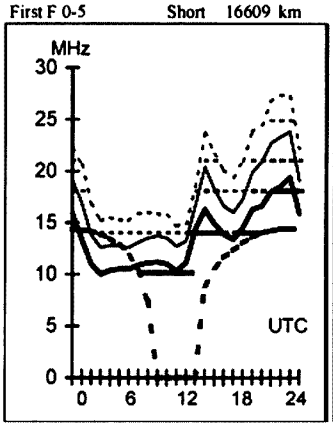
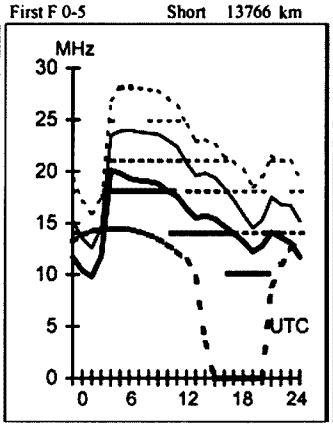


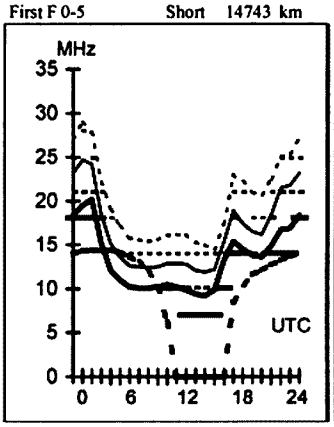
Hobart-New York 80
First F 0-5 Short 16609 km



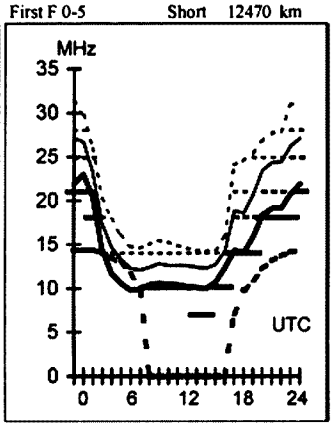
Melbourne-Tel Aviv 287
First F 0-5 Short 13766 km



Perth-San Francisco 66
First F 0-5 Short 14743 km



Sydney-Seattle 47
First F 0-5 Short 12470 km



Technical Abstracts

Gil Sones VK3AUI

Circularly polarised twisted loop

An interesting twisted loop providing circular polarisation appeared in the *Technical Topics* column of Pat Hawker G3VA in *Rad Com* May 2003. The design was drawn to Pat's attention by Dr Brian Austin G0GSF who saw a paper by Rong-Lio Li and Dr Vincent F Fusco , both of Queen's University Belfast. The paper was published in *IEEE Transactions on Antennas and Propagation* , October 2000, pp 1377-1381.

Interestingly the basic element , as G0GSF points out, is in the form of the VK2ABQ two element HF array developed empirically in the 1970s by the late Fred Caton VK2ABQ/G3ONC. VK2ABQ turned a one wavelength horizontal loop into driven and parasitic elements by introducing small gaps in the loops using buttons as insulators.

The evolution of the circularly polarised twisted loop is shown in Fig 8. The Queen's University team took the square one wavelength loop as shown in Fig 8(a). Then they turned it into the form used by VK2ABQ in Fig 8(b) although they appeared to be unaware of the technique devised by VK2ABQ 30 years earlier. Finally they twisted the gapped loop into the form shown in Fig 8(c). The radiating sides "1" and "2" were made perpendicular to one another and they used an insulated overpass connection at the intersection of the two sides to prevent electrical short circuit. This resulted in a quasi planar structure with the phase relationships indicated.

The geometry and sizes of the twisted loop sides "3" and "4" have to be optimised to obtain optimum circular polarisation. The gaps also would need adjustment . Matching at the feed point would also require some work to obtain a suitable match.

