FOR THE RADIO LISTENER

shortwave magazine

December 1992 £1.75 ISSN 0037 - 4261

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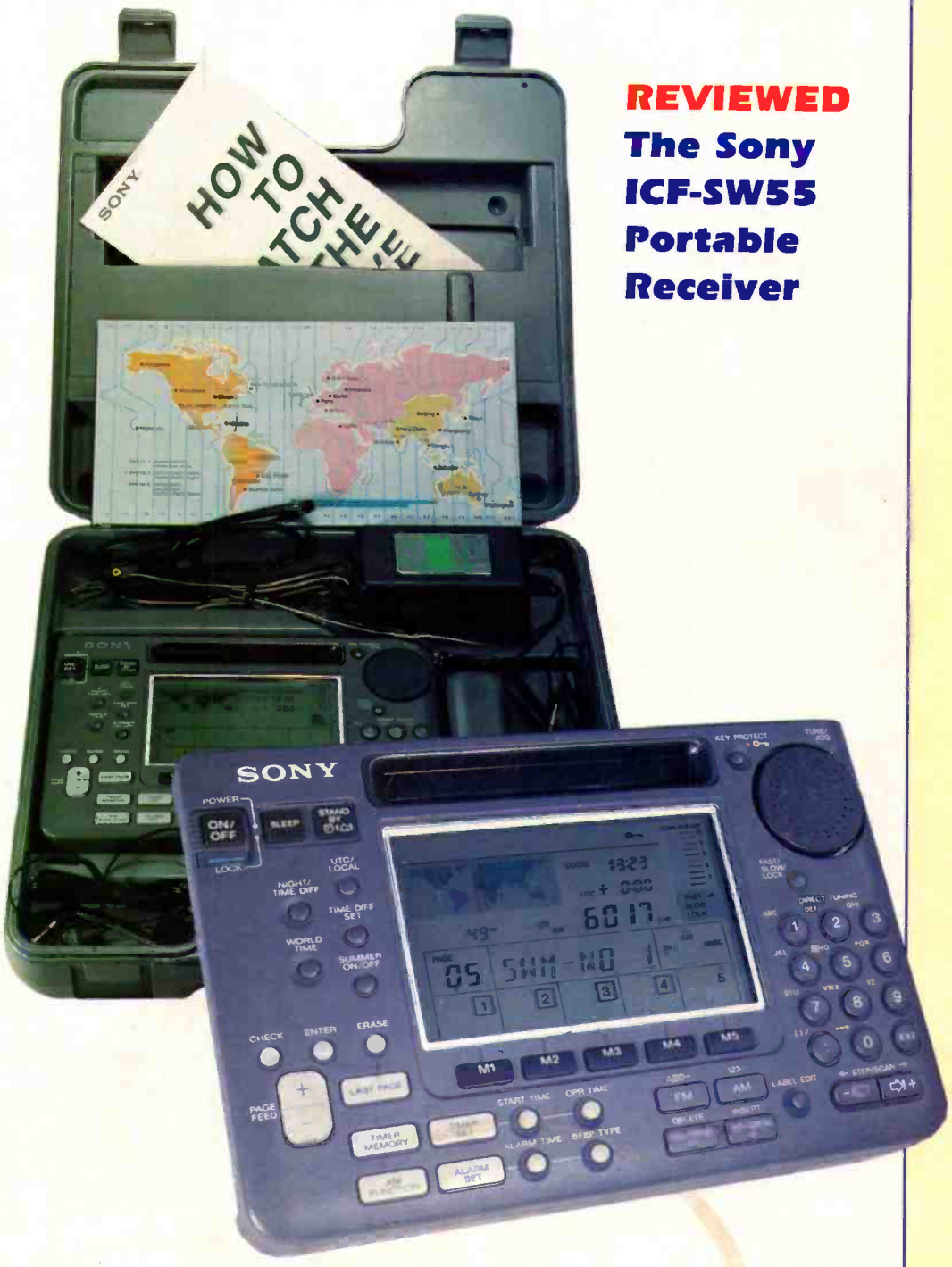

REVIEWED

The Sony ICF-SW55 Portable Receiver

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Cover:

Our cover this month shows the compact carrying case and accessories with the Sony ICF-SW55 Portable Receiver reviewed on page 20.

features

Grundig Satellit 700

Sony ICF-SW55

regulars

good listening

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CROSSWORD DEC 1992

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editorial

SWM SERVICES

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Subscriptions are available at £21 per annum to UK addresses, £23 in Europe and £25 overseas. Subscription copies are despatched by accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both *Short Wave Magazine* and *Practical Wireless* are available at £36(UK) £39 (Europe) and £41 (rest of world).

Components for SWM Projects

In general all components used in constructing *SWM* projects are available from a variety of component suppliers. Where special, or difficult to obtain, components are specified, a supplier will be quoted in the article.

The printed circuit boards for *SWM* projects are available from the *SWM* PCB Service.

Back Numbers and Binders

Limited stocks of most issues of *SWM* for the past five years are available at £1.80 each including P&P to addresses at home and overseas (by surface mail).

Binders, each taking one volume are available for £5.50 plus £1 P&P for one binder, £2 P&P for two or more, UK or overseas. Please state the year and volume number for which the binder is required. Prices include VAT where appropriate.

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I must admit that I cannot understand how, or why, officialdom arrive at a lot of their decisions. Why, for instance, are they spending a fortune changing the kerbstones of one of the roads in my village - sorry, 'town' - when so many of our roads are not even made up? Why do they insist on sterilising miles of motorway with cones when there is nothing going on? Why does the BBC imagine that we all want a 24-hour news service?

The BBC's long wave service is the only one that can be heard all over the British Isles, as well as a fair bit of the Continent. I was furious when they took Radio 2 off of long wave and gave it to Radio 4! I listen to the radio when driving and what I want is good music - I have always banned Radio 1 from my radios.- with the occasional bit of chat, news and accurate traffic reports. Plays, talks, etc. are not for me when driving - they require concentration that should be devoted to controlling the car and keeping out of the way of other drivers.

Even Radio 2 has now been banished in favour of a far better offering - Classic FM. The music is great - pity about most of the presenters! How about us all clubbing together to give them lessons in correct pronounciation!

Now they want to throw Radio 4 off of the long wave slot in favour of a 24-hour news service! They must be mad. But then, I suppose that we knew that already - they are, after all, from the same breed that were willing to squander millions of pounds of our licence fee to bring us wall-to-wall live football!

Radioline

Unfortunately, illness, holidays and other pressures have meant that Radioline has not been updated for some time - for which I apologise. I hope to have corrected this by the time that this issue appears in the newsagents.

Dick Ganderton G8VFH

letters

IF YOU HAVE ANY POINTS OF VIEW THAT YOU WANT TO AIR PLEASE WRITE TO THE EDITOR. IF YOUR LETTER IS PUBLISHED YOU WILL RECEIVE A £5 VOUCHER TO SPEND ON ANY *SWM* SERVICE

The Editor reserves the right to shorten any letters for publication but will try not to alter their sense. Letters must be original and not have been submitted to any other magazines. The views expressed in letters published in this magazine are not necessarily those of *Short Wave Magazine*.

Dear Sir

What has prompted me to write today was your October Editorial and the two letters from readers expressing their disgust and fears that a certain 'bank manager' had besmirched their hobby.

Perhaps I can give them a little in the way of reassurance. My life long hobby has been amateur photography, a hobby that has been besmirched countless times by the actions of a certain few of the 'Dirty Mac Brigade' and their adventures into pornography. When such scandals hit the tabloids genuine amateur photographer must, for a certain time, put up with various 'nods & winks' and outright leers from various people at work, so called 'friends', when seen going out with your camera...but it soon wears off and today the hobby is thriving stronger than ever. I feel sure it will be the same in the case of scanners.

C Robinson
Leeds

Dear Sir

I have just purchased a magnetic longwire balun and it has made a huge improvement to reception here.

I live in a jungle of bricks and mortar in the centre of this town and interference over the airways and over the mains wiring is a nightmare.

My receiver is a Sony 2001 and I'm using an aerial I made up to my own specification; basically 31 feet of aerial wire 'compressed' down into a vertical 6 foot plastics former, because of a serious space restriction here.

With this Magnetic Balun, multiple, but different, line filters, multiple computer data line noise filters and a cold water pipe as an earth, I'm now getting excellent reception from all over the world.

You may be interested to know that I was given a demonstration by a professional operator of just how bad the mains wiring can be for interference. In addition to clicks, clacks, whining noises, etc., there was also various garbled voices and music!

P. Marshall
Cheltenham

Dear Sir

I started broadcast listening seriously earlier this year upon deciding to part-exchange my Sony SW7600 for a Kenwood R5000, the main interest and motivation being to receive Radio Veritas Asia programmes from Quezon City, Philippines - my wife's homeland. A tape I made from a recent programme played at a party generated quite a lot of interest among other Filipinos present; and I passed on the relevant details, *viz:* frequency and broadcast times, content, etc. Both my wife and I, as well as occasional visitors, have enjoyed these programmes, which soon represented a vital link for expatriate Filipinos whom we know.

Yesterday we tuned In as usual, only to discover that Radio Moscow (presumably not content to maintain their regular other numerous outlets) have swamped Veritas, who have only one Filipino frequncy: 15.140MHz, and up to September 27th were 'coming in' at SIO544.

Apart from writing to the Soviet?CIS Embassy and Radio Veritas, what else can I do about it? Any suggestions?

James Turner, Huddersfield

letters

Dear Sir
I have recently had dealings with one of your advertisers, Martin Lynch and his merry men (I believe there's Maid Marion too), and I just can't praise them enough.

A part exchange deal was delivered to my door three days after I posted my equipment to them - beat that if you can.

Recently, after receving a scanner from them, I changed my mind (it's supposed to be a woman's privilege but with all this sex equality...!) and rang Martin Lynch up. Without any fuss whatsoever, he offered to change the set for my second choice.

Keith Anderson
Poulton-le-Fylde

Dear Sir
How nice to see Andy Cadier back in print again, but what a farce it really is. We all know what he is talking about!

I recently heard some obviously unlicensed radio operators using odd callsigns. It was clear that they had all got hi-tech and expensive transceivers. It was also clear that they did not had much idea about how to use them. One even admitted that he had to operate with the manual beside him so he could work out which button did what. Their transmission was clearly audible up to 5kHz either side of the actual frequency.

They were casuing communications problems for a USAF flight trying to talk to Andrews AFB on a designated (and lawful) USAF frequency. I have heard these people before.

What do the Radio Communications Agency do about these people? Could it be that it only costs a stamp to threaten a legitimate magazine over an article, whereas it costs a lot of money to track down an unlicensed transmitter?

Perhaps I am being unfair on the RCA. After all the Government keeps reminding us of its policy to get value for money!

Ron Galliers
London

Dear Sir
Thank you for the excellent articles on the R209 & Mk123 spyset recently. Just a little note to Tom Harrision, sorry old chum but the R209 came into service in 1946, according to the Telecommunication Directive E3109 dated 28 Feb 1946). I know we used them in Korea in 1950-1, but neverthless I shall use the excellent article as a reference for the future as I shall on the Mk123.

Please, give us more of these reports in the near future.

Sid Shaw
Poole

Dear Sir
I would like to make a suggestion, more of a plea, to radio manufacturers through *Short Wave Magazine*. When will scanner manufacturers wake up to the fact that there is not a scanner dedicated to marine bandcovering all UK and US channels, with plenty of memories. As they manufacture airband only scanners for aircraft enthusiasts, why should we spend extra money for a wide band one in order to hear v.h.f. marine. I don't think it is that hard to produce one, surely there is a ready market for it around the world.

Joe Sammut
Malta

Dear Sir
I am enjoying immensely Brian Adkinson's articles on a 1-V-1 receiver and intend to make one 'for old times sake'. With regard to coil formers, in the plumbing section of, for example Texas, there is 15mm diameter plastics tubing at about £2.90 for 2m - just right for the job!

Incidentally, the 954 series of acorn valves were never designed for soldering in, so go very carefully! They were made by The Radio Corporation of America for use in receivers like the Hallicrafters S-27, a pre-war 19-143MHz design. The valve holder was a ceramic ring with pin-clips around into which the valve side pins fitted, the top and bottom connections were made by flying leads.

E.F.C. Owen, Reigate

Dear Sir
Some months ago you published, in the 'Airband' section, details of Air Atlantique, a company that operates Dakota aircraft. You also provided a telephone number and contact that I followed up. I am pleased to say that, as a result, I have had a most enjoyable few months, having visited seven air shows, including one in what was East Germany. The company has about 30 aeroplanes including ten Dakotas, two of whic regularly carry passengers.

The Dakotas, which are based at Coventry - a lovely little airport with adequate and cheap car parking - are in as new condition and flown by a most attentive crew. After a time a regular passenger makes friends with others and, of course, the air crew. In fact the whole operation is reminiscent of a rather better class club. Passengeras are permitted to visit the cockpit as often as they wish, subject to the approval of the captain, and issued with a certificate, rather like passengers on Concode, a colour photograph and history of the aeroplane. The charges, which include admission fees to the displays, are reasonable and all flights take place whether or not the aircraft are fully loaded.

Thank you very much for the write up, I'll certainly be away with them again next year. For other readers, the company is Air Atlantique Air Transport Ltd., Hangar 5, Coventry Airport, Baginton, Coventry CV8 3AZ. Tel: (0203) 307566 and the contact is Miss Kerry Wilson.

Alan McElhinney, Cheshire

Dear Sir
As interesting and useful as Brian Oddy's 'Long, Medium & Short' feature always is, I would like to suggest either a modification or separate feature to supplement it. I am sure that many readers would welcome the inclusion in SWM of details concerning Band II v.h.f. f.m. broadcast stations in addition to broadcasts made in other bands, mainly in the a.m. mode. I appreciate that f.m. stero broadcasts might appeal more to the hi-fi buffs than to the s.w.l. types, but my own interests overlap, as I'm sure do the interests of many other readers.

Information could include news on reception of DX and local v.h.f. broadcasts, experimentation with efficient antennas and booster for added interest.

How do other readers feel about this proposal?

Ivor Nathan
London

Dear Sir
On the subject of Sporadic-E listening to the Eastern European f.m. transmissions and their possible move to our local f.m. frequenies as mentioned by Richard Gosnells in August 92. This would be quie a blow to a small group of listeners who monitor Budapest 66.62MHz, Bratislava 67.76MHz and Gdansk 71.31MHz.

The British Amateur Radio Astronomy Society monitor these 24 hour transmisssions to record meteor showers as they burn up at the top of our atmosphere. The ionised gases from the burn up reflects the transmissions that are received as bursts of signals. The speaker of the RX is replaced with a diode network rather like a crystal set, a chart recorder can be connected and used to collect the data. With today's whizz kids using PCs, the data is being stored on disks. It's just another part of our wide ranging hobby.

A. Heyes
Warrington

Dear Sir
I have a tiny Philips 3405 12-band radio, which I keep by my bedside.

One morning (Oct 15) around 5.30am, I heard a signal I have not heard before. On the 19 metre band around 15.100-15.200MHz (I can't be very precise as it was dark and I tune by touch). A lady's voice kept repeating 'Himar (or Hamar), India' over and over again.

After about fifteen minutes it changed to 'I have a message' repeated twice, then a whole string of letters using the phonetic alphabet, but these letters, which included a lot of Zs, Xs and Ys did not make words, or any sense at all. This was repeated twice then a mere 'end of transmission' and silence.

I wonder if any other readers logged this or is it something which happens often and I have missed it?

C Robinson, Leeds

junior listener

Jon Jones
PO Box 59
Fishponds
Bristol BS16 4LH

Did You Know

The *1991-1992 Annual Report* of the Radiocommunications Agency doesn't exactly sound like riveting reading does it? But it does contain some interesting facts. Between April '91 and March '92, 67 pirate broadcasters were prosecuted and 66 of these resulted in convictions of one sort of another. This lot were fined £19 715 and 45 of them lost their equipment! Unbelievably, 588 warning letters were sent out to do with f.m. CB and all 43 of the prosecutions were successful.

Another thing I learnt from the *Annual Report* is that if you are convicted of pirate broadcasting, you are effectively banned by the Broadcasting Act from involvement in legitimate commercial radio for five years! Makes you think doesn't it?

Successful QSLs

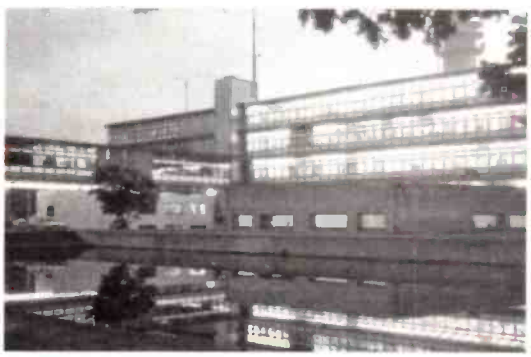
Radio Nederland have produced a new edition of their booklet *Writing Useful Reception Reports*. It's been written by Jonathan Marks, the presenter of their *Media Network* programme. The book is to help those wishing to obtain QSLs from international broadcasters, if you're interested in reporting to the low power stations in Africa, Asia and Latin America, you need the specific booklets for this - details are in the *Listeners Service Catalogue*, available from Radio Nederlands.

First it explains what a QSL card is and why Radio Nederlands issue their QSL cards. Then it goes on to explain just what international broadcasters are looking for from your QSL. Finally it gives an example of a suitable QSL for you to adapt to your own style.

Radio Nederland

One interesting thing I learnt was about two organisations that collect historic QSL cards. Very few radio stations keep copies of their old cards and so two groups have emerged to preserve these historic items. The Committee to Preserve Radio Verifications is in the USA and the Austrian DX Association is, obviously, in Austria. Older listeners are encouraged to leave their QSL collections to these groups to preserve these colourful pieces of history. Intriguing to think the QSLs you got this week could be historic items eventually.

The booklet is available free of charge from Radio Nederlands, English Section, PO Box 222, 1200 JG Hilversum, The Netherlands.



Decibels?

This must surely be one of the most used, yet least understood, items of jargon. You see it mentioned many times in the specification of radios, so let's take a closer look and see just what it means and how we can use it. The best definition I've found is the one in *Encyclopedia Brittanica*. Here, the decibel is described as a unit for expressing the ratio between two amounts of electrical or acoustic power. This covers the key difference between the decibel and other electrical units such as the watt or volt. The decibel is simply a way of describing a ratio. At this point you may well be asking why don't we just use the ratio rather than complicate things with another strange unit. Let me try and explain just why the decibel is so important.

One of the problems facing the communications engineer is that of calculating the overall performance of a system. If we take a telephone line as an example, this is likely to be made up of many different sections each causing the signal to drop by a varying amount. In order to make the link usable in a telephone system an amplifier may have to be included to make up for the losses.

The communications engineers job is to calculate the overall loss and so work out how much gain is needed from the amplifier. For the sake of this example, let's suppose we have a line with five sections in it, the losses of the five sections are: 3.5, 6.8, 2.1, 2.5 and 8.2 times. To work-out the overall loss, each of these ratios need to be multiplied together. This is a rather tiresome task especially when you start changing bits of the line and have to re-calculate each time (especially if your mental arthmatic isn't too hot!). Wouldn't it be so much easier if these losses could simply be added together.

This is where the decibel comes into its own. The secret is that the decibel is a logarithmic based system for expressing ratios. Those of you who learning about logs at school will know that to multiply two numbers you look up then add their respective logs. So you can see that if we took the log of our ratios we could then add them together. In practice this would be working in Bels (so called after Alexander Graham Bell). The decibel is simply a tenth of a bel - chosen to make the maths simpler.

So let's convert our example ratios into decibels (dB)

3.5 log 0.5440 x 10 = -5.4dB
6.8 log 0.8325 x 10 = -8.3dB
2.1 log 0.3222 x 10 = -3.2dB
2.5 log 0.3979 x 10 = -4.0dB
8.2 log 0.9138 x 10 = -9.1dB

You will note that I've added a minus sign (-) in front of the dB to show that we mean a loss.

Now that we have the ratios in dB we can work out the overall loss by simple addition, giving 30dB total. Having sorted out the overall loss, the engineer would need to work out how much amplification is needed to give the right volume at the far end of the link. As it is quite common to design for a loss of 3dB on a link you can see that an amplifier with a gain of 27dB would be required. I hope you can see from this that measuring losses and gains in dB is a great help in all forms of communications.

Before I leave the subject, let's look at a few common dB figures and their respective ratios.

3dB = 2.0 or double the power
6dB = 4.0 or double the voltage
10dB = 10 times power
20dB = 100 times power
30dB = 1000 times power

Good Radio

I've heard from a not-so-junior-listener who uses a radio rather like the SRX50. It's called the Saisho R7000 and can be bought from Dixons. Ken Gumery has been very pleased with its performance and could be one worth keeping your eyes open for. He's found a way to improve the reception of signals too. The antenna gadget he describes as, "free to all who can find a bit of polythene tube and some masking tape".

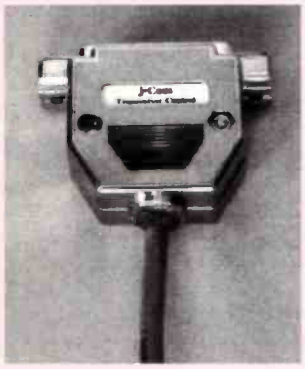
You need a length of polythene tube about 100-150mm in length and about 6mm in diameter. Apparently Boots sell a very suitable item in their home-brew section called syphon tubing. Cut down the length of the tubing, so that it can be fitted over the telescopic antenna, then just attach one end of your piece of long wire the full length of the tubing with masking tape. Ken recommends that you check there are no 'whiskers' of wire stuck out from the cut end of the wire. To use the gadget, slide it onto the retracted telescopic whip.

If you can't quite see what I mean by this then drop me a line and I'll send you a copy of Ken's 'gizmo' drawing, which may help to make the description clearer.

news

Computer Interface Cables

j-Com have introduced a line of Transceiver Control Computer Interface cables designed to interface personal computers with all receivers and transceivers that have the ability to be controlled over a serial t.t.l. link.



The j-Com interface cable requires no external power supply and draws just 3.5mA of power for the Icom and Yaesu models and 6mA for the Kenwood version. This small amount of power can be 'borrowed' directly from the computer's serial interface.

Removing the external power supply and its associated cables significantly reduces the susceptibility of the interface to RFI from the transmitter.