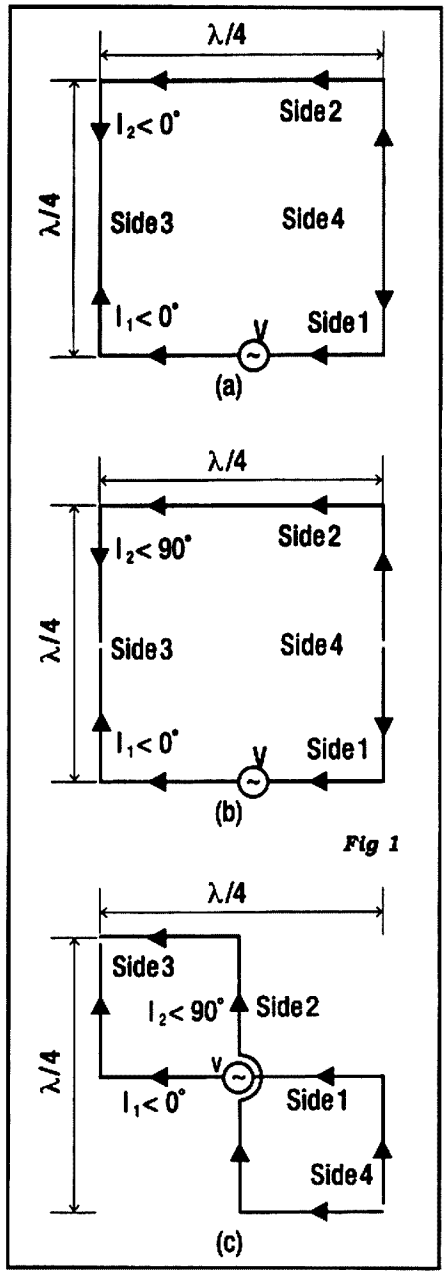


Fig 8. Evolution of Circularly Polarised Twisted Loop.

Hands free microphone for Yaesu FT817

An adaptor to allow a hands free microphone with the Yaesu FT817 appeared in *Rad Com* April 2003. The adaptor was produced by Mike Grierson G3TSO. The adaptor allowed a headset originally intended for a mobile phone to be used. The headset had an earpiece and a noise cancelling electret microphone and was fitted with a lead terminated in a 2.5 mm stereo plug.

The adaptor circuit is shown in Fig 9. It is built into a small plastic box and provides facilities for interfacing the various leads and connectors and a spring loaded PTT switch. The FT817 microphone lead presents a problem as it uses an RJ45 connector. The available leads are unscreened and terminating the RJ45 plug requires a special crimp tool. Mike managed with some difficulty to terminate a curly cord with a screened mic lead by crimping each pin

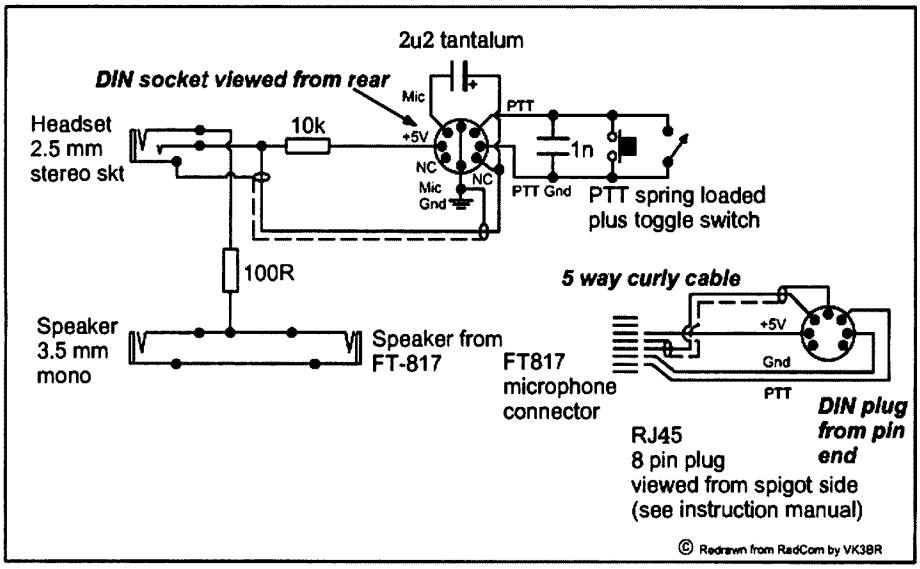


Fig 9. FT817 Interface Box For Headset

Gil Sones VK3AUI

individualy whilst the connector was held in a small vice. The crimp tool is expensive but the connectors are cheap and so a couple of attempts is a viable alternative.

The PTT earth and the Microphone earth are kept separate to avoid earth loops and feedback. The DC supply for the headset insert is obtained from the 5 volt supply present in the FT817 mic lead. The mic lead is decoupled from the DC by a 2.2 Microfarad capacitor in the interface. The value of the series resistor feeding the 5 volt supply to the microphone insert can be varied so as to obtain a microphone level consistent with the normal FT817 microphone.

The external speaker from the FT817 is extended to the interface and feeds the earpiece via a series resistor. The earpiece volume is adjusted by varying the value of the series resistor..

Watchdog timer

A useful device for those using computer control of their transmitter , such as is used in many digital modes, appeared in *Rad Com* April 2003 in the *Data Column* of Andy Talbot G4JNT. In the event of a program glitch or other computer problem the transceiver can be left in transmit for an extended period. A watchdog timer monitors the PTT line and disconnects if the PTT time is excessive.

The watchdog timer is shown in Fig 10. The unmarked diodes are small signal Si type 1N4148 or similar. Most programs uses the serial port RTS/DTR line to drive the PTT line and the timer is inserted between this and the PTT line. This replaces the normal PTT interface circuit. The unit is powered direct from the RS232 line as it draws very little current. The timeout circuit passes normal PTT signals straight through. However if the PTT line is held for longer than approximately 4 minutes the PTT line to the transceiver is released. The LED should be a high brightness type as little current is available to drive it.

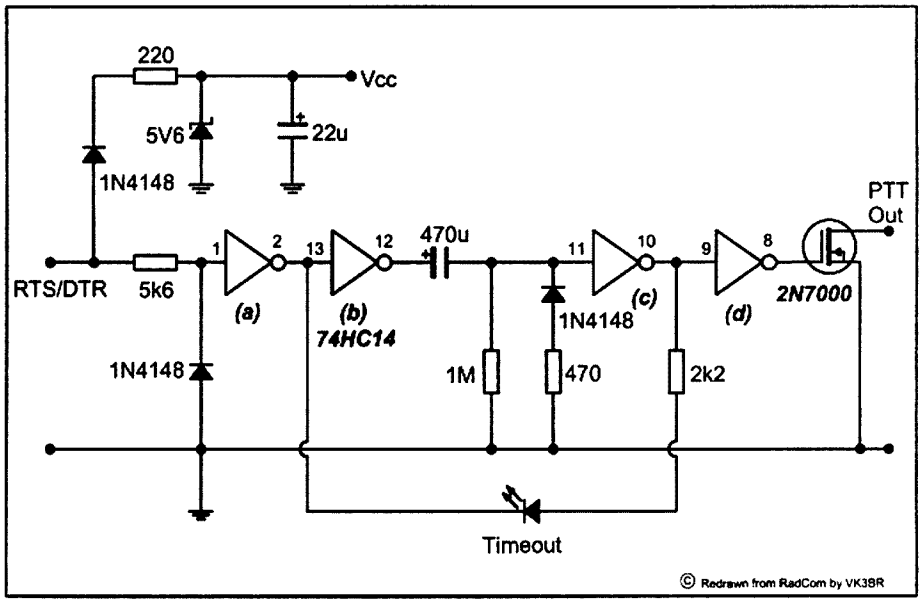


Fig 10. Watchdog Timer.

ar

Over to you

Some hams are frequency hogs

It is with regret that I must write to you and heap scorn and condemnation on some of our fellow ham operators.

I refer specifically to those of our fraternity, who insist on operating within one or two kilocycles of recognized DX spot frequencies viz. 14.195 MHz, 21.295MHz and 28.495 MHz etc., under the guise that nobody has the God-given right to any specific frequency. This fact is true and is universally acknowledged by all in our fraternity, but what about the "gentleman's agreement", that unwritten law where certain specific frequencies are to be voluntarily left vacant and freely available for use by these rare DX stations.

It is disappointing that so many of this class of operator should exist in our ranks. It is also significant that this group are usually the most reluctant to shift frequency if requested.

A station operating just one or two kcs away from a DX spot certainly does not offer an operating space free of QRM, but instead reflects a total lack of operating prowess, consideration and a high degree of rudeness on the offending operator's part towards our DX friends. Although most DX-expeditions pre-announce their operating information in the DX bulletins, dates and frequency information are regularly discussed in "on air" conversations by DX hunters looking for that new one.