Four models are available, the TC-1 has a 0.125in phone plug for all Icom rigs including the IC-781, 765, 735 and 725, this also works with Ten-Tec rigs. The TC-K has a DIN connector wired for all Kenwood rigs including the TS-950, 940, 450, 440 and 140. The TC-Y1 has a DIN connector wired for the Yaesu FT-1000, 990, 980, 747 and others. The TC-Y2 is equipped with a mini-DIN connector for the FT-757GXII and FT-980.

All four models are priced at $54.95 plus $5 shipping and handling.

j-Com, Box 194, Ben Lomond, CA 95005, USA. Tel: 0101 408 335 9120.

VLF Radio

The 'extra low frequency' and 'very low frequency' radio bands hardly get any mentions or publicity these days and many radio enthusiasts don't explore the possibilities that exist on these frequencies. This is really quite surprising in view of the fascinating properties of this portion of the electromagnetic spectrum. Practical uses of frequencies below 150kHz include broadcasting standard frequency and standard time services, hyperbolic navigation and communications through sea water or solid rock to submarines, miners and pot-holers.

With negotiations between the RSGB and the licensing authorities for an amateur v.l.f. allocation well underway, the neglect of the bottom end of the radio spectrum could be coming to an end.

One British Group that is already active in this field is the Cave Radio & Electronics Group of the British Cave Research Association. This group is intent of improving techniques of v.l.f. radio communication with a particular emphasis on its use in cave surveying and cave rescue.

If you think you are interested in knowing more about this work, membership of the group costs £7.50, which includes a subscription to the group's journal.

David Gibson, 21 Well House Drive, Leeds LS8 4BX. Tel: (0532) 481218.

Gas Soldering

The Nimrod T-100 gas soldering iron has several new features to make it that bit more useful. It has a 'see-through' window in the body that enables the user to check the gas level before use and also prevent over-filling. A second window enables the user to check the type of tip that is fitted without needing to remove the cap.

The tool also incorporates a locking-collar dual control that provides an on/off function as well as a means of setting the required heat level. It also minimises the possibility of accidentally switching the gas on or off.

For soldering 1, 2, 3 and 4mm long-life tips are available. These are plated with nickel and chromium on iron and then tinned. The soldering power range is typically from 10 to 65W and 420°C maximum.

More details on the full spec from **Greenwood Electronic Components, Kyppings House, Ravensworth Road, Mortimer, Reading, Berks RG7 3UD. Tel: (0734) 595843.**

New Radio Landlist

The European DX Council, the association of short wave listeners clubs in Europe, has just published an updated edition of its *Radio Landlist*. The A4-sized publication can be put to a number of uses including keeping track of countries logged, or for taking part in DX competitions. The *Landlist* has been brought right up-to-date with the inclusion for the first time of the newly independent Baltic states and to reflect the other changes in Europe and the former Soviet Union.

The *Landlist* also includes what are known as former radio countries, in other words countries which no longer exist (such as the Soviet Union, Kashmir and so on), which are needed to maintain a log of stations heard in the past. The *EDXC Radio Landlist* is available for £2.00, including postage, from **EDXC, PO Box 990, London SE3 9XL.**

New PRO-43 Scanner

The PRO-43 is the latest scanner to be released from the Realistic stable and is a 200-channel hand-held with hyperscan covering 50 or 25 channels/frequency steps per second. It features a new style case that is compact and functional with a backlit liquid crystal display. There are memory lockout and priority channel features as well as frequency search between limits.

The memories are in ten banks of twenty. Another major feature is the a.m./f.m. switchable function.

The PRO-43 is powered by dry or NiCad cells and has the facility for two separate sockets providing remote power or NiCad charge facility. The frequency coverage is 68-88, 118-174, 220-512 and 806-999.9875MHz. The cost for the PRO-43 is £229.95.

Link Electronics, 216 Lincoln Road, Peterborough PE1 2NE. Tel: (0733) 345731.

news

Changes

New name, new jingles, new logo: same times and frequencies! Observant listeners among *SWM* readers will have noted a new European station on the short wave dial. It's Radio Vlaanderen International, based in Brussels. The station took over from BRT International at the end of September, but the changes are generally cosmetic as far as listeners are concerned. The station continues to broadcast in Dutch, English, Spanish, French, German and Arabic (the evening transmissions to Europe in English are at 1900 and 2200 on 5.91 and 1.512MHz).

But the station's mission has changed, according to its director, Jaques Vandersichel. He sees two important roles: firstly to keep Flemings overseas up-to-date with what's happening back in Flanders (the Dutch speaking areas of Belgium), and to provide an insight into Belgium for non-Flemish speakers. One thing he does not wish to do is to compete with large stations in providing international news, a job better left to the BBC or Voice of America. Meanwhile, the station struggles on with ageing transmitters at its Wavre station some 30km outside Brussels. The oldest short wave transmitter there was installed in 1952 which puts it well beyond its expected life. The antennas in use are similarly pieces of 'industrial archaeology' according to Vandersichel.

His aim is to provide a v.h.f.-f.m. transmitter for Brussels, as well as moving onto satellite for the European audience. The station still carries *Radioworld* each Saturday presented by Frans Vossen. And the address is unchanged: **PO Box 26, B-1000 Brussels.**

Kenwood Go To LARS

Kenwood UK have chosen the London Amateur Radio Show at Picketts Lock as the exhibition venue for launching themselves as UK distributors for their products.

It is the first time that a Japanese manufacturer has shown under their own banner at a UK amateur radio show.

The London Amateur Radio & Computer Show will take Place on March 13/14 and will be held at the Picketts Lock Centre, Picketts Lock Lane, Edmonton, London N9. Don't forget to look up *Short Wave Magazine* too whilst you're there,

LARS, 126 Mount Pleasant Lane, Bricket Wood, St Albans, Herts AL2 3XD. Tel: (0923) 678770.

60 Years Old & Still Going Strong!

On 19 December 1932, the first overseas broadcasts were beamed from London around the world. The Empire Service of the British Broadcasting Corporation, which was then only ten years old, were transmitted from Daventry in the Midlands.

Today, sixty years later, the BBC World Service is perhaps the world's most listened to and trusted broadcaster. It operates in 39 different languages, from Albanian to Vietnamese and including English, which is on the air twenty-four hours every day. Transmitting stations in the United Kingdom at Rampisham in Dorset, Woofferton in Shropshire and Skelton in Cumbria are supplemented by relays overseas on Ascension Island, Cyprus, Masirah in Oman, Singapore, the Seychelles and Hong Kong.

Hundreds of local and regional stations in more than forty countries rebroadcast programmes from Bush House in London. More than £150 million of tax payers money supports the operations of the BBC World Service, which include the Monitoring service at Caversham Park in Reading. But with well over 120 million regular listeners, it is arguably money well spent. How else could HM Government reach so many people with news of what's happening in Britain, let alone the rest of the world. And support appears to be continuing at the highest levels in

government, with two new language services starting during 1992: Ukrainian and Albanian (the latter a resumption of a service suspended twenty five years ago).

But, of course, international broadcasting is undergoing massive changes. The ending of the Cold War and the changes in people's needs for information and entertainment have meant that some stations are reappraising their operations. The BBC has more than 26 000kW of transmission power on short wave and medium wave transmitters it owns; but now more and more it is relying on local FM relays to reach new and more demanding audiences. Satellite delivery is becoming more important. World Service has been on Intelsat and Eutelsat for European rebroadcasters, and domestic listeners equipped for reception. But now, World Service in English is available throughout the continent in high quality on the ever more popular Astra satellite on the UK Gold transponder, with an audio sub-carrier at 7.38MHz. Another sixty years? Many hope so and there's probably no reason why not. With digital audio broadcasting (DAB) just around the corner, the possibilities for creative radio are increased rather than diminished.

TVDX News

Both the Czech TV (CTV) and Slovak TV (STV) are now transmitting in PAL having gradually introduced a programme of phasing in PAL and dropping the establish SECAM standard. The federal (national) channel will also phase in a PAL standard as finances allow. For some years TV receivers have been PAL/SECAM standard.

Bangladesh TV (BTV) are opening a further 4 relay stations in their current 5-year plan to bring relays in use to total 14 and covering over 90% of the population. France is supplying the transmitter equipment.

Doordarshan TV-2 together with All India Radio (at f.m.) are to open up channels for independent producers to air their own programmes but not the news. Up to 10 hours daily (each producer is allowed 30 mins per week) will be given over to independent production starting in Spring 1993 in Delhi, Calcutta and Bombay.

Following a no-taker applicant situation for the 2nd commercial TV network franchises in Israel, the government are extending the period for applications with improved financial terms - i.e. lower royalty taxes at 11% from the earlier 25% with nothing to pay in year 1.

Roger Bunney

For the very best in Communications Receivers Look to Lowe

VHF/UHF RECEIVERS.
We stock the lot – from AOR to YUPITERU

Although our real love is HF, we recognise that many folk find that a handy VHF/UHF scanner provides a lot of listening enjoyment, and we stock all of the popular makes.

We also insist on telling the truth about them, and there are a couple of basic rules to observe. First, I know that they say the scanners will cover from 500kHz to 1300MHz, but if you think that they will perform on short wave – forget it. They are all barely adequate (except the AR-3000A but that's in a class of its own). Secondly, if you want to particularly listen to airband, for goodness sake buy a dedicated airband scanner because it will handsomely out-perform all of the wide frequency range receivers, (except again the AR-3000A).

Currently top of the shop are the VT-225 and VT-125 from Yupiteru. Daft name, but good gear. The VT-125 is VHF airband only, and the VT-225 gives both VHF and UHF airband. Prices are good at £169 for the 125 and £249 for the 225.

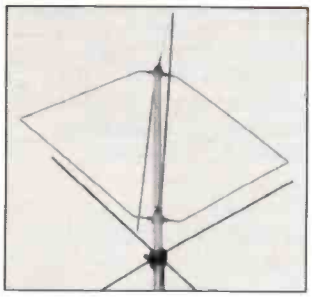
For wide range scanning, the MVT-7000 has established a good reputation for styling, ease of use, and good performance. Full coverage and 200 memory channels. Nice one. £319.

The new AR-1500 from AOR is interesting, because it is the first hand-held to offer a BFO for receiving SSB on short wave. (It covers 500kHz to 1300MHz by the way). My first reaction to its announcement was less than enthusiastic, but even I will say that it can make a reasonable job of SSB even though it is a long way from being a short wave receiver. Small and handy, the AR-1500 comes in at £299.

The AR-3000A – now this does stir the blood because it is an amazing achievement. To pack such a receiver in such a small package takes a lot of engineering, but the performance is excellent, and I can recommend it – only snag is the price, but for £799 it's a H*** of a good radio.

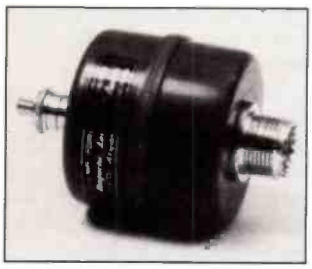
Want to know more? Just ask for full details at any of our branches, or send 4 first class stamps and request the "Airband Pack". Call in and see us soon for all that's good in receiving – DC to light.

RF SYSTEMS PRODUCTS



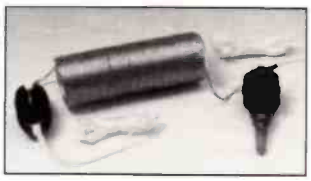
DX-One Electronic Antenna

Not cheap – but as World Radio TV Handbook said:- "...the best of its type available anywhere in the world". The DX-One is an outdoor active antenna for the range 50kHz to 50MHz, and cannot be bettered.....**£279 inc VAT**



Magnetic Longwire Balun

Transform (that's a pun) your short wave listening with the MLB. Described in the trade press as "the most revolutionary development for short wave listeners in the last 25 years." You have to believe that with a modest length of wire fed via the MLB, your reception will improve substantially, and the noise will go down.....**£39.95 inc VAT**



MLB Antenna Mark I

Complete wire antenna including the MLB. 12.5 metres long. Frequency range 100kHz to 40MHz.....**£66.95 inc VAT**

MLB Antenna Mark II

Similar to the MLB Mark I but 20 metres long for improved performance at medium and long wave.....**£76.95 inc VAT**

Coming soon. The new DX-7 active aerial as described on Radio Netherlands this week. The answer to the flat dwellers' prayer.

STOP PRESS

At last in stock, the long-awaited T2FD low noise receiving aerial. Contact our sales desk at Matlock for full details.
T2FD – £149.95 in VAT

FREE

Send four first class stamps to cover the postage and we will send you, by return, your FREE copy of 'THE LISTENERS GUIDE' (2nd edition); a commonsense look at radio listening on the LF, MF and HF bands. Its unique style will, I am sure, result in a 'good read'; but underneath the humour lies a wealth of experience and expertise. You will also receive detailed leaflets on our range of receivers and a copy of our current price list.

Access

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CUMBERNAULD: Cumbernauld Airport Foyer Tel: 0236 721004 **LONDON (HEATHROW):** 6 Cherwell Close, Langley Tel: 0753 545255
LONDON (MIDDX): 223/225 Field End Road, Eastcote Tel: 081-429 3256 **NEWCASTLE:** Newcastle International Airport Tel: 0661 860418

The Sun - The Source

Part 3

Kevin Fox continues with an interesting analogy to explain how radio waves are affected by the ionosphere.

Imagine the following scenario. A solar storm has just released 20 000 000 000 electron volts worth of electro-magnetic radiation, some of which is heading earthwards at half the speed of light. Therefore, we have just 4.25 seconds before it reaches us. Some of the radiation in this flare consists of ultra violet light.

Ionisation

A word you're going to hear quite a lot from now on is Ionisation, so, before we delve into the mysteries of earth's ionospheric layers, let's spend a moment finding out exactly what ionisation is, the cause and its effects. Ionisation is the name given to the process by which normally electrically neutral atoms are converted into ions by the removal or addition of one or more electrons. This gives the ionised atom either a positive or a negative charge. An ion itself may also be ionised, such as by loosing or gaining a second electron (double ionisation). Clear as mud, eh?

So, let's start with **Fig. 3.1a** Here we have a perfectly happy atom. It has two electrons busily orbiting the twin nuclei. Everything is in balance. However, in **Fig. 3.1b** a rampaging photon of ultra violet light slams into the previously happy and balanced atom, and rips away one of it's electrons, leaving our original atom ionised because of the loss. Ionisation of atoms is an unnatural state for them, and they will do anything they can to reclaim an electron - it doesn't matter where from - and return to their previous state of equilibrium (recombination). But the ionised atom cannot regain, or lose, an electron until the field of u.v. light, or other forces, (see later) has either diminished or ceased altogether.

Fig. 3.1a.

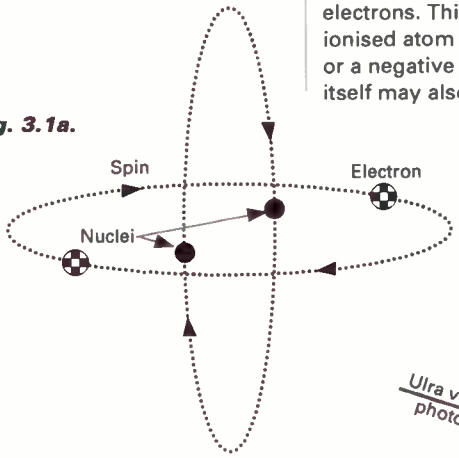


Fig. 3.1b.

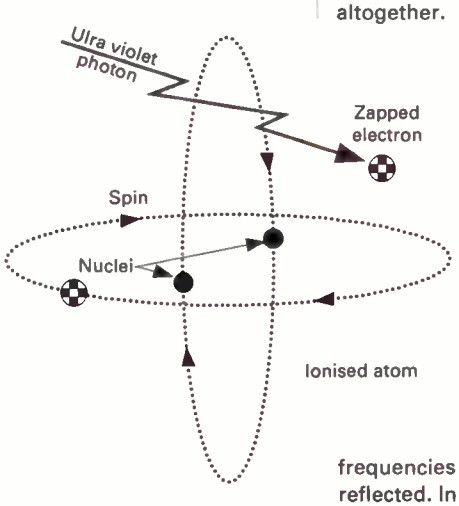
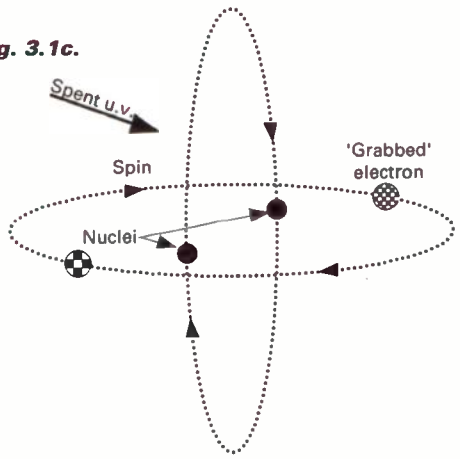


Fig. 3.1c.



As it stands now, the ionised atom has the ability to reflect certain frequencies of radio waves according to the amount of ionisation. The more atoms which become ionised then the more efficient and higher the radio frequencies which may be reflected. In **Fig. 3.1c** the field of ultra violet light has begun to weaken and the ionised atom now exerts its own attractive force, searching for another electron. Once our original atom has regained its missing electron it returns to its previous state of blissful equilibrium, and the ionising field which was reflecting radio transmissions so well, now fades away. The ionisation process should now be a lot clearer to you.

The earth's atmosphere is split up into different layers for scientific reasons. Basically the boundary of each region is chosen for the concentration of atoms of hydrogen, helium and oxygen at a certain heights and we'll be looking at each layer in detail later on. **(Fig. 3.2)** shows where each layer lies in respect to its neighbour. The simplest rule to remember is: the higher the rarer. The higher you go up into the atmosphere, then the fewer atoms of hydrogen, helium and oxygen you'll find.

Ultra violet radiation from the solar flare arrives at the top of earth's atmosphere. Because there are relatively few atoms in this region, known as the F2 layer, those present at this height of around 320km up are quickly ionised (robbed of an electron) by the field of u.v. light, which because it's met little resistance to its own energy, contains much of its original power. Still very active, the u.v. radiation penetrates deeper. On meeting a greater density of atmospheric atoms, which increase with depth (greater nearer the ground) they soon absorb the remaining u.v. radiation, until it has no more power to ionise. Ultra violet radiation will have become exhausted from the constant collisions with atmospheric atoms. Each time it ionises an atom the u.v. also surrenders a little of its own energy. At this time the ionisation process stops, leaving a thinly ionised region above and below a central area of intensely ionised atmosphere.

The ultra violet radiation from the sun varies in frequency so the gases in earth's atmosphere respond and ionise at different frequencies too - hence the multi-hued colours in a visible aurora. By the way, ionisation

does not depend solely on u.v. light. Any solar particles which have the power to strip electrons from atoms will do. There is evidence that both X and Gamma rays are partly responsible for ionisation, especially within the F1 and F2 layers.

The Ionosphere

So, how does a fuzzy, ill-defined patch of ionised gas up in the sky manage to reflect a short wave radio signal over many thousands of miles, or v.h.f. and u.h.f. transmissions considerably beyond their nominal range? Well, imagine that high above the earth there's a huge net, and the size of the mesh is fixed. This net represents the atmosphere surrounding earth.

Next we need a radio signal, so we'll use a football. Further - Imagine that the mesh of the net is 300mm wide; and our football (representing our radio signal) has a diameter of 350mm, then no matter how hard or from which direction we throw the ball at the net it will always rebound because the ball is larger than the holes in the mesh. If we throw the ball towards the net at a fairly steep angle of, say, 80°, then the distance from the throwing point via the rebound off the net to where the ball touches the ground °, then the distance from the thrower via rebound to touch-down of the ball will be much further than before. This equates to the angle of radiation from your antenna by the way: high angle radiation (80°) short distances, low angle radiation (20°) much longer distance.

However, if the diameter of our football 'radio signal' is only 150mm,then every time we throw the ball at the net (which has 300mm holes) our ball will slip through the net and become lost to us. If the diameter of our football is 900mm then after the ball has been thrown into the net it will rebound a much shorter distance than our 350mm ball. Because of its enlarged physical size, the 900mm ball dissipates much more of its impetus on hitting the net. Putting this back into technical terms. the real ionosphere (unlike my analogy of a single, fixed size net) has many nets (layers), stacked above each other. Further, the mesh (holes in the net) within each layer are constantly changing their size, shape, altitude and amount of ionisation, from minute to minute, day to day, week by week and season by season.

So as you can see my analogy is a gross simplification which has been useful to illustrate the basic processes of h.f. radio wave propagation. The 'ball' is representative of a radio frequency signal which, unlike my three examples, come in a vast range of 'sizes' (frequencies). And finally, there isn't just a single layer of mesh: earth's ionosphere is much like an onion; it has many layers the boundaries of which are not sharply defined, but gradually blend into each other. The art of accurate propagation predicting - slipping back into our 'net and ball' analogy, is to chose the correct sized 'ball' so that the 'net' will reflect it the easiest and farthest distance using the minimum amount of 'throwing' (transmitter) power.

Atmospheric Layers

Starting at the bottom and working upwards, the first 'layer' we encounter is the troposphere. Most of earth's water and weather are contained in this area, and two-thirds of the earth's total atmosphere is below the height of Mount Everest. The air in the troposphere is continuously in motion caused by the rotation of the planet, giving rise to the phenomena we call 'weather'. It is also in the troposphere that 'lift'

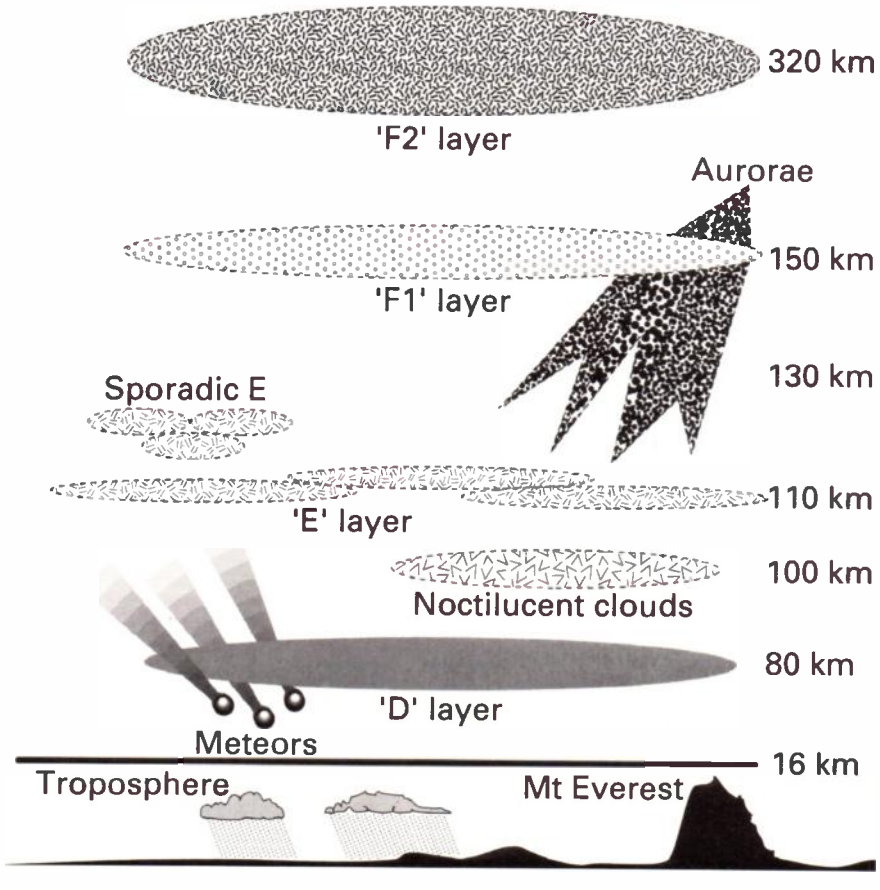


Fig. 3.2.

conditions occur.