We are indeed fortunate that some groups within our great fraternity have seen fit to extend the realm of our hobby by mounting DX-expeditions to rare and exotic countries not usually heard on the amateur bands. These DX-expeditions can come at horrendous financial cost to both the individuals concerned and the DX groups under whose umbrellas they often operate, yet at the same time, they give the general amateur fraternity the opportunity to extend their interest and "get 'em in the log".

As a keen DX-er myself, I plead with the offenders to show some restraint, consideration and tolerance. Just because you can't hear a station, others probably can and with heavy QRM coming from one or two kcs away the chance to work that rare one is often lost.

Alan Sorensen ZL3JU

Views expressed in the 'Over to you' column are those of the authors, and do not necessarily reflect the policies of the Wireless Institute of Australia.

Send contributions to:
The Editor
Amateur Radio Magazine
34 Hawker Crescent
Elizabeth East SA 5112
or email:
edarmag@chariot.net.au

Polarisation of VHF beacons

I was rather surprised to see someone of Tim Mills' long experience questioning the desirability of horizontal polarisation for the VHF beacons located at Dural (VK2 News, November AR). While Tim may not have had a horizontally polarised antenna up since he retired the 522, I can assure him that if the VHF beacons go vertical, most of their functionality will be lost. Apart from their usefulness in indicating band openings on the various tropospheric modes, there is a small but important group of people who constantly monitor the VHF beacons using weak signal detection software to record tropospheric conditions. Most beacon users have made a significant investment in horizontally polarised antenna arrays, which discriminate upwards of 20dB against vertically polarised signals. So putting the beacons vertical would make as much sense as putting the repeaters horizontal.

In any case I am at a loss to understand how placing horizontally polarised antennas on a 20 metre pole would be significantly less expensive than placing vertically polarised antennas in the same position. The coax run would be the same either way - yes, you can feed multiple antennas with one piece of coax - so we must be talking about a couple of dollars worth of mounting hardware. I was under the impression that the rental income from the commercial installations at the Dural site was supposed to fund the amateur installations.

73 Mike Farrell VK2FLR

Memories of Ross Hull activities

The front cover of the November 2003 issue of AR brought back memories of my Ross Hull activities from Ceduna, SA in the years 1971-1976.

Coincidently on November 15 2003 I was in Ceduna and at Ilam could copy FM broadcast stations from Northern NSW on the whip and radio of a hired 4WD.

Obviously still a top VHF/UHF location!

73 de Kerry Adams VK2BXT (ex VK5SU)

Virus attack

Having spent the last few weeks fighting a virus on my computer I thought my findings could be of interest to others who like me use a computer, but are not experts.

1. **With viruses never lower your guard!** Having read and been told by various people that the current spate of viruses only exploited problems in later versions of Windows, and certainly not Windows 98 which I use, I was lulled into a sense of false security. I received an email from Microsoft and being late at night, tired and contrary to my normal procedures I foolishly opened it. For the next week I received hundreds of undelivered mail messages and friends contacting me to say I had a virus. The web site of the server had posted a message about the virus two days prior to me receiving it, but since I had already updated my antivirus checker (try to do it weekly) I didn't know about this virus - nor did my antivirus checker have the checks for it. With advice from the server people I eventually thought I had rid myself of it and certainly the undelivered mail messages stopped after about a week. Four weeks later, almost to the day, undelivered mail messages started reappearing in even greater numbers.
2. **What did the virus do?** The first thing it did was to nullify my virus checker by making the call to its starting address an illegal command. It then went through my address book and all emails in memory and sent itself to every one of them. (Often one

sends an email to a group of people and so you are one of several addresses listed on the received mail. Even these addresses the virus seemed to extract. Senders beware.) It then set up in my Windows operating system a file called icgfpa.exe ensuring that every command/operation must refer to it. Finally, this file must contain a timer/counter so that four weeks later it started propagating itself again. At this point I realised the virus was still in my operating system, changed my antivirus checker and located it. I had the "W32Swen" virus. The antivirus checker was unable to clear or quarantine the virus so blocked access to the file icgfpa.exe and since every operation went looking for this file my computer froze up. Changing the file name by one character did not solve the problem for my computer simply sent messages it couldn't find the file icgfpa.exe and proceed. The only solution to the problem was to again reload the hard drive with the operating system and all application software.