A 'lift' is the amateur term for enhanced v.h.f. propagation conditions and 'lift' or 'tropo' conditions can only happen within the 16km high troposphere because this mode of anomalous propagation requires certain conditions of weather. The usual range of v.h.f./u.h.f. signals under normal conditions is around 64km. Or, as the saying goes, line-of-sight range before passing through the troposphere and out into space. But, when certain effects all come together in the troposphere this range can be extended to hundreds - often a thousand or more kilometres. What happens is that warm air rises from the ground and meets cold air higher up, causing a temperature inversion. Where this happens a layer of dense air exists which has the ability to refract, or bend, v.h.f. type radio signals away from their usual line of sight range and over the radio horizon.

Fronts

Meteorological fronts are the usual cause of these special weather conditions, such as when a warm front meets a cold front or *vice versa*. Many amateurs and listeners think that it is simply the sunshine which brings about these conditions - a warm front means plenty of good, sunny weather - but this is a misconception. Whilst there are forms of v.h.f. and above propagation that are influenced directly by the sun - such as Sporadic E, they are outside the scope of this series. A lift occurs as the weather changes (either from 'bad' to 'good' or the reverse). When the warm/cold fronts begin to break up these temperature inversions are most likely to occur.

Predicting such conditions is never easy as not every warm front banging into a cold front will produce extended propagation at v.h.f. The keen v.h.f. operators keep a close eye on the television and radio weather reports; some go as far as taking weather satellite pictures directly from the spacecraft so that they can spot trends at the earliest possible moment! ■

First Aid

I have recently obtained an Eddystone Type ECR receiver of the 1938/1939 period. This receiver requires a lot of loving attention due to being in storage for some 20 years or so! I seek a workshop manual or any technical data on this receiver, an operator's manual, dial cord(s) drawing, component valves and circuit diagram, etc. All costs refunded.

Andrew Humphriss. 21 Gould Road, Hampton Magna, Warwick CV35 8TU.

I have a Reftec 934 transceiver model MTR 934-1 made by RF Technology Ltd., Mildenhall, Suffolk. Can anyone help with a circuit diagram and spares or advise me if they know of anyone who repairs and services Reftec transceivers.

D.L. Aldred. 14 Westview Gardens, Gislingham, Eye, Suffolk IP23 8HT.

I recently purchased an AR2000 hand-held scanner and am having trouble getting it to work. This is not a fault with the scanner but purely my ignorance on the subject. I wondered if a reader would be willing to travel anywhere in central Scotland, but obviously the nearer to my home town of Dundee, the better.

Angus Forbes. Tel: (0382) 818270.

Can anyone let me make a photocopy of the circuit diagram for the Jupiter MVT-6000 scanner. I would, of course, refund any expenses.

A.G. Rose. 23 Midhurst Road, Kings Norton, Birmingham B30 3RB.

Any information on the Hacker *Helmsmen* such as the circuit diagram, service manual or owners handbook please. Any costs will be re-imbursed.

Mr M Evans. 120 Loughton Way, Buckhurst Hill, Essex IG9 6AR.

Help!! Technical information or explanation or operating theory relating to Solartron voltage standing wave ratio indicator type CA512. Has only one Belling input, 15 valves, control marked in dBs. Dial marked v.s.w.r./response/ref co-eff. Also circuit or information required for Sanyo 17H815 Transworld portable receiver. All costs paid gladly.

John Raynham. Tel: 081-870 6316 evenings until 11pm.

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JRC NRD535 – *THE ROLLS ROYCE OF RECEIVERS*

The new NRD535 epitomises the very best in communications receiver design. This high technology product is based on the abundant technical experience gained by JRC in the professional communications receivers field. This means that the NRD535 is arguably one of the best receivers available to meet the discerning listeners needs. Brief specifications are as follows. Frequency coverage: 0.1-30MHz; Operating modes: CW, SSB (LSB & USB), AM, FM, FSK & RTTY; Supply voltage: 240V A.C. or 13.8V D.C. ECSS, BWC & RTTY units available as options.

DRAKE R8E – *BEST FROM THE USA*

Now available from SMC the new DRAKE R8E communications receiver. These receivers utilise the very latest in technology to meet the demanding requirements of today's listeners. Conveniently located front panel controls allow for rapid operator programming and ease of use. The R8E receiver covers 0.15-30MHz and with the optional VHF converter will also cover 35-55MHz and 108-174MHz. The large clear LCD display gives the operator full information about the current receiver status.

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SMC are pleased to be able to offer the SONY range of Multiband Receivers. They feature all the latest technology allowing unequelled coverage of both broadcast and shortwave bands, yet remaining both compact and easy to use. All the models illustrated cover VHF broadcast, SW broadcast, and some models cover other bands as well. The very latest model available from SONY is the ICF-SW77. This receiver covers LW, MW, SW and FM stereo broadcast bands and has SSB reception on the SW bands. A comprehensive keypad and LCD display give easy control over the massive array of features available. Other SONY products available include the minuscule ICF-SW1, the versatile ICF-SW7600, the popular ICF-2001D and for airband enthusiasts the AIR7 and ICF-PRO80.

ICF-SW77

AIR 7

AOR

SMC are pleased to be able to offer a large number of models from the very comprehensive AOR range which includes both hand portables and mobiles/base stations.

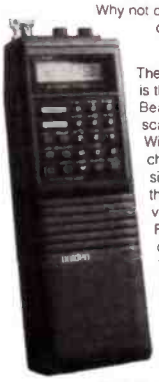
All the receivers are built to the highest possible specification yet remain very competitively priced. Often the leaders in the field, the AOR range is proving very popular amongst both professional and non professional users.

The top of the range model must be the AR3000 which covers 100kHz-2036MHz without any gaps. The sensational AR1500 is already a best seller, it's easy to understand why! With coverage from 500kHz – 1300MHz and complete with SSB. Try one today you'll see why they are a best seller. Last but not least is the AR2000 which is an extremely flexible handheld scanner covering 500kHz-1300MHz.

Why not contact us today for more details of the AOR range.

AR3000

AR1500



The Bearcat 200XLT is the cream of the Bearcat handheld scanner range. With 200 memory channels and simple operation these are proving very popular. Frequency coverage 66-88, 118-174, 406-512 and 806-956MHz.

200XLT

The compact HX850E is a basic scanner with a few memories. Ideally, suitable for a novice in the scanner market. AM/FM modes and a frequency coverage of 60-89, 118-136, 140-174 and 406-495MHz.

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**** UNBEATABLE VALUE ****

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New Whittington
Chesterfield
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Tues–Sat

Birmingham *021-327 1497*
SMC Birmingham
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Alum Rock
Birmingham B8 3HX
9am–5pm Tues-Fri
9am–4pm Sat

Axminster *(0297) 34918*
Reg Ward & Co. Ltd
1 Western Parade
West Street
Axminster
Devon EX13 5NY
9am–5.20pm Tues–Sat

grassroots

Club Secretaries:
Send all details of your club's up-and-coming events to: Lorna Mower, Short Wave Magazine, Enefco House, The Quay, Poole, Dorset BH15 1PP. Please tell us your County and keep the details as brief as possible.

rallies

***December 13**: The Verulum Christmas Rally will be held at Hatfield Polytechnic, adjacent to the A1(M).

***December 13**: The Leeds & District ARS Christmand Rally will be held at the Pudsey Civic Centre, Dawsons Corner, Pudsey. It's at the junction of Leeds Outer Ring Road (A6120) and Bradford Road (A647). Don't follow the signs for Pudsey. Doors open 10.45am. **John G0FWP, QTHR. Tel: (0532) 589652.**

December 13: The Centre of England Christmas Rally will be held at the National Motorcycle Museum near the NEC, Birmingham. Doors open 11.30am (10am for the disabled). Admission is £1 with a reduction for RAIBC members. **Frank Martin G4UMF. Tel: (0952) 598173.**

1993

February 14: The 2nd Northern Cross Rally will be held at Rodillain School, junction M1/M62. **Dave Grey. Tel: (0532) 827883.**

February 21: The Kidderminster & DARS Rally '93 will be held at Harry Cheshire School, Kidderminster. Doors open 10am. All the usual traders, flea market, Bring & Buy, refreshments. **G8JTL. Tel: (0384) 894019.**

February 27: The Tyneside ARS 5th Annual Rally will be held at the Temple Park Leisure Centre in South Shields. Doors open 11am (10.30am for the disabled). Leisure facilities are available for the rest of the famly. **Jack Pickersgill. Tel: 091-265 1718.**

***March 13/14**: The London Amateur Radio & Computer Show will be held at Picketts Lock Centre, Picketts Lock Lane, Edmonton, London. There will be a large trade presence, free parking, lectures, disabled facilities, Bring & Buy and Special Interest Groups. **Tel: (0923) 678770.**

March 14: Wythall Radio Club will be holding their annual radio rally at Wythall Park, Silver Street, Wythall. Doors open from 11am to 5pm. The usual traders in three halls, and a bar and frefreshment facilities will be available. In addtion there will be a ring & Buy. Talk in on S22. Admission 50p. **G0EYO. Tel: 021-430 7267.**

April 18 Marske-by-the-Sea Radio Rally will be held in the Marske Leisure Centre, High Street, Marske-by-the-Sea near Saltburn. Doors open at 11am. There will be the usual traders, a Bring & Buy and refreshments. Talk-in will be on S22. **Mic G7ION. Tel: (0287) 610030.**

If you're travelling **long** distances to rallies, it could be worth 'phoning the contact number before setting off to check all is well.

* Short Wave MAgazine & Practical Wireless in attendance

AVON

RSGB City of Bristol Group: last Mondays, 7pm. The Small Lecture Theatre, Queens Building, University of Bristol, University Walk, Bristol. Nov 30 - Construction Evening, Dec 14 - Christmas Party. Dave Coxon G0GHM. (0275) 855123.

South Bristol Amateur Radio Club: Wednesdays. Whitchurch Folkhouse Association, Bridge farm House, East Dundry Road, Whitchurch, Bristol. Dec 2 - The Basics of Good Operating by G4WUB, 9th - HF Activity Evening, 23rd - Let Us See Your Photographic Equipment with G0AWX.

BERKSHIRE

Reading & DARC: 2nd & 4th Thursdays, 8pm. The Woodley Pavilion, Woodford Park, Haddon Drive, Woodley, Reading. Dec 10 - AGM with Wine & Cheese. Nick Challacombe. (0734) 722489.

CORNWALL

Cornish RAC: 7.30pm. The Village Hall, Perranwell Station, Perranwell, Nr Truro. Dec 3 - Xmas Party with RSGB Videos & Others, 8th - Activities Night, 14th - Computer Section. Geoff G0FHT (0209) 820836.

DERBYSHIRE

Derby & DARS. Wednesdays, 7.30pm. 119 Green Lane, Derby. Dec 2 - Junk Sale, 9th - Constructor's Contest, 16th - Xmas Party, 23rd - Video Show, 30th - no meeting. Richard Buckby. Ambergate 852475.

Dronfield & DARC: 1st & 3rd Mondays, 7.30pm. Dronfield Woodhouse Sport & Social Club, 117 Carr Lane, Dronfield Woodhouse. Piers Oldham G7HRW. (0246) 290444.

South Normanton & Alfreton DARC: Mondays, 8pm. New Street Community Centre, New Street, South Normanton. Dec 7 - Natter Night.

DEVON

Torbay ARS: Fridays, 7.30pm. ECC Social Club, Highweek, Newton Abbot. Dec 18 - TARS Annual Xmas Party. Walt G3HTX. (0803) 526762.

EAST SUSSEX

Hastings E&RC: 3rd Wednesdays, 7.45pm. West Hill Community Centre, Croft Road, Hastings. Fridays, 8.30pm. Ashdown Farm Community, Downey Close, Hastings. Dec 18 - Xmas Dinner. Reg Kemp. 7 Forewood Rise, Crowhurst.

ESSEX

Braintree & DARS: 1st & 3rd Mondays, 8pm. The Community Centre, Victoria Street, Braintree. Dec 7 - Junk Sale, 21st - Cheese & Wine. Derek (0787) 474312

Chelmsford ARS: 1st Tuesdays, 7.30pm. Marconi College, Arbour Lane, Chelmsford. Dec 1 - Shack Test Equipment by G2HNF, 12 - CARS Xmas Social. Roy Martyr. (0245) 360545.

FIFE

Dundee ARC: Tuesdays, 7pm. The College of Further Education, Graham Street, Dundee. Dec 1 - RF Radiation by GM7GUC, 8th - Construction Night, 15th - Q&A Evening, 22nd & 29th - No Meeting. George Millar, 30 Albert Crescent, Newport on Tay, Fife.

GLOUCESTERSHIRE

Gloucester ARS: Wednesdays, 7.30pm. St John Ambulance HQ, Heathville Road (off London Road), Gloucester. Dec 2 - Talk on Bees, 9th - Construction Group, 16th - G4RHK's Xmas Buffet, 23rd & 30th - No Meeting. Jenny G7JUP. Glos 527227 Wednesday evenings only.

GREATER LONDON

Havering & DARC: Wednesdays, 8pm. Fairkytes Arts Centre, Billet Lane, Hornchurch. W.P. Drea G0CBU. (0708) 445135.

Southgate ARC: 2nd & 4th Thursdays, Winchmore Hill Cricket Club Pavilion, Firs Lane, Winchmore Hill, London N21. Dec 10 - AGM. Brian Shelton. 081-360 2453.

Wimbledon & DARS: 2nd & last Fridays, 7.30pm. St Andrews Church Hall, Herbert Road, Wimbledon SW19. Dec 11 - Xmas Social. Chris Frost. 081-397 0427.

HAMPSHIRE

Three Counties RC: Alternate Wednesdays, 7.30pm. The Railway Hotel, Liphook, Hants. Dec 2 - Amateur Television Transmission by G8LES, 16th - Quiz Night. Kevin G8GOS. (0420) 83091.

HERTFORDSHIRE

Dacorum AR & TS: 1st (informal) & 3rd (formal) Tuesdays, 8pm. The Heath Park, Cotterells, Hemel Hempstead. Dec 15 - Xmas Dinner at Heath Park. Dennis Boast. (0442) 259620.

Hoddesdon RC: Alternate Thursdays, 8pm. The Conservative Club, Rye Road, Hoddesdon. Dec 10 - Xmas Social, 24th - No Meeting. Roy G4UNL 081-804 5643.

KENT

Bromley & DARS: 3rd Tuesdays, 7.30pm. The Victory Social Club, Kechill Gardens, Hayes. Dec 15 - Xmas Party. Geoffrey Milne. 081-462 2689.

Maidstone YMCA ARS: Alternate Thursdays. YMCA Sports Centre, Melrose Close, Maidstone, Kent. Dec 4 & 18 - RAE, 11th - Xmas Special. C.L. Roberts. (0622) 670936.

West Kent ARS: 3rd Fridays, 8pm. The School Annex, Albion Road, Tunbridge Wells. Dec 18 - Xmas Xtravaganza. John Taylor. (0892) 664960.

LANCASHIRE

Hesketh ARC: Alternate Tuesdays. Birkdale, Southport. Dec 8 - Live Packet/TCPIP Demonstration. Bernie G7DEM. (0704) 63344.

Preston ARS: Alternate Thursdays. The Lonsdale Sports & Social Club, Fulwood Hall Lane, Fulwood. Dec 10 - Xmas Buffet. Eric Eastwood G1WCQ. (0772) 686708.

MERSEYSIDE

Wirral ARS: 1st & 3rd Wednesdays, 7.45pm. Ivy Farm, Arrowe Park Road, Birkenhead, Wirral.

Wirral & DARC: Wednesdays, 8pm. Irby Cricket Club, Mill Hill Road, Irby, Wirral. December 2 - D&W Hotel Victoria, Lower Heswall, 9th - Chairman's Night, 16th - D&W The Anchor, Irby, 23rd - No Meeting. Paul G0JZP 051-648 5892.

NORFOLK

Dereham ARC: 8pm. St Johns Ambulance Hall, Yaxham Road, Dereham. Dec 10 - Social Evening & Quiz Night. Mark Taylor G0LGJ. (0362) 691099.

Norfolk ARC: Wednesdays, 7.30pm. The Norfolk Dumpling, The Livestock Market, Harford, Norfolk. Dec 2 - Visit to Anglia Television, 9th - CW Quiz - all can take part, 16th - Xmas Party, 23rd - No Meeting, 30th - NARC Film Archives by G3NJQ. Jack Simpson G3NJQ. (0603) 747992.

NOTTINGHAMSHIRE

Mansfield ARS: 1st Thursdays, 8pm. The Polish Catholic Club, off Windmill Lane, Woodhouse Road, Mansfield. Dec 3 - Xmas Social Evening, families & friends welcome. Mary G0NZA. (0623) 755288.

South Notts ARC: Fridays, 7pm. Highbank Community Centre or Fairham Community College, Farnborough Road, Clifton Estate, Nottingham. Dec 20 - Xmas Dinner. Ray G7ENK. (0602) 841940.

OXFORDSHIRE

Oxford & DARS: 2nd & 4th Thursdays, 7.45pm. British Legion Club, Haddow Road, Crotch Crescent, Marston Road, Oxford. December 10 - Xmas Mince Pie Party. Terry Hastings. (0865) 863526.

STRATHCLYDE

Kilmarnock & Loudoun ARC: 2nd Tuesdays. Voluntary Services House, Grange Street, Kilmarnock. Dec 1 - Natter Nite, 15th - Bright Sparks Interclub Quiz & Social Nite. Bill. (0563) 820052.

West of Scotland ARS: Fridays, 8pm. Garnethill Multi-Cultural Centre, Rose Street (Off Suchiehall Street), Glasgow. Dec 4 - Electronic Developments in WX Predicting by GM4JYZ, 11th bright Sparks Trophy, 20th - Equipment Specification Checking Xmas Social. Jack Hood GM4COX. (0698) 350926.

WARWICKSHIRE

Stratford upon Avon & DARS: 7.30pm. The Home Guard Club, Main Road, Tiddington, Stratford-upon-Avon. Dec 14 - Aeronautic Electronics by G0NKY. A. Beasley G0CXJ. 060-882 495.

WEST MIDLANDS

Midland ARS: 3rd Tuesdays, 7.30pm. Headquarters Unit 22, 60 Regent Place, Birmingham B1 3NJ. Dec 8 - MARS Xmas Party. John Crane G0LAI. 021-628 7632 (evenings).

WILTSHIRE

Trowbridge & DARC: 1st & 3rd Wednesdays, 8pm. Southwick Village Hall, Southwick, Trowbridge. Dec 2 - Xmas Party. G0GRI (0225) 864698.

YORKSHIRE

Barnsley & DARC: Mondays, 7.15pm. Darton Hotel, Station Road, Darton, Barnsley. Dec 7 - Xmas Buffet, 14th - Junk Sale. Ernie. (0226) 716339.

Bridlington & DARS: Alternate Thursdays, 7.30pm. Combined Cadet Building, Bridlington Upper School, Bessingby Road, Bridlington. Nov 26 - QRP by G0DEB, Dec 10 - Xmas Dinner at the Balmoral Hotel. Norman G4NJP. (0262) 673635.

AOR – ALL IN ONE

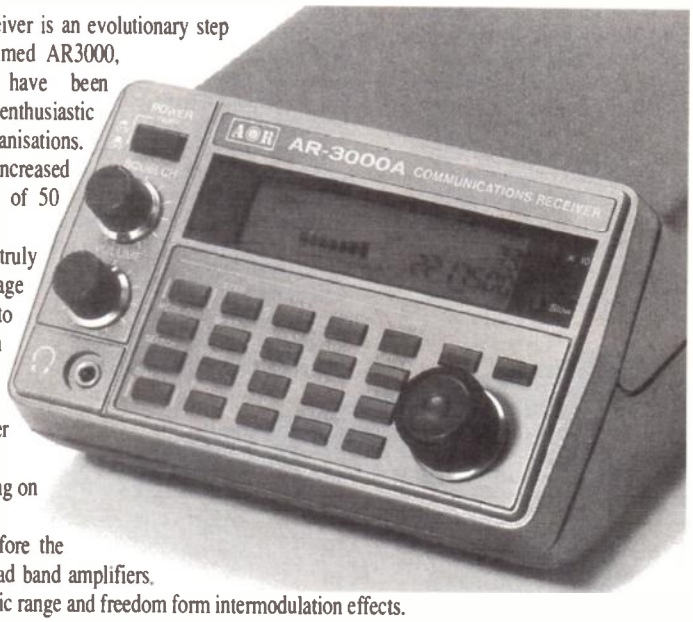
The **AR1500** is the World's first true compact hand-held wide range receiver offering SSB as standard and has arrived in the UK. Coverage is from 500kHz all the way to 1300MHz without any gaps in the range. Channel steps are programmable in multiples of 5kHz and 12.5kHz up to 995kHz, the BFO will allow tuning between these steps for SSB operation. All popular modes are provided NFM, WFM, AM and SSB (USB, LSB and CW) with the BFO switched on.
The receiver is supplied with a comprehensive selection of accessories: DA900 wide band flexible aerial, NiCad pack, Dry battery case (for use with 4 x AAA alkaline cells), Charger, DC lead fitted with cigar lighter plug, Earphone, Soft case, Belt hook, 5 metres (approx.) of aerial wire terminated in a BNC connector for shortwave reception and Operating manual.