3. **Getting expert advice!** Not wanting to go through all this again I sought some advice from the experts at work on how to go about configuring my computer to minimise efforts, should in future I get another virus. Their advice. Partition the hard drive into two, C and D drives (My machine had a 20Gb hard drive so was split up with G, 5Gb and D, 15Gb). Into C put the operating system and all programs. In D put all data. Using the program Drive Image (PowerQuest) create an image of all the contents of C drive and place it in the D drive. Normally, a virus will affect the operating system or program software so only the C drive is corrupted. Now its former contents can simply be regenerated from the image in the D drive. Should you wish to have further protection (such as a crash of the hard drive altogether) then store the image in D drive in 700Mb sections and then copy these to CDs. Drive Image allows you to do this - simply follow the commands.
4. **Updating Antivirus Software.** At work the software is automatically updated on a daily basis. At home I use my machine intermittently and am not prepared to log on daily. However, today I am very much aware that with the proliferation of viruses regular weekly updates are inadequate. Consequently my new approach is that whenever I go on the web or send/receive an email the first thing I, do that day is an update of the antivirus checker. Days I use the machine off line I do not bother to update.

I hope these experiences will be of help to other amateurs.

Malcolm, VK5BA

Silent Key

Lloyd (John) Gough VK5QD

John VK5QD passed away at Kapunda S.A. on 16 August 2003 aged 73 years.

He was licensed around the year 1977 and had operated, using the callsign indicated above, from metropolitan Adelaide locations prior to moving to the country town of Kapunda in about 1987.

John was a rather quiet gentleman who worked away and made his contributions somewhat behind the scenes. Those who knew him soon became aware of his considerate nature and his ability to quickly sum up and see various situations with a proper and clear perspective.

He was a keen HF operator and spent a deal of time working both local and DX stations. He also operated a Packet Radio setup and from time to time provided some most erudite comment as part of discussions that took place using this mode. He certainly had an enquiring mind.

Whilst he was always prepared to offer advice and assistance to others whenever he could, he was not too shy to ask for advice and to seek help on technical matters, always doing so in a humble manner.

John was always willing to help other people if they had difficulties. In one notable instance, where a visiting American Amateur operator and his XYL were involved in a serious motor accident in the Kapunda area, John promptly provided the visitor, whose mobile radio gear had been damaged in the crash, with suitable loan equipment to allow him to continue to operate during a fairly lengthy convalescence in the local hospital.

John also acted as the VK5 Divisional QSL Manager for several years.

He followed a military service career for most of his working lifetime. He attained the rank of Staff Sergeant in the Royal Australian Army Service Corps (RAASC) and saw service in the Korean campaign in the 1950's as well as in New Guinea and with a number of general Australian postings.

Our condolences are extended to John's wife Bronwynne, his 5 children as well as his grandchildren and great-grandchildren.

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• **Propeller pitch motor** with gearbox 10000:1. Will make the best antenna rotor system for the biggest beams or towers. Make me an offer! For more information contact Ted VK2UK QTHR Phone 02 9607 9168 or email vk2uk@bigpond.com.

WANTED NSW

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• (Gill what were the units ?)

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• **Nally Tower** in excellent condition with **2 m Diamond Hi-gain vertical** and co-ax attached. Purchaser to dismantle and remove. **Create Rotator RC5A-3** complete and unused, never been fitted. $1100 ONO the lot. Jim VK3DL QTHR Phone 03 9436 1523

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• **The WIA QSL Collection (now Federal) requires QSLs.** All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