Versatility is excellent. The AR1500 may be powered from its internal NiCad pack, spare dry batteries may be carried for extended operation and used with the dry battery case. the set may also be plugged directly into the cigar lighter socket of a motor vehicle (external input range 11 - 18V DC).
Although offering a long list of facilities and operating modes, the receiver remains easy to operate. Many facilities have been carried across for the well proven AR2000 receiver. The AR1500 has a new 'automatic memory' feature which automatically stores busy channels from search bank 9 into the 100 memory channels of scan bank 9.
There are 1000 memories in total arranged in 100 memories x 10 banks, there are also 10 additional programmable search banks. Each memory will store frequency and mode (NFM, WFM or AM - not SSB) the search banks will also store the step increment. There is a massive EEPROM memory store for all memories and search banks so that no backup battery is required. The memories may be over-written time and time again.
The display often provides 'prompts' for selected operations such as a flashing "CH" to invite the user to key in a new memory channel number. All information such as frequency, mode (except SSB), channel etcetera is presented via an easy to see Liquid Crystal Display (LCD). The display is fitted with a switchable light to increase visibility in areas of low level lighting.
The AR1500 can meet a number of requirements to satisfy Airband or Marine enthusiasts, Professional off air monitoring and of course casual listening too. The World's shortwave and Amateur bands can be monitored, even the longer range Oceanic Airband and ship to shore. Of course the performance of this compact hand-held receiver can not be directly compared to that of the AR3000A or dedicated General Coverage Receiver.
Amazing value, all for an extremely attractive.

Recommended Retail Price of £299.00 including VAT.

The popular **AR2000** receiver continues. It has not been replaced by the new AR1500 receiver, the AR2000 remains a firm favourite with listeners and enthusiasts. Features include coverage from 500kHz - 1300MHz and reception of AM, NFM & WFM.

Recommended Retail Price £279.00 including VAT.



The **AR3000A** base/mobile receiver is an evolutionary step forward from the highly acclaimed AR3000, many major improvements have been implemented at the requests of enthusiastic listeners and commercial organisations. Search and scan speed has been increased to an unprecedented maximum of 50 increments per second.
Your listening horizons are truly extended with receive coverage from 100kHz all the way up to 2036MHz without any gaps in the range. The AR3000A offers the widest coverage on the market today with a high level of performance and versatility from long wave through shortwave, VHF and onward to the upper limits of UHF and SHF.
Not only will the AR3000A cover this extremely wide range it will allow listening on any mode: NFM, WFM, AM, USB, LSB AND CW.
The high level of performance is achieved by using 15 band pass filters before the GaAsFET RF amplifiers unlike other receivers which may rely largely on broad band amplifiers. This ensures high sensitivity through the entire coverage with outstanding dynamic range and freedom form intermodulation effects.
An RS232 port is provided enabling full remote control via most computers. A rear panel switch changes control between the keypad and RS232 port. Two commercial IBM compatible software packages are available... ACEPAC3A & AOR Spectrum Coordinator.
The AR3000A is powered from 13.8V DC, a suitable mains power supply is provided with the receiver. Other accessories include a telescopic whip, DC lead and comprehensive operating manual.

Recommended Retail Price £799.99 including VAT.

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E&OE

The Grundig Satellit range of receivers has been in production for some years. Now, a new flagship model has been introduced which offers more new facilities than perhaps any other short wave radio receiver. Peter Shore has been finding out what's on offer.

Whilst similar in looks to its predecessor, the Satellit 500, Grundig's new top-of-the-range receiver, the Satellit 700 is none-the-less considerably changed and has new and enhanced facilities for the radio enthusiast. The Satellit 700 is a comparatively large receiver - measuring 306mm wide, 175mm high and 65mm deep and weighing in at a considerable 2.38kg including its four D sized cells - it is, perhaps, suitable more for table-top listening rather than as a portable set. The front panel of the set is divided into two, one half devoted to the loudspeaker which, as is common with Grundig products, offers good audio. The other has the large liquid crystal 'data monitor' - or display - and keypad with 32 buttons that control everything from frequency input to reception mode.

Three knobs are recessed into the left hand panel, but accessible from both the side and front planes, control volume, bass and treble of audio output whilst on the right hand side are knobs for manual tuning and a.g.c. and m.g.c.

Connections for an external power supply, headphones, cassette recorder output and remote start as well as two line outputs are provided on the left hand panel, together with a LOCK switch which disables all front panel controls for use when travelling. On the right hand side is an IEC male coaxial external antenna jack, together with switches for internal/external antenna operation, DX or local sensitivity and a 'clarify' knob for s.s.b. use.

Frequency coverage on models sold in the UK is comprehensive: Band II f.m. is provided from 87.5 to 108MHz, long wave from 148 to 353kHz and medium wave and shortwave continuously from 513kHz to 30MHz. Reception modes offered are narrow and wide a.m, switchable upper and lower side band and synchronous detection modes. On f.m., stereo reception is available through the headphones socket or through separate left and right line out phono jacks.

Display

The large liquid crystal display, dubbed 'data monitor' by Grundig, provides all current operating data including signal strength, frequency, time and station name. A back light facility is provided for mains power use.

But it is on the f.m. band that the Grundig offers an early surprise, for it is the first set for use in the home which is equipped for Radio Data System (RDS). RDS is a European invention and in effect makes radio sets intelligent. An inaudible stream of digital data is transmitted along with the normal programme signal. This carries a variety of information including alternative frequencies which enables car radios, for example, to switch automatically to the next transmitter carrying the same programme once the vehicle has moved out of range of a transmitter and the received signal field strength has fallen below a certain level.

For example, driving from London to Edinburgh it would be possible to set off with an RDS receiver tuned to BBC Radio Four on f.m. and the set would remain tuned throughout the journey without the need for manual retuning to different transmitters. The radio does it all automatically.

In RDS mode, the station name is displayed on the l.c.d. in addition to the frequency; for example CLASSIC FM or BBC R1. An RDS flag is displayed in a box on the l.c.d. when an RDS signals is received.

It is possible to ask the radio to search for alternative frequencies carrying the same programme. Pressing a single button marked FM/RDS-AF starts a search of the alternative frequencies (AF) and the set measures the field strength of each signal. If a suitably strong signal is received, that frequency is tuned in. If no strong alternative can be found, the set reverts to the original frequency.

The Satellit 700 can be used as a test receiver for RDS signals and indeed BBC Engineering and a number of other European broadcasters are believed to have sets for this purpose. The testmode enables measurements of RDS reception quality and to check the AF lists or different flags or codes applied to signals. Testmode is engaged by holding down the SYNCH button for three seconds or more. This displays the first PI or programme identification code and the TP/TA flags (used for traffic news services). It is then possible to go through a sequence of tests for all other codes sent on the RDS stream and to monitor the RDS error rate. Unfortunately the RDS Testmode is not documented in the user manual; it may be possible for users to acquire instructions from Grundig.

Tuning the receiver is straightforward. Frequencies may be directly entered through the keypad in either megahertz or kilohertz. Alternatively manual tuning using the rotary knob is possible. Automatic scanning up or down in frequency can be started by pressing the SEARCH/SELECT key. On short wave, the set will automatically scan in 5kHz steps within each of the broadcast bands, or in 1kHz steps in the amateur bands. Scanning on medium wave is normally set to 9kHz steps but this may be switched to 10kHz steps for use in North America. On long wave the step rate is also 9kHz and on f.m. it is 50kHz. Manual tuning using the knob provides for 1kHz steps in a.m. mode throughout long, medium and short wave, but changes to 100Hz steps in u.s.b., l.s.b. and synch modes. Manual tuning on f.m. is in 25kHz steps.

For listening on a.m., switchable narrow/wide bandwidth is available operating in all reception modes. Upper or lower sideband can be selected and the clarify knob allows fine resolution of signals. The synchronous detector for broadcast listening is designed to reduce the effects of fading on signals, as well as to reduce problems of adjacent channel interference. All reception modes are indicated in the data monitor.

Apart from the RDS facilities, the Satellit 700's memory facilities have been vastly expanded in comparison to its predecessor, the 500. The new receiver offers a minimum of 608 memory channels which you might think would be sufficient for most people's use. A ROM table is supplied factory fitted and programmed with the most often used frequencies of nine top international broadcasters, to a maximum of 96 frequencies. These include, on the European version which I have been testing, BBC World Service, Deutsche Welle, ORF Austria, Swiss Radio International, Radio Netherlands, Radio France International, RAI Italy, Radio Moscow and Radio Japan.

Grundi
700 Re

Recall of stations stored in the ROM table is straightforward. A list in the handbook gives a reference number to each broadcaster, such as 0.6 for RFI. The reference code is tapped in to the keypad, followed by MEMORY/FILE and the first stored frequency is recalled. Paging through the other frequencies stored for the station is possible by pressing the MEMO AF key. The station name is displayed on the l.c.d., together with the frequency and memory number. The ROM table frequencies cannot be overwritten but do include long standing frequencies such as 6.075MHz for Deutsche Welle and 9.41MHz for BBC World Service and so it is unlikely that the data will become completely out-of-date.

Memories

Other frequencies can easily be stored by the user. The standard version of the receiver is equipped with one memory file of 64 station positions with eight alternative frequencies each, equalling a total of 512 frequencies. In addition to the station name and frequency, the operating mode data (l.s.b./u.s.b., bandwidth, synchronous detection and, on f.m., stereo or mono) is also recorded.

Station names can be chosen by the user and a maximum of eight letters, digits and spaces can be recorded, for example WARSAW or EUR NO 1. Any letter from A to Z and any digit from 0 to 9 are useable.

But the memory capacity of the Satellit 700 does not stop at 608 channels. Optional memo files can be fitted. These are in the form of small chips which are inserted into slots located beneath a removable cover on the front panel just below the keypad. Each memofile contains a maximum of 512 positions, resulting in a possible total memory capacity in the Satellit 700 of a staggering 2048 channels! And that figure excludes the 96 position ROM table! A special tool is provided to assist with the insertion and removal of the chips.

Recalling data stored in the additional memo files is easy. The number of the file is entered (1 to 4), followed by a dot and then pressing the MEMORY/FILE key. It is then possible to page through the stored data using the MEMORY SCAN and MEMO AF keys. A copy function allows data in the memo files to be copied to blank chips which will allow the circulation of frequency data between users of the Grundig Satellit 700 and any compatible equipment that may be introduced in the future.

Two clocks are available in the receiver, allowing one to be set to UTC (GMT), the other to local time. Switching between the two is simply a matter of pressing the TIME I/II key on the front panel. The clock is always shown on the data monitor, irrespective of whether the set is switched on or off, and changing from clock I to clock II is also possible when the receiver is off.

Two independent switch-on and switch-off times can be programmed and each may be allocated to a different stored frequency. This allows for an alarm time function, if desired, to wake you up in the morning, or for unattended recording. Alternatively, the first on-time may be used to start the set up to listen to one station and the second on-time could be used to change the frequency, perhaps to a news bulletin on a different station, when you are listening to the first station. The timer functions always relate to the time clock selected (either I or II) and shown in the data monitor.

If you have a tape recorder with remote control start and stop facilities, you can record directly from the Satellit 700 using the timer facilities by connecting the remote switching output on the receiver to the tape recorder's remote plug. The audio output should be connected via the line out jacks to the line input on the recorder.

Using the Set

Despite the complexities of the receiver, it is remarkably straightforward to operate. Tuning to frequencies, either by direct entry or manually, is easy, scanning has been well thought out unlike some sets which automatically scan at a tremendously rapid rate, the Satellit 700 stops for about 1 second on each broadcast frequency giving the user sufficient time to decide whether or not to stop the scanning function.

The memory facilities are most impressive. The ROM table of 96 pre-programmed stations and their frequencies is reasonably accurate for the main broadcasters such as BBC World Service, Radio France International and Deutsche Welle. The Radio Moscow channels are less useful and those of Radio Japan do not reflect the recently inaugurated relays from the BBC Skelton transmitters. Presumably, Grundig will be updating the ROM table in the factory on a regular basis to overcome these shortcomings.

Storing and recalling stations programmed in the memo files is straightforward and the ability to store station names is a highly useful feature. The test model which I have been using had one memo file programmed by Siebel Verlag, publishers of radio books and magazines in Germany, and this had the main frequencies of 61 stations from Radio Tirana, Albania to the Voice of Vietnam stored.

The operation of the synchronous detector was less satisfactory. A very low level, but nonetheless discernable, tone was added to the audio when the detector was selected. The switch from lower sideband to upper sideband did not occur directly on channel, occurring around 300Hz below the nominal frequency. In practice, the detector did assist improving audibility of weaker signals, but did not improve strong signals very much. The provision of RDS on a portable set is very welcome and the test mode is an interesting addition, particularly for monitoring RDS quality and seeing how RDS signals of different stations from the same site (for example, the BBC site at Wrotham in Kent) varies at the same receiving location within a matter of moments.

Testing the Set

We have been able to test the performance of the Satellit 700. Selectivity on the narrow position shows 59dB down at + 5kHz and >70dB down at +10kHz, a good performance whilst on the wide setting results give 20dB down at +5kHz and >70dB down at +10kHz, which is fairly good performance.

Sensitivity using the 'AM wide' setting has been assessed as between around -89dBm to -94dBm for 15dB S+N/N ratio, according to frequency. This can be considered to be a good result.

Strong signal handling has 1dB gain compression occurring at an input level of -17dBm, equivalent to fairly good performance.

Image rejection is good, with between 60 and 91dB depending on frequency. a.g.c. performs well, with a change in r.f. input level of 93dB producing an alteration in the level of audio output of only about 1.5dB.

Overall Conclusions

The Grundig Satellit 700 is a well designed receiver, pleasing to look at and easy to operate. Its performance across the h.f. bands is excellent, with good sensitivity, selectivity and image rejection.

Equipped with a high number of memories as standard, and upgradable to an almost unbelievable figure of more than 2000, the receiver is the best equipped on the market in terms of frequency storage.

The sound quality through the internal loudspeaker is excellent and the ability to connect external loudspeakers or wire the output to a hi-fi system through the line outputs offers even further flexibility.

RDS and stereo for f.m. listening are further bonuses and add to the all round capabilities of the set. The only downside would seem to be the somewhat disappointing performance of the synchronous detector, although this may be a fault which is corrected by the Grundig engineers before too long.

The Grundig Satellit 700 can be recommended as a good set for the enthusiast, whether DXer or short wave listener and it could serve as a useful addition to the domestic hi-fi system with its f.m. capabilities. However, the set retails at around £350.00 in the UK, so it will be a sizeable investment, but one which should offer a return over many years of use.

My thanks to Grundig International Ltd in Rugby and to Grundig Gmbh, Germany for the loan of the receiver.

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Super low loss cable – essential for optimum performance with wideband UHF scanners and receivers. Tough weather resistant and very flexible. The cable is good for frequencies up to 3GHz.

Model 5D (8.1mm).....56p per metre
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NOTE:- we recommend 5D for use with most scanners.

BEARCAT 50XLT

Popular beginners model!
★ 10 channel programmable
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★ Ideal marine monitoring.....**£99.95**

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Modelled on the ever-popular 200XLT but with only 100 channel memory capability and top frequency of 512MHz.....**£184.00**

All Bearcat range backed up by full in-house servicing facilities.

BEARCAT 200XLT

200XLT HANDHELD SCANNER

Still one of the easiest to use, and the most reliable scanners on the market, easy to program, sensitive receiver.
★ 200 memories
★ 66-88, 118-174, 406-512, 806-956MHz
★ UK charger/nicad pack supplied.....**£220.00**

BEARCAT 760XLT

A mobile/desktop version of the 200XLT above but with 100 memories. Supplied complete with mains adapter

SPECIAL PRICE.....**£194**

SONY

As a Sony Shortwave Centre we stock the complete range of Sony Shortwave products - here is a selection of the popular models.

ICF2001D

A full coverage shortwave, VHF, and airband radio (150kHz to 136MHz). Receives AM,FM, and SSB.....**£299**

SW77

One of the new additions to the Sony range,the SW77 covers 150kHz to 30MHz plus76-108MHz. With a rotory tuning dial,125 scan memories, reception of AM, FM, USB, LSB, CW, tape record facility, this is a superb all rounder.....**£349**

SW1E

Pocket shortwave plus VHF radio supplied with headphones, case and shortwave guide. This model won't hurt your pocket.!.....**£149**

SW7600

One of Sony's most popular VHF and Shortwave radios, 76-108MHz FM,150kHz - 30MHz Shortwave receives AM, FM, SSB.....Well Rated.!.....**£149**

AIR 7

Very popular, sensitive Airband handheld radio - lovely audio quality & large easy to use key board.....**£229**

NEW PORTABLE SONY SW55 MULTIBAND RADIO

Technically the best that Sony have come up with yet! Stable enough for FAX, yet easy enough to tune on SSB.
A dual-conversion receiver with excellent results, the SW55 is a real winner.
★ 150kHz-30MHz, 76-108MHz, all mode inc. SSB
★ 125 multi-function memories inc. world time clock/alarm
★ 4-way digital tuning inc. scan/manual/direct access

How do they get it all in? – Call now or come and see for yourself! **£249**

AN1

An external active antenna with built-in pre-amp, covers 150kHz - 30MHz. Fully portable with easy to mount fixing brackets.....**£57.95**

AN3

Active antenno for Aircraft and VHF reception, suitable for Sony Air 7 and others.....**£54**

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NEVADA

MS1000 BASE/MOBILE SCANNER

MOBILE VERSION OF THE HP2000 HANDHELD BUT WITH SEVERAL ADDITIONS:-

★ Switchable audio squelch
★ Tape recorder output socket
★ Automatic - signal operated tape recorder switching
★ All metal case for improved EMC compatibility
★ Receives:- 500kHz - 600MHz, 805 - 1300MHz.

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Supplied with mains power supply.

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HUGE STOCKS - FAST DELIVERY - PERSONAL SERVICE

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LOW NOISE PRE-AMPLIFIERS

These new pre-amplifiers are a must for the scanner enthusiast and will allow reception of signals that were inaudible without them.

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- ★ 25-2100MHz
- ★ Low noise GaAs FET
- ★ Selectable filters for optimum performance
- ★ Variable gain/attenuation control

£69.95

MODEL M100

Same specification as the M75 above but with full RF switching. May be used with transceivers of up to 5 watts RF output Ideal for the latest TwinBonders **£79.95**

TWO-WAY REMOTE MASTHEAD SWITCH

Uses one coax feeder to the masthead and remotely switches between 2 antennas with this unit. Very low loss up to1.3GHz. Uses Greenpar N type connectors **£44.95**

JIM PSU101 MK IV

A combined desk stand and power supply/charger for handheld scanners. Suitable for most popular models. Special versions now available please call for more details **£29.50**

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Desktop stand for handheld scanners **£9.95**

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Mobile holder for use with handheld scanners in the car **£6.95**

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NEW

NEVADA SCANMASTER (500 kHz - 1500MHz)

New high quality wide band receiving antenna uses fibre glass/stainless steel, with 4 small radials. 'N' type connector. Length 1.1 metres **£39.95**

WB1300 DISCONE (25-1300MHz)

Stainless steel top of the range 'N' type connector. Complete with short mounting pole and clamps "8 elements with vertical whip" – complete with short mounting pole and clamps etc etc. Best value at **£49.00**

MICRO-SCAN (180-1300MHz)

New low cost ground plane antenna **£12.00**

SKYBAND (25-1300MHz)

Stainless steel economy wideband Discone recommended – bargain price only **£24.00**

LOG PERIODIC BEAM (105 - 1300MHz)

20-element w/b beam - transmits on VHF/UHF amateur bands. 12dB fwd. gain. **£135.00**

DIAMOND D707 (500kHz - 1500MHz)

A base ant. with 20dB pre-amp 3.5ft long fibregloss. Requires 12V DC supply. **£99.00**

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Mobile version of the D707. **£69.00**

MALDOL MH1300 (500kHz - 1500MHz)

High gain wideband active mobile scanning ant. with pre-amp. Suitable for use with magnetic or outer mount. **£69.95**

ICOM

We carry a varied selection of the Icom range. However should you want something which is not in stock PAUL can get most things within 24 hours! (subject to availability). Here is just a small selection of their vast range!

IC R7100

Covers 25 - 2000MHz. Includes 900 memory channels with all mode capability. Five different scan options and an automatic record facility, what more you ask? Full brochure available. Special offer **£999**

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Covers 100kHz to 30MHz on the HF Bands and offers all mode reception (FM, with the optional board) Easy to use and idealy suited to the new comer. A full 99 memory channels with scan facility and a 10dB pre-amp fitted as standard **£589**

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Icom's most popular pocket-sized wideband scanner Frequency from 150kHz to 1300MHz with 100 programmable memories. AM, FM and WFM Modes. Sleep timer and clock facility Optional NiCods, carry cases, and fast chargers are available. **NEW LOW PRICE** **£329**

IC R100

Mobile or base extra wideband scanning receiver covering 500kHz to 1.8GHz with 100 memory channels and receives AM, FM & WFM Modes **£475**

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Shortwave receiver covering all the major shortwave broadcast bands **SPECIAL PRICE** **£49.95**

KENWOOD

R2000 RECEIVER

A good 'Middle of The Road' Receiver giving general coverage receive from 150kHz to 30MHz. Built in clock and timer facility. Ten user programmable memories Optional VHF Converter (Secondhand models usually available) **£499**

R5000 RECEIVER

Based on the receive section of the TS440S HF Transceiver both in looks and design this model covers 100kHz to 30MHz all mode, 100 memories and facility for optional filtering **RECOMMENDED** **£ CALL**

SHORTWAVE RECEIVERS

LOWE HF-225

Receiver (30kHz - 30MHz) Optional extras inc FM/AM detector, Ni-cads, Speaker, Case & Active Ant. Long standing favourite. Quality filtering included. **£439.00**

LOWE HF-150

Receiver Economy model but with an excellent set of **EARS'**. LCD display. Portable or Mains Power **£329.00**

NRD-535

Japanese top of the range general coverage receiver, 0.1 - 30MHz Lots of Options available **£1115**

DRAKE R8E

Don't let its looks fool you – this is a top-class receiver direct from the States and a company known for its quality and reliability. 100kHz-30MHz supplied as standard (no hidden extras) with all filters and syncranas detector. Recent reviews agree – the performance of the R8E is second to none and still under £1000.00! Only **£995**

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R8 VHF CONVERTER

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Improves audio reproduction **£49.95**

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Drake software now in stock (for IBM PCs and clones) **£59.95**

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SANGEAN ATS803A

Full coverage shortwave receiver with AM/FM and SSB reception, with many features and good sensitivity filtering. This has became one of our most popular low cost radios. SPECIAL OFFER THIS MONTH: Free post and packing. **109.95**

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Multi-band Radio. This radio will appeal to both Aircraft Enthusiasts and the Marine Monitors. The multi-band 'jumba' radio has almost everything you need to monitor these bands. LW, MW, & SW plus the Marine and Aircraft Bands... Good Starter! **£69.95**

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Bearcat 200XLT. Old favourite easy to use with 900MHz and nicad **£140.00**

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Fairmate HP100, HP200 & HP2000,
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Call us now – even if we haven't listed your radio, for what we know to be unbeatable P/X deals.

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Sony ICF-SW55

Portable Receiver

High specification portable receivers are always popular, especially when they're produced by Sony. Mike Richards reviews the new Sony ICF-SW55.

The Sony ICF-SW55 is a very comprehensive portable featuring continuous coverage from 150kHz through to 29.999MHz. There is also full coverage of the v.h.f. broadcast band from 87.5-108MHz. This wide range is supplemented with a.m., f.m. and s.s.b. reception mode, make the ICF-SW55 potentially attractive to a wide range of listeners.

First Impressions

At first sight, the ICF-SW55 is a very impressive piece of kit - bristling with buttons and dominated by a large display. One particularly unusual feature is the speaker system. Instead of having a conventional speaker grille on the front panel, there is a slot at the top of the panel. The 77mm speaker is buried within the receiver and the sound ducted up to the slot on the front panel. Despite this unusual system, the resultant sound quality was suprisingly good.

One of the most attractive features of the ICF-SW55 was the very large liquid crystal display unit. This was used to convey all the key operational parameters including frequency, memory, mode, time and signal strength. The contrast was not adjustable, but the preset value proved to be an excellent compromise.

Although the case had been carefully sculptured to ease the handling, the ICF-SW55 was surprisingly heavy. The review model weighed in at around 900g. Throughout the review period I was fearful of dropping it, as I'm sure the weight would have caused the plastics case to shatter. By way of a safeguard, the ICF-SW55 was fitted with a substantial wrist strap. When using the unit on a desk or table, there was a handly flap on the rear panel that unfolded to position the receiver at a convenient 30° viewing angle. This proved to be ideal for most lighting conditions.

Despite the busy front panel layout, I found the controls to be well positioned and logically marked. The test of this is to see just how many features you can use without reference to the manual. I found that I was able to access a good 90% of the features very quickly indeed. Although this may sound a rather petty test, there is a law somewhere that says that the ability to find the manual is inversely proportion to the need to find it! A logical layout, such as that found on the Sony, helps the listener to remember how to use the more obscure features. This clear marking was enhanced by using different shades of grey to group the functionality of the buttons. The only rotary control was the recessed 33mm tuning knob. As you would expect, this was used to manually fine tune stations or search for new ones.

As is common with all modern portables, the Sony featured built-in antennas capable of handling the entire frequency range. Medium and long wave bands were handled by a standard ferrite bar antenna, whilst the remaining bands used a very neat telescopic unit that retracted completely into the case. This virtually eliminated the risk of accidentally catching and bending the antenna - In my experience the inevitable fate of most telescopic antennas!

The optional external connections to the ICF-SW55 were accessed via a neatly recessed side panel. In addition to the standard power and headphone jacks there were a useful pair of 3.5mm jacks for connecting a tape recorder. Whilst one of these carried the audio signal, the other provided a switched output that was controlled by the internal timers. This made automatic recording of radio programmes a sheer delight. For those wishing to use an external antenna, there was another 3.5mm socket and a three-way sensitivity switch. This was maked DX/NORM/LOCAL and provided a useful sensitivity adjustment that I'll cover in detail later.

Tuning Options

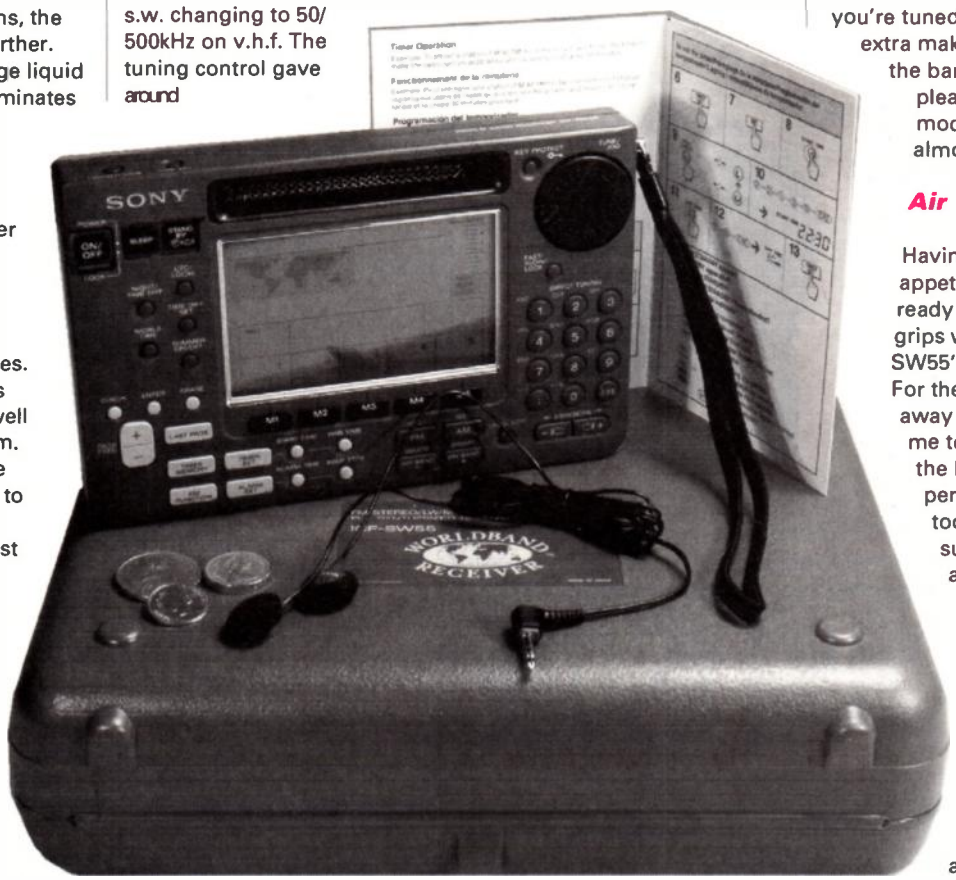
One of the most significant developments to reach the short wave listener over recent years has been the extensive use of digital tuning systems. With a digital frequency display a lot of the guesswork is taken out of station identity. The system has other spin-offs, primarily in the form of station memories. It's in this area that the ICF-SW55 really excels. Whilst many receivers simply store the stations in a list of memory locations, the Sony goes one step further. The secret is in the large liquid crystal display that dominates the front panel. The bottom section of this unit is dedicated for use by the station memory system. Rather than providing a straightforward 125 memories, these have been grouped into 25 groups of five memories. Sony call these groups 'pages', which fits in well with the display system. The very bottom of the display is numbered 1 to 5, representing the memory number, whilst the line immediately above shows the associated page number. To the right of the page is a box that the user can program to hold an eight-character name for the memory page. It's this ability to label the pages with your own text that completely eliminates the need to hold any paper records. As if all this wasn't enough, the Sony puts a box around each memory number that has a stored frequency. This means that you can see at a glance how many free memories you have on any page.

Selecting a station from memory is just a question of using the PAGE FEED key to select the page and pressing the 'soft' key immediately below the memory number. Once the memory has been selected, an arrow appears under the appropriate number. As the ICF-SW55, like many other receivers, stores the mode as well as the frequency, this is also indicated on the display. I found this systems to be by far the most effective I've come across on any receiver system and a pleasure to use.

Having described the memories, I ought to tell you about the manual tuning options. The Sony is very well endowed and features no fewer than three options. The most straightforward uses the rotary control on the front panel. This can be set to tune at two different rates which were 100Hz or 1kHz on s.w. changing to 50/500kHz on v.h.f. The tuning control gave around twenty steps per turn, which proved to be a good compromise. The small switch that set the tuning rate could also be used to lock the tuning knob. This was useful in preventing accidental frequency changes. One particularly ueful point about all the manual tuning options was that they were active even when using the memory system. This meant that you could fine tune a memory station to minimise interference without having to switch from memory to manual.

Searching

The second method of manual tuning was to use the STEP/SCAN buttons. When pressed singly they incremented or decremented the frequency in preset steps. These were 3kHz on l.w., 9 or 10kHz on m.w., 5kHz on s.w. and 50kHz on v.h.f. If either button was held depressed, the receiver entered its scan mode, searching up or down in frequency until it found a signal that exceeded its preset threshold. Whilst this was not a lot of good on busy short wave bands, it was very effective on quieter bands.



The final, direct entry, mode has become a standard feature on many receivers. The Sony implementation was very simple - requiring the listener to enter the frequency, in kHz, followed by the EXE key. The logic used for interpreting the key entry was well thought out and made some intelligent guesses if an odd number was entered. For example if you entered 12 it would select 12MHz. Should you enter a number it couldn't handle such as 32, you were presented with a flashing message asking you to try again. An extension of the direct entry system was the a.m. band selection system. This enabled the listener to jump between s.w. broadcast bands with a single button press.

I can't pass on from the tuning options without mentioning the automatic mode selection system. As I mentioned at the beginning, the Sony is able to cover a.m., f.m., u.s.b. and l.s.b. To match these modes there is a switchable filter system featuring a narrow (3.2kHz) or wide (7.5kHz) receive filter. Just to keep life simple, the ICF-SW55 automatically selects the appropriate mode and filter for the frequency you're tuned to. This simple extra makes tuning around the bands a real pleasure and cuts mode switching almost to zero.

Air Test

Having whetted my appetite, I was now ready to start getting to grips with the ICF-SW55's performance. For the first test I took it away on holiday with me to Menorca. To get the best performance, I also took along the supplied wire antenna. This proved to be great for the traveller as it could be draped over a balcony or curtain rail and then clipped to the telescopic antenna. It also

S.R.P. TRADING

SKY SCAN
Desk Top Antenna Model Desk 1300

Built and designed for use with scanners. Coverge: 25 to 1300MHz. Total height – 36ins – 9ins at widest point. Comes complete with 4 metres of RG58 coax cable and BNC connector fitted. Ideal indoor – high performance antenna and can also be used as a car antenna when your car is static. REMEMBER YOUR SCANNER IS ONLY AS GOOD AS YOUR ANTENNA SYSTEM!

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SKY SCAN
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For improved performance, wide band reception, 25 to 1300MHz. Comes complete with protective rubber base, 4m RG.58 coax cable and BNC connector. Built and designed for use with scanners.

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SANGEAN
Portable SW Antenna

NEW

ANT 60

- Greatly improve reception power of portable shortwave receiver
- Easy hookup to snap onto telescoping rod antenna or plug into radio's external AM antenna jack extends to 7 metres (23 feet).
- Portable for indoors and outdoors.
- Suitable for all kinds of shortwave radios.

£14.99 FREE POST AND PACKING WITH THIS ISSUE ONLY

PART EXCHANGE WELCOME

YUPITERU
MVT 7000 HANDHELD

PROBABLY THE UK'S MOST POPULAR HANDHELD SCANNER!

- ★ Receives 8 to 1300 MHz 100kHz-1300MHz (at reduced sensitivity)
- ★ 200 Memory channels
- ★ Rotary or keypad freq. control
- ★ AM/FM/NFM
- ★ Large display with signal strength ..mete

EACH SET IS SUPPLIED COMPLETE WITH:- Full set of high power NiCads, AC charger, DC power lead and carry strap.....**£289**

MVT 8000 MOBILE/BASE

This new model is the mobile version of the popular MVT 7000 Handheld above.

- ★ Receives 8 to 1300MHz, 100kHz to 1300MHz (at reduced sensitivity)

THIS RADIO IS ESPECIALLY SENSITIVE AT UHF FREQS. Set is supplied with mains power unit.....**£299**

MVT 6000 MOBILE/BASE

An economy version of the new MVT 8000 above -housed in the same case.

- ★ Receives 25-550MHz, 800-1300MHz
- ★ 100 Memory channels

SPECIAL PRICE £199

AIRBAND RADIOS

This month we are pleased to introduce **THE WORLDS FIRST DEDICATED CIVIL/MILITARY AIRBAND RECEIVER, THE VT225.**

A powerful pocket scanner that leaves the competition standing. - A super sensitive set designed for optimum performance on the Civil/MilitaryAirbands.

- ★ Receives 108-142 MHz Civil Airband 222-391MHz Military Airband 149.5-160MHz Marine Band
- ★ 100 Memory channels
- ★ AM/FM on VHF
- ★ Priority channel function

EACH SET IS SUPPLIED COMPLETE WITH:- NiCads, earphone, carrying strap and mains charger.....**£229**

VT-125 UK CIVIL AIRBAND RECEIVER

Using the same technology as the VT-225, this set covers the full Civil Airband - hearing distant signals that are inaudible on some other scanners.

- ★ Covers 108-142MHz
- ★ 30 Direct entry memories
- ★ Search steps 25, 50, 100kHz SUPPLIED COMPLETE WITH NICADS AND UK CHARGER.....**£149**

FAIRMATE
HP2000

STILL ONE OF THE MOST POPULAR HANDHELD SCANNERS ON THE MARKET.

Over the last year the HP2000 has outsold almost all other models.

- ★ Continuous coverage from 500kHz to 1300MHz
- ★ 1000 channels of memory
- ★ Keypad or rotary control
- ★ AM, FM and WIDE FM modes
- ★ Search steps from 5 to 995kHz

EVERY SET COMES COMPLETE WITH:-

Full set of high power NiCads, 2 antennas, carrying case, earphone, DC cable, belt clip and strap, UK charger **£269**

MS1000 BASE/MOBILE SCANNER

MOBILE VERSION OF THE HP2000 HANDHELD BUT WITH SEVERAL ADDITIONS:-

- ★ Switchable audio squelch
- ★ Tape recorder output socket
- ★ Automatic - signal operated tape recorder switching
- ★ All metal case for improved EMC compatibility
- ★ Receives:- 500kHz - 600MHz, 805 - 1300MHz. Supplied with mains power supply.....**£229**

AOR SCANNERS
AR1500 HANDHELD

Covers 500kHz to 1300MHz receiving NFM, WFM, AM, and SSB. Supplied with a large selection of accessories including:-

- ★ Charger
- ★ Dry cell battery case
- ★ 5 mtr LW antenna
- ★ Ear piece
- ★ Soft case

NOW IN STOCK £279

AR2002 BASE/MOBILE

Receives 25 - 550MHz, 800 - 1300MHz, AM, FM, WFM. Super-sensitive receiver **£399**

AR2500 BASE/MOBILE

Receives 5-550MHz, 800-1300MHz AM, NBFM, WFM.1984 Memory Channels, Fast 36 CH/SEC Scan. Resolves SSB with BFO control.....**£399**

AR2800

- ★ Receives 500kHz - 600MHz, 800 - 1300MHz AM, FM, WFM. SSB capability with BFO.
- ★ 1000 Memory **£395**

SCANNERS

ALINCO DJ-X1 HANDHELD SCANNER

- ★ Covers 500kHz to 130MHz
- ★ AM/FM/WFM
- ★ 100 Memories
- ★ 3 Scanning speeds

PLEASE NOTE:-
ALINCO DO NOT INCLUDE BATTERIES AND CHARGER AT THIS PRICE.
.....**£249**

SRP Trading, Unit 20, Nash Works, Forge Lane, Belbroughton, Nr. Stourbridge, Worcs.
Tel: (0562) 730672. Fax: (0562) 731002

came in a handy mini-cable drum for easy storage. With the antenna erected, I set about tuning the bands to see what I could find. The first choice was the BBC World Service, so that I could keep in touch with the news back home. As these frequencies were already stored in memory, this exercise was extremely simple. In between swims, I spent time tuning around the bands to see what else could be heard. There was the usual selection of broadcast stations, so I turned to s.s.b. Here the Sony proved to be very effective at receiving a wide mix of signals from amateur to commercial s.s.b. utilities. The only anoying point was tuning characteristic of the v.f.o. Instead of a clean switch between each tuning step you could hear the v.f.o. sweep. Although this was just a slight annoyance on s.s.b., it's effect was more serious for the decoding enthusiast, but more on that later. One vital point for any s.s.b. receiver is its frequency stability. The Sony demonstrated excellent stability enabling the listener to tune to, say, an aeronautical frequency and remain in tune over very long periods. This stability combined with the high frequency accuracy make a strong combination. When using the rotary tuning knob I found it very difficult to tune quickly, as my finger kept slipping off the knob. What it really needed was a small dimple to retain a sensible grip. However, this was more of a niggle than a serious problem.

On my return from holiday I was keen to see how the ICF-SW55 would perform when using a decent long wire antenna. Once in the shack I connected my main antenna to the Sony and tuned around the broadcast bands. Running through the popular stations that I'd stored in memory, I was initially very pleased with the results. I was receiving the national stations from Canada, Denmark, Finland, India, Israel, Japan, etc. When I moved on to seek out a few of the weaker signals I found a high level of spurious signals. This was caused by front end overload of the receiver. The solution was to reduce the sensitivity using the a.m. sensitivity switch on the side panel. The two settings resulted in gain reductions of 10 and 20dB respectively. Although using this switch generally cured the overload problems it didn't alway provide a complete cure. With the review model I found that an external attenuator was more effective. This implied that the internal sensitivity adjustment was in the first r.f. stage rather than the antenna lead. An even better solution was to use a combined external antenna tuning unit and attenuator. Not only does this give the required attenuation, but the tuned circuits will attenuate any strong out-of-band signals and further reduce any interference.

As I have a particular interest in decoding data signals, I connected the ICF-SW55 to my Hoka Code 3 decoding system. Whilst wide (850Hz) signals could be resolved with few problems, narrow (170Hz) shifts were very tricky. This was mainly due to the rather coarse 100Hz tuning steps. However it was not helped by the response characteristics of the synthesiser. Listeners with a keen interest in narrow shift ARQ and RTTY signals would need a decoder with an adjustable centre frequency.

To finish off my performance report, I put the ICF-SW55 through its paces in the lab. The sensitivity was consistent throughout the various bands giving results of: 3µV a.m., 0.4µV s.s.b. and 20µV f.m. All these measurements were p.d. for 12dB SINAD. I also took the opportunity to measure the response of the narrow and wide filters. These proved to be very good indeed with a very steep slope. The 6 and 60dB bandwidths were:

Narrow - 3.2kHz (-6db) & 6.1kHz (-60dB)

Wide - 7.5kHz (-6dB) & 11.5kHz (-60dB)

The distortion suffered by the recovered audio is another important measure. The Sony turned in an excellent performance of 0.75% on a.m. and 0.7% f.m. This low distortion was backed-up by the excellent subjective performance.

Specification

Frequency Range:	150kHz - 29.999MHz 87.5 - 108MHz	
Intermediate Frequencies:	First:	55.845MHz
	Second:	455kHz
Antennas:	l.w./m.w.	Built-in ferrite bar
	s.w./f.m.	Telescopic antenna
Speaker:	77mm diameter	
Power Output:	400mW at 10% harmonic distortion	
Outputs:	Recording jack 245mV (-10dB) into 10kΩ Earphone jack (stereo 3.5mm) Four R6 batteries External 6V d.c. jack	
Power requirements:	6V d.c.	
Battery Life:	10 hours (f.m.) 7 hours (a.m.) based on four hours listening per day	
Dimensions:	194 x 127 x 39mm	
Weight:	900g	

Accessories Supplied: a.c. power adaptor; a.c. plug adaptor; Stereo earphones; System carrying case; Carring case; s.w. compact antenna; External antenna connector; *Wave Handbook*; *How to Catch the Waves*; Quick reference preset frequency list.

Sophisticated Timers

Sony have really gone to town in this area an provided a host of useful features. Starting with the clock, the system uses UTC as its reference. This means that the first task is to set the clock to the current time in UTC . Once this is completed you can enter the local off-set depending on where on the globe you happen to be. Setting this time was made really easy by clever use of the world map on the main display. All you did was press the TIMe DIFF button and swing the rotary tuning knob until the time band was over the country of your choice. This system was backed-up by the names of capital cities appearing on the main display. The standard one hour summer time correction can also be entered with a single key press. Once these basic time settings had been completed, you could choose to display either UTC or local time with a single button press. As if all this wasn't enough, you could use the tuning knob to mave the cursor across the map and find out the local time in any part of the world. There was also a button that highlighted all the areas of darkness. This proved to be a handy propagation aid for short wave reception.

With such a sophisticated clock it was no surprise to find that the ICF-SW55 boasted an impressive timer system. There were a total of five timer memories each of which could be set to start at any time and activate the receiver and accessories for up to 199 minutes. Just to make the systems really useful you were able to store the required station's frequency and mode with the timer. This enabled the listener to record transmissions from five different stations every day. This should be enough to satisfy the most enthusiastic of listeners.

Just to finish off the clock features there was an alarm that could be set to wake you up in a number of different ways.

Summary

There can be little doubt that the ICF-SW55 is an impressive receiver for the broadcast enthusiast. The memory and timer systems were exceptionally good and make the receiver a real pleasure to operate. On the down side, the rotary tuning knob could do with some attention. Although utility decoding was possible, the synthesiser characteristics combined with the overload problems made tuning rather tricky.

Overall then the ICF-SW55 will, I'm sure, prove to be extremely popular with broadcast listers.

The ICF-SW55 currently costs £249.99 and can be obtained from most Sony outlets. My thanks to Sony (UK) Ltd. for the loan of the review model. ■

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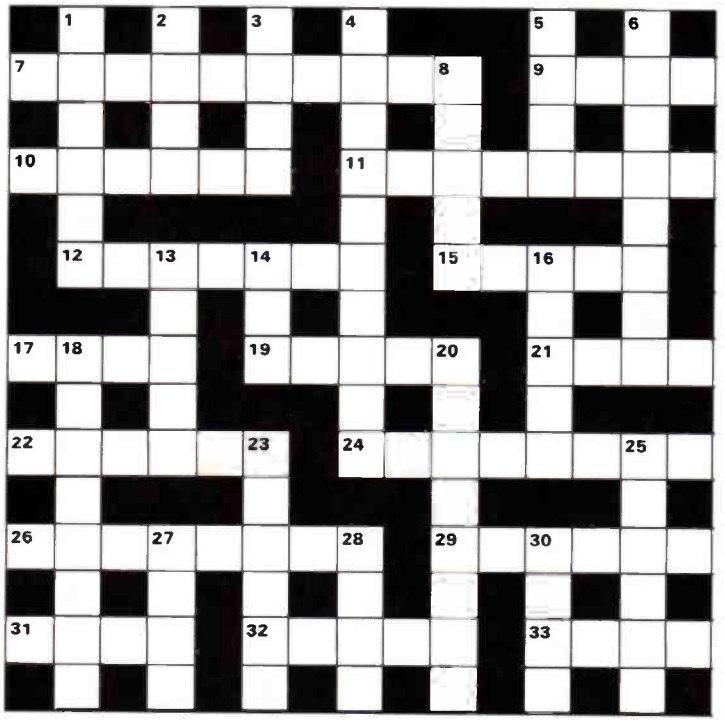
Don't forget to include your name and address with your entry!