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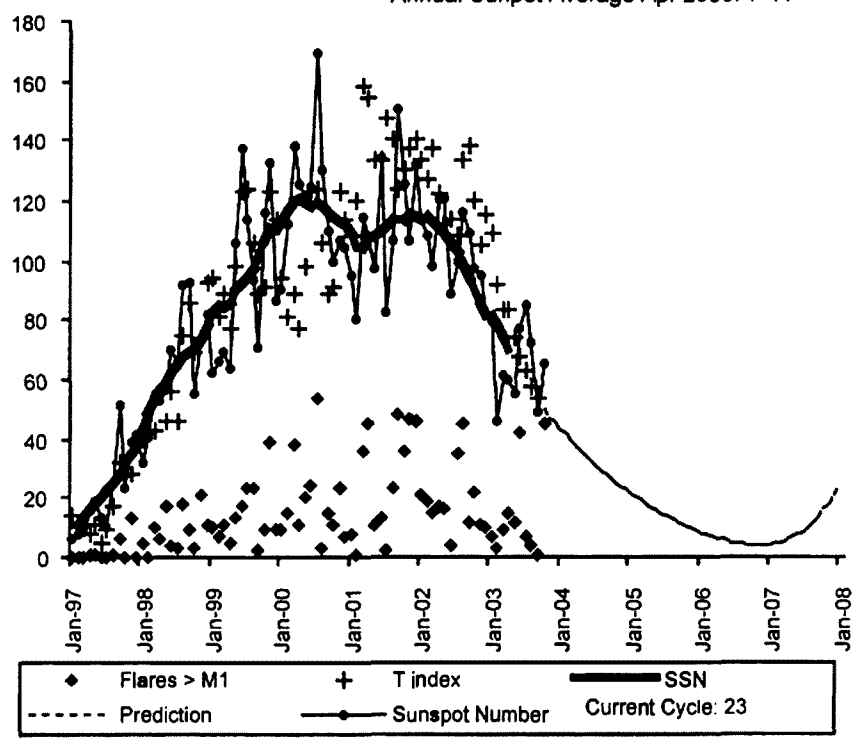
Monthy Sunspot Average Oct 2003: 65.6

Annual Sunpot Average Apr 2003: 71.4



Drawn from monthly data provided by the Ionospheric Prediction Service

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules **All frequencies MHz. All times are local.**

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Alan Hawes	VK1WX
Secretary	Deane Walkington	VK1DW
Treasurer	Bob Howie	VK1HBH

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga.
VK1 Home Page *http://www.vk1.wia.ampr.org*
Annual Membership Fees. Full $80.00 Family $38.75 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 9432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644 (NSW only)
e-mail: *vk2wi@wiansw.org.au*
Fax 02 9633 1525

President	Brian Kelly	VK2WBK
Secretary	Owen Holmwood	VK2AEJ
Treasurer	Noel May	VK2YXM

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.
Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Jim Baxter	VK3DBQ

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.
Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Ewan McLeod	VK4ERM
Secretary	Bob Cumming	VK4YBN
Treasurer	David Gulley	VK4DCG

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 in both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au
Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.
Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

President	Neil Penfold	VK6NE
Secretary	Roy Watkins	VK6XV
Treasurer	Bruce Hedland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website
Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.wia.org.au/vk7*
email: *vk7dg@wia.org.au*

President	Phil Corby	VK7ZAX
Secretary	Dale Barnes	VK7DG
Treasurer	Dale Barnes	VK7DG

VK7WI: At 0930 hrs every Sunday on 146.700 MHz FM (VK7RHT, Hobart) and relayed on 147.000 MHz FM (VK7RAA, Launceston), 146.625 MHz FM (VK7RMD, Ulverstone), 146.750 MHz FM (VK7RNW, Ulverstone), 147.075 MHz FM (VK7RWC, Rosebery), 3.57 MHz LSB, 7.090 MHz LSB, 14.130 MHz USB and UHF CB Channel 15 in Hobart area.
Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

DX-pedition in Paradise

8Q Maldive Islands

July 2003

Malcolm Johnson VK6LC(8Q7LC) *(left) and John Gillespie* K4JWG (8Q7JG) (right) with their Maldivian host Ibrahim 8Q7QC- (centre)

Mal 8Q7LC and John 8Q7JG on the beach

The Maldives were warm, tropical, seductive. In July conditions for propagation were good in that latitude, very poor down under. So John and Mal decided to do it, and do it in style. They put their 4WD DX-pedition following the Tropic of Capricorn on hold and headed for Paradise, with no tents, no backaches, no nasty crocodiles and above all, *no baked beans!*

See the full story inside.

Mal 8Q7LC and John 8Q7JG with the Maldivian Air Taxi

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