CLUES ACROSS

7 Those parts of the radio spectrum that we usually listen to (5,5)
9 Man found hiding in balanced coax (4)
10 Form of dating, also found in some batteries (6)
11 Adjust or control, as in electricity for example (8)
12 Makers of the 803A receiver (7)
15 Regal, well known family (5)
17 Antenna support found on ship ? (4)
19 Ask searching questions or end of signal generator (5)
21 Sloping access found in other amplifier (4)
22 Reception in Iceland perhaps, or just a snowman (6)
24 Send signal (8)
26 Arrangement of transmission allowances, allocated f requencies (4-4)
29 Singing correct notes, receiver set to right frequency ? (2,4)
31 Garden (4)
32 Colour of some ex-military equipment, Popeye's girl (5)
33 Old radio maker, also George (4)

CLUES DOWN

1 For cutting through wool or metal (6)
2 Small screw, insect larvae (4)
3 Radio makers and Royal bird (4)
4 Final transmission ? (4,3,3)
5 A sign that you are licensed (4)
6 Bead capacitor material (8)
8 Phonetic S (5)
13 Musical sounds or written reminders (5)
14 Effective Radiated Power, initially (1,1,1)
16 Pre metric metres ? Not quite (5)
18 Where pilots can be found (8)
20 Could be doctor, or someone marking RAE papers (8)
23 Resistor colour for 4 (6)
25 Change into ions (6)
27 Heard on Radio Copenhagen, though unlikely to be a great one (4)
28 November, Alpha, India, Lima (4)
30 Valve, glue container or TV (4)

Season's Greetings From Grandad

By Leon Balen and David Leverett

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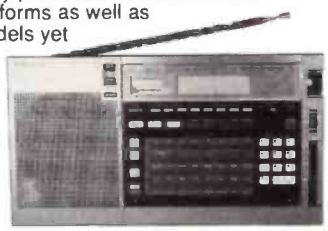

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Dimensions:	110 x 53 x 37mm
Weight:	370g
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A Simple Three-Valve Short Wave Receiver Part 3

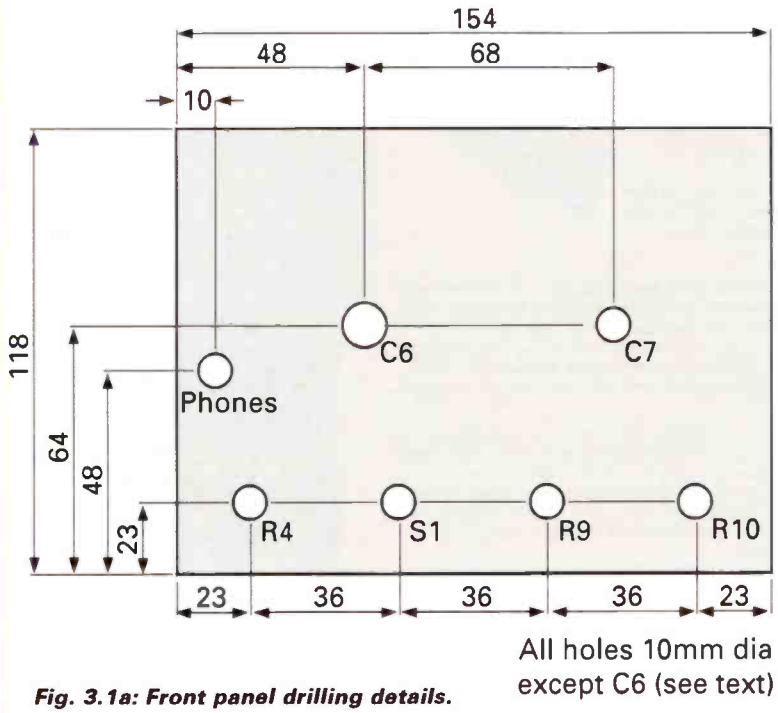
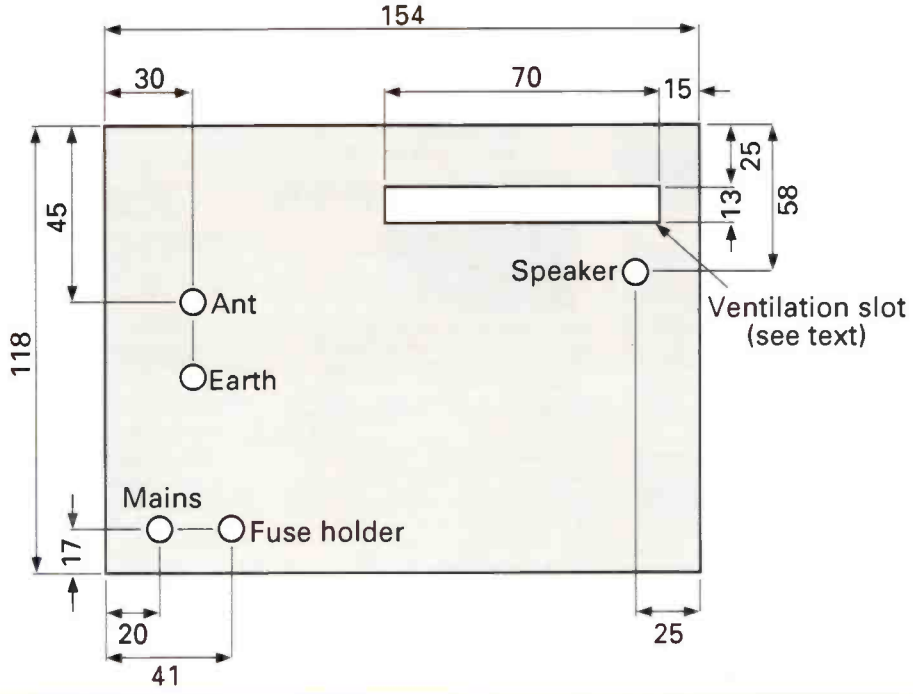


Fig. 3.1a: Front panel drilling details.

Fig. 3.1b: Back panel drilling details.



Brian Adkinson continues with the case and calibration of the simple three-valve receiver.

The case can be home-made, if you have the facilities, using suitable aluminium sheet. Otherwise, you will need to find a suitable metal case from suppliers such as Maplin Electronics. **Fig. 3.2** shows the front panel, top and bottom of the case opened up. From this you can get the positions of the main components. the tagboard is 'hung' from the top of the case using suitable spacers. The coils are installed last.

Note that the high frequency coils SW2 and SW3 are mounted closest to the wavechange switch and, therefore, should be wired in first. Also, it is important that all the regeneration (start) windings are at the bottom when fitting the coils to the chassis.

All the A (start) connections are wired together and taken to the earth lug on the main tuning capacitor. An 'earth bus' made from thick insulated wire can be extended down from the tuning cap lug to facilitate these connections.

When wiring in the coils all leads, particularly those from SW2 and SW3 should be kept as short and direct as possible. (As should all the tuned circuit leads including those going to the circuit board). Once wired to the switch, coils SW2 and SW3 will be found to fairly self supported, but for the sake of neatness can be glued to the bottom of the chassis using Superglue or Evo-stik, the latter being slower to dry but much less brittle should the coils be disturbed.

Next the MW and SWl. coils can be glued in and wired to the switch. Although it may look different to connect up the last two

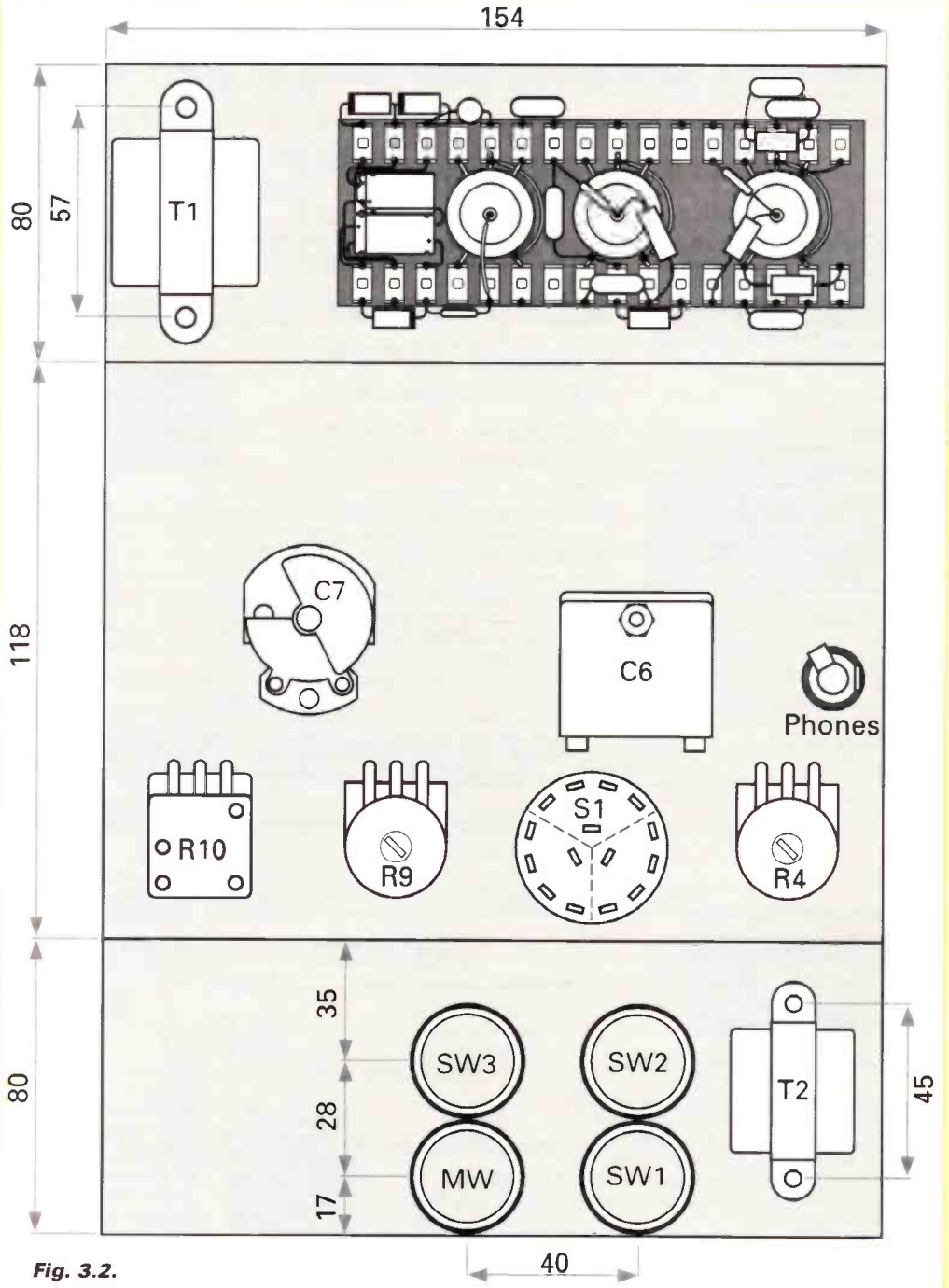


Fig. 3.2.

coils, because of the close proximity of the first two and their associated wiring, it will be found that this is not necessarily the case, as the soldering iron can squeeze between the other wires without fear of melting them. Careful forming of each wire to produce a central 'channel' between the coils will also help.

Safety

Although the 60V rail is unlikely to cause anyone lasting harm, (still be careful though), there are mains voltages present in this receiver. Therefore, I strongly recommend that all bare connections carrying mains, i.e. the mains transformer, the mains switch and the fuseholder are properly sleeved. I used heatshrink sleeving to give a tight fit.

Additionally a piece of card should be glued to the top of the mains transformer and bent over so that it completely covers the mains input area and similarly the fuseholder should be fitted with an insulating boot. The mains lead should be adequately insulated at the point of entry preferably using a proper restraining grommet.

Finally, should you elect to cut out a ventilation 'peep hole', ensure that any 'inquisitive little fingers' about cannot be poked through any of the holes.

Component Variations

Few of the component values are critical and considerable latitude can be applied in the choice of many of them, although the results obtained cannot be predicted quite so readily.

Different values of tuning capacitor can be used with an attendant alteration to frequency coverage. If you can obtain a 'surplus' capacitor I would recommend it as they come out about a third of the cost of a 'new' one. I used a 200+200pF with the two sections wired in parallel.

Different wire gauges from those specified can be used for the coils, but again, this will modify the frequency coverage.

If a number of substitutions are made together it would probably be quicker to adopt an empirical approach to 'realigning' the receiver. The coils, for example, can temporarily be wired directly to the circuit board and then the number of turns, 'tweaked' to get the required frequency coverage, before wiring them permanently to the wavechange switch.

I would stick to the specified mains transformer, but for the output transformer the more common 240V/6-0-6V type could be used, this giving a slightly lower audio output due to the poorer impedance match. This will not be a problem if you envisage a 'headphone only' version, there being a volume to spare for headphones.

It is not necessary to incorporate all four wavebands and coils just for

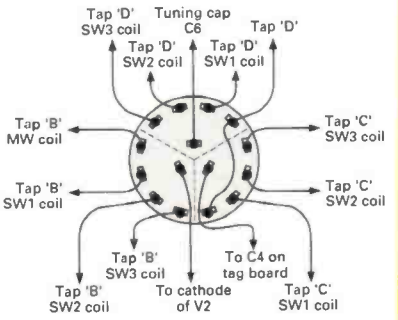


Fig. 3.3: Wavechange switching details.

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the frequency bands of interest could be wound thereby simplifying construction.

Testing and Calibration

The fun starts here. Before plugging in, check that the mains transformer and switch are wired correctly. A cold test across the mains input should read approximately 1kΩ. If all is well the receiver is ready for testing. Connect an antenna - 3m or so of wire will do, set RF GAIN to 'max', regeneration approximately two thirds clockwise and volume to maximum.

I would start on SW2 as this should be a lively band at almost anytime of day.

Switch on - I've got my fingers in my ears for you. This is the part with my projects where I always get really excited, there being an enormous sense of anticipation ....promtly followed by an enormous sense of disappointment. What you should get as you tune across the band is voice, music and other healthy signs that intelligent life lurks within. If by some absurd quirk of fate it really does do that - congratulations! Proceed directly to 'calibration' and leave the rest of us normal mortals to wade through the drudge of fault finding - Yuk.

So what have we got? Big Chief Sod's Law say 'radio speak with forked tongue' or even more encouragingly: Big Chief Sod's Law say - 'radio got no tongue at all'.

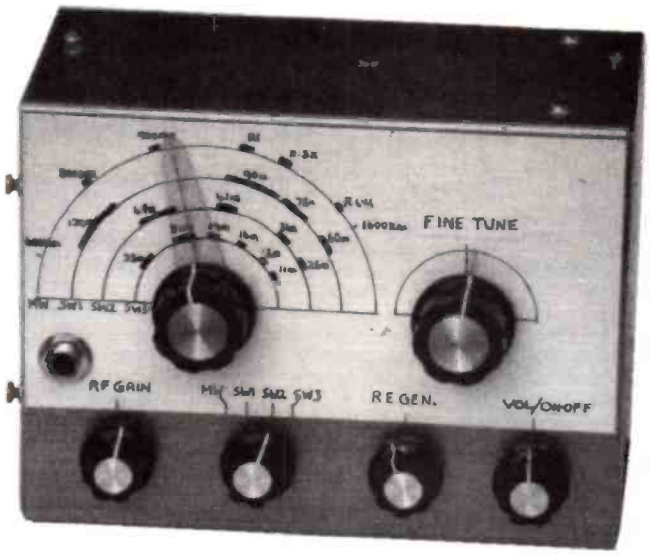
If the latter is the case, I suggest you check that the h.t. is present (50 to 70V approx), and the valve heaters are alight. If these are all right check the h.t. supply and earths and all connections to the circuit board. (This is one of the author's most frequent blunders, it's always something subtle and highly technical that's overlooked - like the mains connectors from the p.s.u. missing or nothing earthed). If it's still a 'non runner' check the wiring to the front panel controls and headphone socket or speaker if used. Finally the voltage chart **(Table 3.1)** could help isolate the area of trouble. Any deviations much greater than ±20% will probably indicate a problem.

It's still sitting there in silence sulking? You did put a shilling in the electric meter didn't you?

Assuming you are now definitely beyond the 'glum silence' stage and it's trying hard to utter its first words but failing to, instead whistling tunelessly, screeching like a startled chicken or issuing forth with rather 'rude' noises, check that all the decoupling capacitors C8, C12 and C21 are connected correctly. Also, make sure the regeneration control R9 is operating and that when it is fully anti-clockwise there is less than a couple of volts on the screen grid of V2.

Conversely, if it appears to receive stations normally, but the volume is weak check that C2, C3, C10 and C14 are wired in correctly.

Assuming the regeneration control is working as it should - pushing V2 into oscillation when rotated clockwise - and you have weak reception with C6 having little or no effect on tuning, look for open circuit coils or open circuits to the switch or C6.



The Dial

Once it is all working as it should be on all wavebands, the dial can be drawn and calibrated and the pointers fixed to their respective tuning capacitors.

Calibration should ideally be performed with the back of the case fitted and C7 set halfway, that is the vanes half meshed. There are two ways to calibrate a radio. One is with an r.f. signal generator and the other using another known and reasonably accurate, radio. If you are fortunate enough to own a generator or have access to one then this will provide the most expedient way of carrying out calibration.

In either case high accuracy is not required as only the band edges are being identified and marked on the scale. (The prototype only has the broadcast bands marked, i.e. 25m, 31m etc.)

Start by temporarily fixing the blank 'dial' in the correct position on the front panel. Then put the main pointer on the shaft of C6 and inserting a fine tip marker pen through suitably drilled holes in the pointer draw the four scales on the dial.

It will then be necessary to decide on which scale you want each band. Start on SW1 and using either a generator or the reference radio start to identify the required broadcast or amateur bands. The broadcast bands are easier to find initially when using another radio for calibration.

The most difficult band to identify will be the very first one. After that the others should fall into place with just occasional confirmation from the reference radio. Be careful though - double check with more than one station on the first few bands. some stations transmit simultaneously on more than one frequency, which can trick you into thinking you've identified, say, the 31m when in fact it's the 49m band.

I just drew little ticks at each band and then filled them in later with the dial card removed. When the calibration and other markings are complete, the dial can be glued onto the front panel with Evo Stik. Finally the two pointers can be glued to their respective shafts using Evo Stik.

Table 3.1.

Valve	Anode (V)	Screen Grid (V)	Cathode (V)
V1	56	34	0.25
V2	44	34	0
V3	65	63	2.1

Conditions:
No antenna; R4 & R9 set to mid-range; R10 set to minimum.
Voltages measured using 10MΩ input digital multimeter.

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In Part 4 we will deal with using the receiver.

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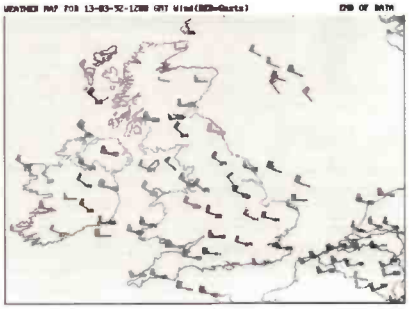

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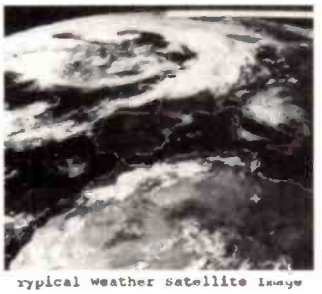

Typical Weather Satellite Image

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Is There Life After Marco Polo?

The BSB Marco Polo satellite is to be switched off at the end of the year. Dick Ganderton looks into converting redundant Ferguson SRB1 receivers.

It seems that the best technical systems do not always survive in the real world. It happened with Betamax in the video recording world and it is set to happen with satellite television when BSkyB turns off its D-MAC transmissions via the Marco Polo satellite on 31 December 1992.

For some months now, the radio enthusiast has been able to buy Ferguson SRB1 receivers at radio rallies across the country at ridiculously low prices along with Squarials and dishes. For an outlay of around £50 it is possible to install a working system to watch BSkyB programmes - but not for much longer.

So, what can be done with your seemingly useless BSB D-MAC system? Why not convert it to be able to receive transmissions from other satellites? There are a couple of suitable ones, TDF 1A at 19°W and TV SAT2 at 19.2°W. Both of these use D2-MAC, rather than the D-MAC which the Ferguson receiver is set up for. This poses no great problems as it is simply a matter of changing the ROM in the receiver - a relatively simple job and realigning the antenna. To be able to receive both satellites involves using two antennas with a suitable antenna switch to connect the appropriate one to the receiver input.

Polarisation

Marco Polo transmissions used right hand circular polarisation and if you have been using a Squarial antenna then it is best used for TDF 1A, as this also transmits with r.h.c.p. It is possible to convert a Squarial to left hand circular polarisation, but this entails a complete strip down of the unit. It is far easier to use the Ferguson SDB 35 350mm dish, which uses a Marconi l.n.b. Changing the polarisation of this antenna is simply a matter of removing a plastics cone from the l.n.b., rotating it 90° and replacing it.

How easy is it to convert from D-MAC to D2-MAC? To find out I converted a Ferguson SRB1 receiver using the kit being supplied by Satellite Surplus, who can also supply the receiver and antennas as well as any other bits and pieces you may require. I also decided to convert the set to receive PAL signals from the ASTRA satellite, again using the conversion kit from Satellite Surplus.

The conversion from D-MAC to D2-MAC was simple. The instructions cover the ROM change as well as giving details of changing the polarisation of a Squarial. The instructions also give full details of how to 'piggy-back' the new ROM onto the original one to retain the ablity to receive D-MAC signals. I opted to do this and found it relatively simple - some extra care is needed when soldering the two ROMs together, but otherwise it is not diffcult. I did find a problem when switching back to D-MAC from D2-MAC - the set just locked up and only turning off the mains at the wall socket unlocked it. I tried reducing the value of the 22Ω resistor in series with the reset switch to 15Ω and this helped the problem. However, I still have to switch the mains off occasionally. Of course, once January comes this will not be necessary!

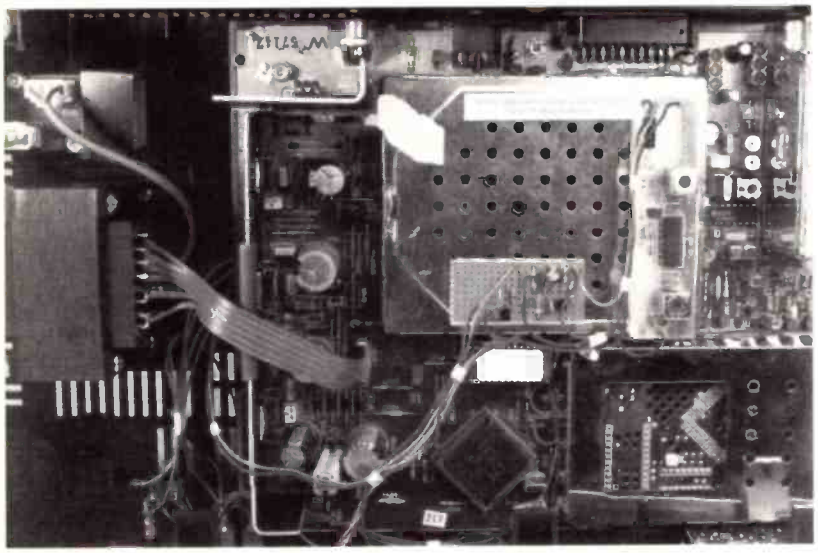
As for antennas I have decided to use one Squarial unmodified and a Ferguson dish with the polarisation changed for TV SAT2.

PAL Conversion

If you want to continue to watch BSkyB programmes you will have to either buy a completely new system or convert your Marco Polo receiver to receive PAL signals from the ASTRA satellite. This is a more complicated conversion than the D2-MAC one, entailing removal of the main p.c.b., cutting some tracks and soldering flexible leads to various pads on the p.c.b. You also have to build a simple circuit on Veroboard and put together a Cirkit TV Sound Demodulator kit.

As with the D2-MAC

The Ferguson SRB1 satellite receiver after conversion to receive D-MAC, D2-MAC and ASTRA PAL signals. The switches on the left of the front panel are the Reset push button, followed by the vertical/horizontal polarisation switch for ASTRA. The next switch along is the PAL/D-MAC selector switch followed by the D-MAC/D2-MAC switch. Labels identifying the switches and their functions have still to be fitted.



The Ferguson SRB1 receiver with the top removed to show the Satellite Surplus D2-MAC and PAL conversions. The two new circuit boards for the PAL conversion are mounted on top of the a.c.m. unit - the metal box with holes in the top - using Sticky Fixers. The Cirkit TV Sound Demodulator board is on the right with the PAL Clamp Board at the bottom of the a.c.m. Below the PAL Clamp Board are the piggybacked ROM chips to give either D-MAC or D2-MAC.

conversion the parts are supplied by Satellite Surplus. All you have to find is the insulated wire and a push-to-make switch for the Reset.

Measure Twice - Cut Once!

Full instructions are provided with the kit, but I found them to be rather difficult to follow. The various tracks and pads on the p.c.b. are referred to by their Ferguson references, but I couldn't find them on the board. Fortunately I had ordered a copy of the Ferguson SRB1 workshop manual from Satellite Surplus and this gave all the necessary details. The old addage of 'measure twice, cut once' is certainly needed here!

The two boards were simple to build - I understand that future kits will have a p.c.b. instead of using Veroboard - and once I had located the appropriate points to connect the wires to, the conversion was simple to finish. The instructions offered no information as to where to pick up a suitable 12V supply for the new boards. Again, the manual came to the rescue.

Alignment

With the conversion completed the set was switched to the D2-MAC ROM and PAL, the television receiver positioned so that it could be viewed from alongside the dish, which was temporarily mounted on a pole in the garden.

The receiver was set to 'block b1' and the display to 71 with horizontal polarisation. The dish was moved to get the best picture on the screen and the sound demodulator tuned as detailed in the instructions.

All I need now is persuade my neighbours to demolish their house so I can mount the dishes on my house, out of sight from the road!

Prices

Ferguson SRB1 £35; PAL Conversion Kit £20; D2-MAC Kit £20; Astra 900mm dish £25; Amstrad Blue Cap l.n.b. £30. Post & packing extra.

My thanks to Frank Martin of **Satellite Surplus** for supplying the bits and pieces for me to play with. ■

Equipment Suppliers

Satellite Surplus, Stirchley Lodge, Stirchley Village, Telford, Shropshire TF3 1DY. Tel: (0952) 598173.

Aerial Techniques, 11 Kent Road, Parkstone, Poole, Dorset BH12 2EH. Tel: (0202) 738232.

Useful Books

The Satellite Book. *A Complete Guide to Satellite TV Theory and Practice.* John Breeds. 280 pages. £27.00.

Satellite Television. *A Layman's Guide.* Peter Pearson. 73 pages. £1.00.

Satellite Television Installation Guide. *3rd Edition.* John Breeds. 56 pages. £11.95.

An Introduction to Satellite Television. *(BP195).* F.A. Wilson. 104 pages. £5.95.

Available from *SWM* Book Service, see pages 70 & 71.

Table 1

Satellite	Position	Polarisation	Frequencies (GHz)	Channel	Language
Marco Polo 1 BSB	31°W	D-MAC r.h.c.p.	11.785	Sky News	English
			11.862	Sky One	English
			11.938	Sky Sports	English
			12.015	Sky Movies	English
			12.092	The Movie Channel	English
TDF 1A	19°W	D2-MAC r.h.c.p.	11.727	Euromusique	French
			11.804	Canal Plus	French
			11.881	La Sept	French
			12.034	Antenna 2	French
TV SAT2	19.2°W	D2-MAC l.h.c.p.	11.747	RTL Plus	German
			11.747	RTL Plus	German
			11.823	SAT1	German
			11.900	3SAT	German
			12.054	Eins Plus	German

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DJX1	500kHz-1300MHz AM/FM

HF Receivers:

R5000	100kHz-30MHz All-mode (VHF OPT)
R71	100kHz-30MHz All-mode (FM OPT)
R72	30kHz-30MHz All-mode (FM OPT)
R2000	150kHz-30MHz All-mode (VHF OPT)
HF225	30kHz-30MHz All-mode (FM OPT)
HF150	30kHz-30MHz All-mode

VHF/UHF Receivers:

R7100	25MHz-2GHz All-mode
FRG9600	60MHz-905MHz All-mode

Airband Receivers:

R535	Signal airband receiver
WIN108	108MHz-142.1MHz AM
VT225	108MHz-142.1MHz, 149.5-160MHz, 222-391MHz AM/FM
VT125	108MHz-142MHz AM

Receiving Accessories:

D707	Diamond wideband 500kHz-1500MHz active base antenna
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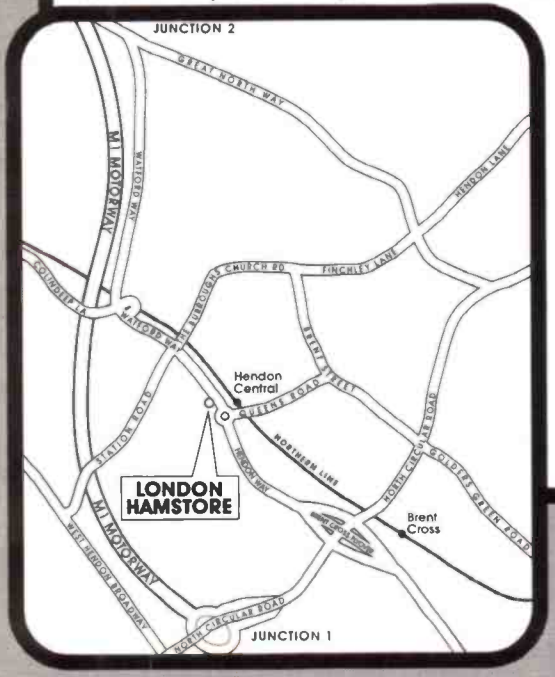

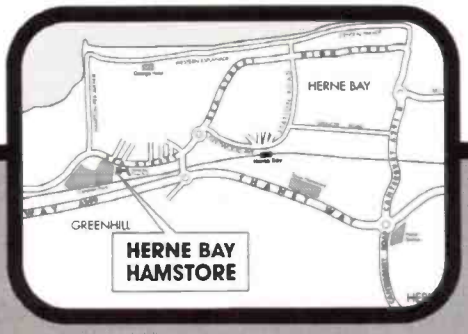

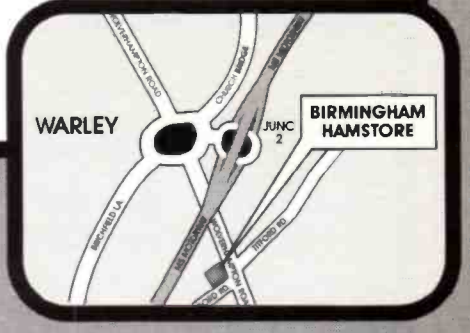

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"We find that the 88-108MHz band is chock-a-block with Italian stations when Sporadic-E is in the right direction and I have found that 87.5-88MHz and 106-108MHz to be the best segments to search", wrote **Richard Gosnell** (Swindon). He reports that pop-music is 'the commonest fare'. He also heard very active CB traffic from South America and the USA between 25 & 27MHz, via an 'F2' opening, on September 27.

Band II is of special interest to **P.R. Guruprasad** (Swartruggens, South Africa), **Fig. 1**, who uses a Sony ICF-7600DA receiver with its own rod antenna. One of his best days for DX was August 22 when he heard a variety of programmes, some with very strong signals, from Radios Jacaranda (93.9MHz), Mmabatho (103.3MHz), RSA (104.35MHz), possibly SeTswana (87.6MHz) and 2000 (97.25MHz), plus an unidentified commercial station, in Afrikaans, on 100.7 & 100.85.

"A lot of BBC local radio stations are carrying BBC World Service through the night," wrote **Simon Hamer** (New Radnor) and judging by reports and personal contacts with people the new national independent station Classic FM, on spots between 100 ane 102MHz, is very popular and winning many friends.

During September, **Dave Coggins** (Knutsford), using a Grundig Satellit 700 RDS receiver with a circular folded dipole antenna, found that he can hear BBC Radios Cumbria (south), Cymru, Derby, Humberside, Shropshire and York (central), plus the independents, City FM (Liverpool), Marcher (MFM) (Wrexham), Pulse FM (West Yorks) and Viking FM (Hull), each day, under even 'flat' conditions. Dave has shown what can be done with a good set and antenna. He purchased the dipole from a Tandy branch plus the coaxial cable and plug for just under £20 and he tells me that this receiver 'works very well indeed' on Band II and that 'it displays the name of any station that is using the Radio Data System (RDS)'.

Fig. 3.

	August						September																				
Beacon	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
DF0AAB			X			X	X			X	X			X								X								X
DK0TEN			X			X					X			X	X							X								
DL0IGI	X		X				X	X		X	X			X	X	X						X		X	X					
EA3JA	X	X	X	X		X	X			X	X		X	X	X			X				X		X				X		
HG5GEW			X			X	X			X	X		X	X	X															
IK1PCB			X	X			X			X				X				X									X			
IY4M														X				X				X								
KA1NSV								X																	X					
KD4EC																										X				X	
KF4MS																														X	
LA5TEN			X		X	X			X	X	X								X		X										
LU1FHH						X		X		X	X			X												X			X		X
LU2FFV						X		X		X																					
NX2O								X																							
OK0EG																										X					
OD5TEN																										X	X	X	X	X	
OH2TEN	X		X	X	X	X	X	X	X				X		X			X		X	X	X									
PT7BCN																									X						
PY2AMI					X	X		X		X															X	X	X	X		X	
SK2TEN			X			X			X	X				X	X						X										
SK5TEN	X		X	X	X	X		X	X	X	X									X	X	X									
SV3AQR																								X					X		X
VK8VF																											X				
ZD8HF																						X									
Z21ANB										X					X				X	X				X	X	X			X	X	X
5B4CY	X	X	X	X	X	X		X		X	X		X	X	X					X	X			X	X	X	X	X	X	X	X

Solar

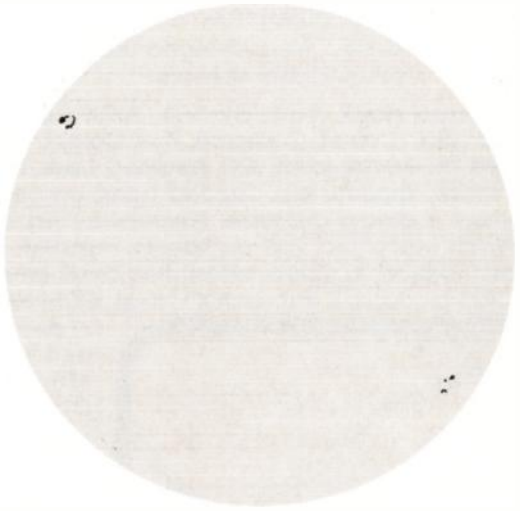
Early reports for September came from **Cmdr Henry Hatfield** (Sevenoaks) and **Patrick Moore** in Selsey. Henry, using his spectrohelioscope, identified 1 sunspot group with an active plage, 7 filaments and 7 small quiescent prominences on the sun at 1410 on the 5th. Patrick projected the sunspot group seen in **Fig. 2** on to his screen at 0800 on the 8th. Furthermore, on the 5th and 6th, Henry's radio telescopes recorded individual bursts of solar noise at 136 & 1297MHz.

Fred Pallant (Storrington) noted a very high background noise level at 1300 on the 17th no doubt due to activity from one or more of the 16 sunspots counted by **Ted Waring** (Bristol) on the previous day. Ted also projected 14 spots on the 4th.

Auroral

"Much magnetic and radio-aurora activity on September 9/10 following upon high solar radio wave emissions reported by Bruce Hardie on the 6th", wrote **Ron Livesey** (Edinburgh) in a 'Stop Press' section of his August report to the British Astronomical Association. Auroral reflected signals on the h.f. bands, coinciding with visual aurora, was reported by **Tony Hopwood** (Upton-on-Severn) from 1930 to 2015 on the 9th and around 2030 on the 30th. My thanks to **Ern Warwick** (Plymouth) for the reminder that the German propagation beacon DK0WCY, situated 20km South of the Danish border, often transmits auroral warnings on 10.144MHz. Not far away in Portland, **Ford White**, heard the warnings given on September 18 & 19.

Fig. 2.



Magnetic

The variety of magnetometers used by **Karl Lewis** (Saltash), Ron Livesey and **David Pettitt** (Carlisle), between them recorded storm conditions on August 21, 22 & 23. Tony Hopwood reported disturbed periods on September 5, 9, 10, 11, 15, 16, 25 & 28-30 with 'storms' on the 9th, 29th & 30th.

Propagation Beacons

As usual, my thanks are due to **Gordon Foote** (Didcot), Richard Gosnell, Henry Hatfield, **Ted Owen** (Maldon), Fred Pallant, Ted Waring and Ford White for their regular 28MHz beacon reports that enabled me to compile our monthly chart of beacons heard in the UK on those days indicated in **Fig. 3**. Reception reports of the new beacon signals from Greece (SV3AQR - 28.262MHz), Italy (IK1PCB - 28.180MHz) and Tripoli (OD5TEN - 28.180MHz) were distributed among each log, on the days marked.

Tropospheric

The daily changes in atmospheric pressure for the period August 26 to September 25 and other associated reports can be seen in my 'Television' column on page 40 of this issue.

Fig. 1: P.R. Guruprasad at his listening station.

ssb utility listening

Peter Rouse GU1DKD, Barcroft, Rohais de Bas, St Andrews, Guernsey, C.I.

How sorry I was to miss you at Leicester if you managed to make it for our SSB Utilities Clinic. Because of the lead time between the article being written and the actual publication I do not know how things went but I have no doubt that Graham Tanner managed to provide you with some helpful tips if you were able to get along. The reason I was not able to get along was that I have had a recurrence of the illness that put me into hospital for nearly six months last winter. The good news is that we have caught it nice and early and so my stay this time should be shorter and I am in fairly good health which means I should be able to keep the column going. Logs and mail to the usual address and 'her indoors' will pass them on.

My favourable comments about the magnetic long wire balun available from Lowe Electronics prompted several letters from readers. Some agreed with me but a number did not and one reader even claimed it made his problems worse. I think we need to get things into perspective and for instance one reader mistakenly thought the balun was going to turn his extremely basic portable receiver into a stunning performer. Let me also stress that this device is not an automatic antenna tuner or a substitute for an a.t.u. It should reduce losses caused by the mismatch between a long wire antenna and coaxial cable and it can also reduce noise. It does this in two ways.

Static

First, natural noise such as static is leaked away to ground. Naturally there will be times when there is little if any noticeable static. It copes with man made noise by allowing you to keep the antenna well away from your house or any other source of electrical noise. The alternative with a long wire is to bring the antenna right into the house which is inviting problems. I am currently using the balun with only about 10m of wire fed by around 10m of standard coaxial cable. If you are not happy with yoiur balun can I be so rude, in some instances and even suggest you read the instructions properly (this particularly applies to the gentleman who said it made it his loft antenna even noisier).

I think some users may be expecting this device to cure all their ills but I am afraid the gadget to do that has yet to be invented. I understand the QRM Eliminator from SEM (Isle of Man) is very good with some types of interference but cannot cope with TV timebase harmonics, so has anyone found anything that will cure this? I know a lot of readers who would like to eliminate or even reduce this problem. If you are new to the hobby then let me explain that this interference sounds a bit like a buzz saw and appears every few kilohertz as you tune up or down the band.

You Write

Chris Haig has heard what appears to be two new American military frequencies in use: 11.3630 and 12.245MHz. 11.3630MHz falls into one of the civilian aeronautical mobile allocations, but as far as I can tell is an unallocated channel and so this may have been a one-off useage. Chris answers an earlier query about ATC on 8.9130MHz (AFI-4) and says this appears to be a sub-sector operation of the traffic carried on 8.9030 with the African ground stations Bangui and Gbadolite being called. I will go along with that and add that it may even be a simple alternative frequency because a lot of stations (including ones in the Pacific area) use 8.9030 whereas 8.9130 was previously an unallocated channel. Chris says that Sydney ATC is now clear on 8.8670Mhz between 0500 and 0730 hours and between 0700 and 0730 Darwin can be heard on 6.556 and 11.396MHz. Monarch and Britannia are now using 11.3630MHz for company operations and American Trans Air (Amtram) are now sharing 13.3.3300 MHz with British Airways.

Simon Watt-Shudden confirms the Britannia and Monarch frequency and adds 6.5560MHz and says these frequencies were originally allocated to the now defunct Novair who also had 10.0210MHz although so far nothing has been heard on there. Simon also heard Addis Ababa on 11.3000MHz telling a Cathay Pacific flight to change to 7.5950MHz and he queries this frequency. He is right, it is not a recognised areonautical mobile allocation but for some reason it is a published frequency for Addis Centre and is regularly used.

Tony Duggan suggested in the October issue that Strategic Air Command (SAC) and Tactical Air Command appear to have merged and the callsigns Mystic Star and Giant Talk have been replaced by Scope Signal. However, **Keith Elgin** says Scope Signal is a new type of equipment installed at bases such as Croughton. It is recognised by a two tone blip at the end of each over and has the ability to remote connect to to unmanned relay stations for broadcasting strategic messages. Keith asks if anyone managed to log traffic from the recent transatlantic balloon race race but I heard nothing myself nor have any logs been submitted.

Yacht Race

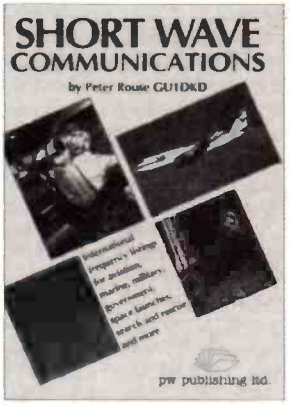
Keith also asks if there's any news of what frequencies are likely to be used during the round the world yacht race, which is now under way and should last for about 9 months. This is a tricky one.

I recently saw some of the yachts that would be competing and they were fitted out with the large and obvious domes that house Inmarsat antenas that allow ordinary telephone conversations to be made via satellite. However, I have no doubt that some traffic may well crop up on the usual marine channels and do not forget the British Telecom links available via Portishead. The yachts to listen-out for are: *British Steel II, Coopers & Lybrand, CU Assurance, Group 4 Securitas, Health Insured, Hofbrau, Interspray, Nuclear Electric, Rhone-poulenc* and *Pride of Teeside.*

Keith also managed to log one of the USN Blue Angels display team on 11.1760MHz with Croughton and rebroadcasts from the Shuttle *Endevour* on 14.2956MHz (WA3NAN) on September 13 & 20. **Paul H.**, amongst others confirms that the call sign 'QUID' is a USAF KC-135 tanker. In reply to another queery Paul also says that Canadian civilian flights that need to use h.f. use the military at Trenton, Halifax and Edmonton. Search and Rescue is handled by Halifax 5.718 and 6.693MHz.

Plug!

I have had a spate of letters lately asking for details of the current m.f. and h.f. marine channels. I am afraid I cannot oblige. The lists are far too long to publish in the magazine and the cost of printing individual lists would be prohibitive. However details are available in *Short Wave Communications* (see *SWM* Book Service on page 70 for full details), where you will also find transmission times for stations broadcasting weather forecasts, traffic lists and navigation warnings.



bandscan

Australia
Greg Baker

My radio based activities continue as summer gets underway here. I am working at the moment on an amateur radio log book computer program in BASIC for an amateur radio acquaintance. As well, I am putting together transceiver use course material to form part of an upcoming volunteer bushfire fighter training programme. We are operating at a fairly basic level but, let's face it, in an emergency it is crucial to have disciplined and effective radio communications techniques.

Australian Television International

An Australian Broadcasting Corporation (ABC) Asian-Pacific international television service was scheduled to kick off in November. The Federal government has thrown $A5.4m (over £2m depending on the vagaries of the money market) into the $A11m (over £4m) venture as a once only establishment grant and the ABC will fund the rest. Most ABC funding is from the Federal budget anyway because ABC radio and television and Radio Australia are commercial free. However, for this service the ABC will be able to accept commercial sponsorship of programmes following guidelines preserving editorial independence.

Although I have yet to confirm it, my information is that initially the service will be broadcast on a free to air basis. Later when a market has developed it will go out in encoded form for terrestrial retransmission from hotel, institutions and cable systems.

Australian Television International will use a transponder on the Indonesian Palapa B2P satellite fed from an uplink facility located in Darwin. The service will be provided to fifteen countries including Indonesia, Thailand, Malaysia, Phillipines, Cambodia, Vietnam, Taiwan, Southern China, Papua New Guinea, Singapore, Brunei, Darussalam and Hong Kong. ABC Chairman Mark Armstrong says that the service will allow the ABC to extend uniquely Australian perspectives to Australia's neighbours. Programme content will include news, current affairs, education, children's programmes, documentary, science, drama and sport. This column is written a little in advance so I have no information on the success or otherwise of the launch of the new service. I will report next time.

Third Mobile Telecommunications Licence

Australia currently has two mobile telephone licensees - the established Australian Telecom network and the more recent system being developed by Optus Communications. In line with a government policy to have a third operator, expressions of interest have been called and nine potential operators have rallied to the call. The licence is scheduled to go to the successful tenderer this month and operations should get underway in July 1993.

It remains to be seen whether that tight timetable is adhered to and whether Australia's 17 million people spread across nearly eight million square kilometres can actually support three licensees.

Overhaul of Spectrum Policy

Until the early 1980s Australian spectrum management was conducted under legislation framed in 1905. An Act of 1983 introduced long overdue improvements but the Australian government believes that the rapidly changing communications environment predicates a major overhaul of the legislation. The main thrust of the new legislation will be to introduce a mixed administrative/market system for spectrum use. Where possible the spectrum will be allocated within a market system which will include tradeable spectrum access rights. Licences will be sold by auction, tender or over-the-counter and licensees will be free to trade spectrum licences, mortgage licences and authorise third party use. Now where have I heard all that before?

National Transmission Agency

The National Transmission Agency (NTA) has been established to manage the Australian Commonwealth's network of radio and television transmitters which broadcast programmes for the ABC including Radio Australia and the Special Broadcasting Service (SBS) from 565 sites around Australia. According to Minister for Transport and Communications Senator Bob Collins the NTA was formed to introduce competitive tendering for the design, construction and maintenance of the network's infrastructure while still maintaining high standards. The major contractor for servicing the transmission facilities has been the Australian and Overseas Telecommunications Corporation, an amalgamation of Australia's Telecom and OTC. Senator Collins said that, "AOTC and its staff have done an excellent job over the years in helping to build one of the world's largest broadcasting transmission networks".

RADIO NEW ZEALAND INTERNATIONAL

New Zealand Print Disabled Radio

A snippet from the 'Shortwave Listening' column in Australia's *Amateur Radio Action* Magazine: New Zealand's Print Disabled radio operates on medium wave on 1.602MHz but also has two low powered short wave frequencies: ZL2XAL on 7.290MHz before 0600UTC, ZLXA on 3.935MHz for the New Zealand evening after 0600UTC.

WWCR Australian Content

Adam W Lock Sr International Program Director at WWCR World-Wide Christian Radio has written with some details of the Australian sourced program *Harvest Time*. Produced by Victoria-based Gordon Taylor 'Harvest Time' is broadcast by WWCR-Shortwave on Saturdays at 2115-2130UTC on 15.690MHz. WWCR-Shortwave operates out of Nashville Tennessee USA. WWCR-Shortwave are considering an Australian DX programme. I will keep you posted.

Other News

A reception report from **Dave Pearson** from Tolworth, Surbiton: Radio Australia on 13.758MHz between 1500-1600UTC on August 28. Dave says reception ranged from 5/9 to 8/9 using an AR-3000A with a longwire operating through a balun. And another from **Tony Brampton** Grangetown Middlesbrough: Radio Australia news bulletin from the Pacific Service transmitted from Melbourne on 21.725MHz at 1100UTC on September 22. Signals 44444 were SINPO. Later on the same day at 1730UTC the programme *Communicator* also from Radio Australia on 13.755MHz; signals 44445. Transmission ceased at 1755UTC on this frequency and transferred to 6010 kHz and 7260 kHz; the signals between 1800-1930UTC were 33333. Tony uses a Grundig Satellit 600 Professional.

Also from *Amateur Radio Action* is the information that the BBC World Service Newsdesk programme is relayed via Radio New Zealand's 100kW transmitter from 1100-1130UTC daily.

I welcome any news and comments. In particular I am interested in any s.w.l. information on Australian stations heard by *SWM* readers so I can chase up more details and interesting snippets from this end. My address is PO Box 208, Braidwood, N.S.W. 2622, Australia. For personal replies please send 2 IRCs.

satellite tv news

Roger Bunney, 33 Cherville Street, Romsey, Hants SO51 8FB

The tragic El-Al Jumbo crash onto a block of flats in Amsterdam, October 4, was initially covered in an SNG news capacity by the Dutch VTM crew though newsreel footage carried on the Visnews feed over Eutelsat II F1 12.52GHz in the evening comprised mainly of in-house RTL-4 material and newscaster. VTM later in the evening fed out live reports over Eutelsat II F3 16°E on their 12.54GHz (trdr 45) lease. The next day the VTM operation was more 'organised' with various reporters using the facility for reporting back into their own networks. An interesting note - slipping the field (frame) hold on the TV to reveal the field blanking pulse clearly shows an identification within the pulse, the VTM reads..'VTM SNG3'.

The French referendum (concerning the ERM) on September 20 caused an active flurry of satellite news feeds on various satellites across the sky. Eutelsat II F1 13°E was very active in Telecom band with reports to camera, interviews with 'experts' both inside buildings and externally. 'VTM-SNG1' was very active feeding live into the RTL-4 news.

The 2nd week of October produced on the 'hot bird' at 16°E a glorious PM5544 test card uplinking from Budapest with 'ANT. HUN' and 'HUN-TEM.2' identification, 11.59GHz horizontal from the Hungarian Satellite TV Service, the anticipated opening for a 3 hour daily transmission is early November which will extend to 8 hours.

An unusual testcard appeared on Intelsat 601, 27°W 11.65GHz vertical with 'Kanal Market' emblazened across the centre. At the time of writing the origin remains a mystery though possibly yet another Turkish programme upcoming!

Eutelsat II F4 at 7°E went into service on September 20/21 and at last the Greek/Cyprus programme feeds (RIK and ET-1) are of high technical quality requiring a 900mm dish as a minimum here in the UK for acceptable pictures and Middle East Broadcasting (MBC) celebrated its first birthday with a single candle in the centre of their test card!

Intelsat K at 21°W continues to provide high signal levels for Brightstar, carrying many programme feeds from the 'States into Europe, usually in 525-lines NTSC. An interesting bird to watch since often programmes are preceeded or followed with local 'Stateside test cards, programming etc. Very recently (October 2) an emotional programme insert was carried over K for Granada TV ex USA, the transmission ended with the KPLR-TV St. Louis test card.

The new Spanish HISPASAT satellite is now slotted at 31°W though no video has been seen during the periods I've checked. I am told that at present the Russian MIR space station is empty as no more informal transmissions have been seen at 10.835GHz.

SSVC and the BBC World Service TV have both been transmitting in the clear over Intelsat 601 for varying periods though mid October have resumed scrambling, the reason for the clear transmissions is not known.

There's always something going on in space!

Orbital News

First the press releases - from Eutelsat the advice as noted above that their series II F4 went into service at 7°E September 18. It's interesting to note that this bird has been modified - at the expense of slightly reduced footprint signal levels - to extend its coverage into the Russia's as far east as the Urals, the theory being of increased development in the Eastern Europe/USSR requiring improved communications. January 1st next will see the merging of Eurovision and Intervision which will increase TV/radio traffic further - Eutelsat I F5 will take much of the programme/news exchanges next year at 35°E. Eutelsat has also given the go-ahead for the Europesat 1 satellite, a direct broadcasting craft slotting at 19°W and opoerational from late 1994 offering 14 TV channels each running 110W, allowing the use of 300mm dishes (analogue PAL/SECAM) and 450mm (D2MAC 16:9). Switzerland, France and Germany will share capacity on this bird.

Tunisian TV should come on stream November 7 with up to 8 hours of programme daily in Arabic/French over Eutelsat II F3 16°E, together with stereo radio channels on 2 subcarriers. Check out 11.659GHz vertical! Worldnet, a USIA produced English language news service is downlinked over the Deutches Welle transponder on II F1 13°E 11.163GHz vertical during the 1200-1600CET period.

Intelsat have signed contracts for the construction of 2 x series VIII (801, 802) for delivery in Sept. 1995/January 1996 destined for Pacific Ocean service with increased C Band loading and higher powers. An additional series VII-A has also been ordered to provide both Ku and C Band capacity. Intelsat now has 19 operational satellites around the global arc.

The RTL-2 service intended to open late September will now appear November 28 airing over Superbeam trdr 21 horizontal (11.055GHz) on Eutelsat II F1 13°E, delay was caused by private TV legislation in Germany. There is talk of a Polish TV channel airing from late Spring 1993 based around a compilation of the terrestrial TVP network offerings including news, language will be Polish.

Mid August saw the start of the Asian Television Network (ATN) in the Hindi language out of New Delhi with approx 4 hours of programming nightly from 1930 local consisting of films and documentaries. It is hoped a 5 channel service will be aired by early 1993 which will rival the Star TV service from AsiaSat at 105°E. Star have just started a single 3 hour daily Hindi language service. ATN have leased facilities on a Gorizont bird at 90°E, which ensures that viewers have to decide to aim a (large C Band) dish at AsiaSat or at ATN's downlink more to the West.

NTL is providing technical facilities atop the Chrysalis TV facility in Camden Town, London to uplink the Turkish TV 'Kanal 6', a commercial service back into Turkey to avoid Turkish preventative legislation over commercial TV. (Shades of the Red Hot Dutch porn' channel over 13°E that is run by Uk company 'Continental TV' but uplinked out of Holland!)

Deutches Welle, the German International TV service is considering taking a transponder lease on Intelsat K 21°W to provide a service into South America. There's a new satellite earth station being constructed in Greece for the Hellenic Telecomms. group featuring an 18m diameter C Band dish and located at Nemea, a new name to look out for. And a company in nearby Israel has leased 2 Ku band transponders on the WSDRN (also known as ZSSRD-2) communications satellite at 16°W to provide direct 1 hop linking between Europe/Middle East and the Eastern US coast. This satellite was constructed for use in the MIR space station programme.

Look out for Espanol programming over Astra, SES have just signed contracts with a Spanish company for 2 transponders on Astra 1B and options for 2 more on 1C once launched early 1993. Initial programming will be a film channel and the other an educational (culture/science strands).

M-NET, a pay-TV channel launched an African wide C Band service in conjunction with an 11 hour chunk of BBC World TV Service from early September. Though a basic English language service, Sunday mornings will feature an Indian and Portuguese bias in programmes. The scrambled service downlinks from Intelsat 601 @ 27°W and the Deltas 9000 Plus decoder costs $22 monthly. The BBC have just started DAB tests (digital audio broadcasts) from the Olympus satellite initially for direct to home reception with a dish, thoughts are to provide this as a means of direct Broadcasting House to transmitter linking and bypassing established microwave and BT lines.

It looks as though the unused but brand new Telecom 2 satellite will soon be carrying up to 11 channels of programming using D2MAC Eurocrypt (16:9 format) in part and with SECAM-System for the other channels. Syster channels are Cine-Cinema; CineCinefil, Canal Plus, Canal J and Canal Jimmy. The D2 format will be used by Canal Plus and Cine-Cinema again, France 2 and a yet to be titled programme sourced by Canal Plus and Thomson (creators of D2MAC). Subscriptions are now on sale and a programme start is early 1993.

Another European programme originator - Filmnet have just bought into the NSAB, a Norwegian company that owns the Tele-X satellite. This could well allow the recently sold ex BSkyB Marco Polo 1 to be drifted from 31°W to 5°E alongside Tele-X and providing a Scandinavian 'hot spot' in the sky for several TV channels. This will allow Filmnet immediate access into many Scandinavian homes/cable systems - this could then encourage Filmnet to abandon its Astra transponder completely. This move will also lead to a struggle for film channel supremacy between Filmnet and the London based Scansat TV1000 as they fight for audiences.

Fig. 1: A business TV programme over the M Net service for Africa.

Fig. 2: RAISAT TV seen over the Olympus satellite 12.169GHz at 19°W.

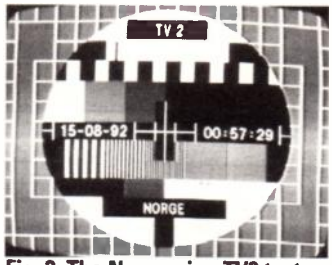


Fig. 3: The Norwegian TV2 test card on Intelsat 515 18°W - it's now scrambled!

Fig. 4: Happy Birthday MBC!

dxtv round-up

Ron Ham, Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

The final stages of the 1992 Sporadic-E season came for **John Woodcock** (Basingstoke) when he logged pictures of an athletics meeting from a Scandinavian country around midday on August 30, a news programme from Russia at 1000 on the 31st and a picture, 'coming and going', on Ch. R4 (85.25MHz) from an unknown source at 1220 on September 8. Incidentally, the sound allocation for Ch. R4 is in Band II on 91.75MHz and those of you with scanners may like to dedicate a memory button to this frequency.

During September **Bob Brooks** (Great Sutton) found some Sporadic-E when he logged pictures from Italy (RAI clock and news) and Norway (NRK) on the 1st, Czechoslovakia (CST clock-caption and ISR-P test-card), Romania (TVR1) and Spain (TVE) on the 2nd, Germany (ARD1) and Spain (cartoon) on the 14th, Germany (ARD clock-caption) on the 16th and unidentified signals on Chs. E3 (55.25MHz) and E4 (62.25MHz) on the 26th. Throughout the 1992 season Bob kept a special watch, with his camera on stand-by, for stations in the Commonwealth of Independent States (formerly USSR). He did very well, under fluctuating signal conditions, to photograph, a caption, **Fig. 1**, an announcer, **Fig. 2** and a news ident, **Fig. 3**, from the same station and two clocks with number '8' on one, **Fig. 4** and Crosnia, **Fig. 5**, on the other.

The coming winter months can offer some interesting, short life, openings so don't forget readers to keep an eye on Band I (48-68MHz), especially around Chs. E2 (48.25MHz) & R1 (49.75MHz) for these unpredictable events. Vision synchronising pulses, sounding like a variable buzzing, will be heard on scanners when stations appear on these frequencies. The associated sound is on 53.75 & 56.25MHz respectively.

Vintage Tuner

Only 15 years before the advent of the transistor and about 35 years before the arrival of the first u.h.f. scanning receivers, the armed forces had a very large, steel cased receiver to tune through the range of 300 to 650MHz. For posterity, I only preserved the tuning unit, which can be seen in **Fig. 6** with its centre screening cover removed. The latter is standing at the lower left. Note the gear train between the tuning control (right), the dial (centre) and the variable capacitors. The latter are housed in the local oscillator box (left) and the central r.f. and mixer unit, coupled by geared quadrants. Two of the three special NR88 (NAVY RECEIVING [type] 88) valves and the CS2A diode (centre picture) can be seen, horizontally mounted between two of the tuning capacitors in **Fig. 7**. The brass gearing behind the dial (upper left) and the inter-unit quadrants (left) are clearly visible.

Weather

"We are witnessing the onset of summer right now (still the nights are cool)", wrote **P.R. Guruprasad** (Swartruggens, South Africa) on September 2. Although his residence is 'surrounded by huge trees with lots thick/dense leaves' he was surprised to receive a news update and weather report, on August 24, from 'CCV', which normally requires a booster. At that time the minimum temperature in Durban was 13°C and the maximum, 22°C.

"Hopefully, before the end of the winter I shall have the WX station complete", wrote **Dave Coggins** (Knutsford) who is currently gathering a variety of components for this project. He already has a wind-speed program, written by a friend, on his Spectrum computer and finds it fascinating to watch the wind variations on the monitor.

I recorded 2.9in of rain during September compared with 2.56in for the month in 1991. This brings the total to 22.21in for the first 9 months of 1992 only 1.1in short of the same period last year. "Strange month, September", remarked **David Ashley** (Norwich) and continued, "Weather-wise, its been chilly one day and temperatures in the high 60s/low 70s the next". One storm that swept through Suffolk and Norfolk missed David's area (Acle) but Norwich, about 17km away, was hit by its full force.

"September has been another grim month for weather and DX, with 4 days of continuous fog from 27th to 30th", wrote **David Glenday** from Arbroath. But there was some compensation because he added, "At least the weather became settled enough for some weak tropospheric DX to come rolling in along with the fog". The slightly rounded atmospheric pressure readings for the period August 26 to September 25, **Fig.15**, were taken at noon and midnight from the barograph installed at my home in Sussex.

Tropospheric Openings

Bob Brooks found Band III (175-230MHz) open on September 16 & 17 when he identified pictures from France (Canal+), Germany (RTL) and Ireland (RTE) plus a few unidentified transmissions around Chs. E9 & E11.

Richard Gosnell received the Leeds/Stuttgart football match from Germany on Ch. E7 at 1839 on the 16th. **Andrew Jackson** (Birkenhead) told me, "The first I knew of the event was when I was watching RTE-1 in Band III. The signals got stronger and stronger as the night of the 16th wore on!". Although Andrew's Band III antenna was fixed in a westerly direction, he still received pictures from Germany (ARD1 & RTL+) on Ch. E7. He soon checked the u.h.f. bands and found pictures, in colour, on several channels from France (A2, FR3 & TF1), Germany (SWF3 & ZDF), Holland (NOS3), Ireland (RTE1 & Network 2) and Luxembourg (RTL). While the event was in progress, he connected the sound output of his D100 TV converter to a v.h.f. broadcast receiver and heard French programmes on Chs. 21 and 27. Next day, Andrew added Germany's HR3, Holland's NOS 2 & 3 and, to round off a successful couple of days, he again saw RTE1 from Truskmore.

Fig. 1: CIS.


Fig. 2: CIS.

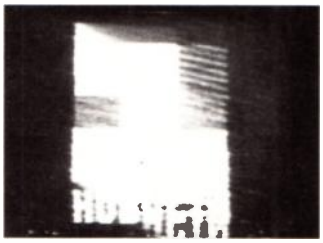


Fig. 3: CIS.


Fig. 4: CIS.

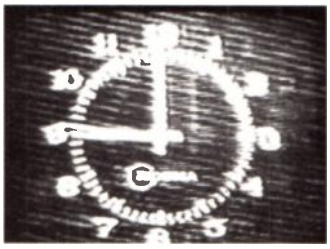


Fig. 5: CIS.

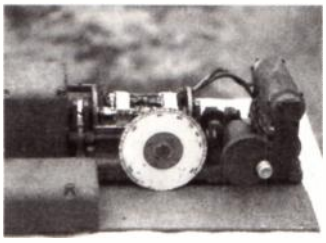


Fig. 6: Tuning unit.

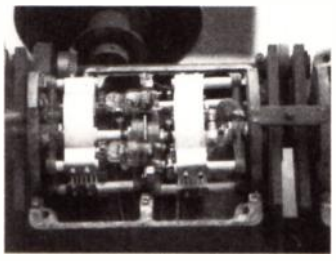


Fig. 7: Tuning capacitors.

Between the 14th and 16th, **Simon Hamer** (New Radnor) had a good haul when he logged pictures from Denmark (DR), Finland (YLE1), Germany (ARD1), Norway (NRK) and Sweden (SVT1) in Band III and Denmark (TV2), Germany (ARD1, Hessen 3, N3, RTL+, SAT1, SWF3, WEST3 & ZDF) and Sweden (SVT2 & TV4) on the u.h.f. bands.

"Things were fairly quiet until the 25th", wrote David Ashley, adding, 'all hell broke loose' on the 26th with Germany's ARD1 producing a full colour picture on his portable TV, fed by its own loop antenna. At the same time Anglia's hefty transmissions disappeared under a pile of co-channel interference. During the month he received u.h.f. pictures from Belgium on days 17, 25 & 27, Denmark and Germany on the 17th & 25th-27th and Holland on the 10th, 15th & 17th and daily from the 25th to 29th inclusive.

Toward the end of September, David Glenday received pictures in Bands IV (471-608MHz) and V (615-856MHz) from Belgium (BRT1) on the 29th, Denmark (TV2) on the 28th, Germany (ARD1, NDR3 & ZDF) on the 27th & 28th and Holland (NED1, 2 & 3) on the 27th, 28th & 29th.

Around this time **George Garden** (Edinburgh) was on holiday, complete with his JVC CX610 portable, in South Bavaria. He was not deterred from DXing just because his hotel was on a mountain slope, so, with the JVC's rod antenna fully extended horizontally he began to tune through Band III, during the evenings of the 26th & 27th and found a weak signal on Ch.E5. George said the sky was clear with high temperatures during the day and the TV weather chart was showing a ridge of high pressure extending Westwards

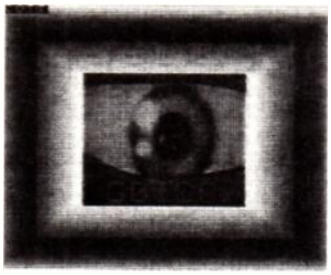


Fig. 8: SSTV.

Fig. 9: SSTV.

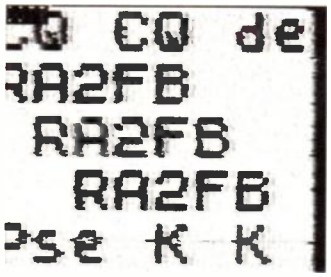


Fig. 10: SSTV.

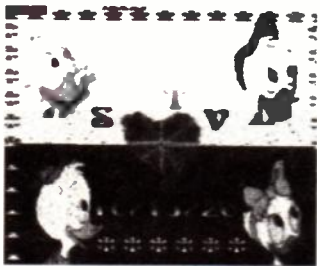


Fig. 11: SSTV.

into Germany. As patient as ever he waited for the station to close down and when their test-card to appeared it was scribed 'ARTE'. On the 28th, rain started and this signal had gone.

SSTV

Although **John Scott** (Glasgow) enjoys receiving regular slow scan television pictures around 3.730MHz during the early evenings he found the 14MHz band 'on the quiet side' during September. Among the signals he copied were a couple of pictorial indents from G0IDO, **Figs. 8 & 9**, a 'CQ' caption from RA2FB, **Fig.10**, and a group of cartoon characters from an recognised source, **Fig.11**.

Those of you not familiar with the techniques of SSTV may wonder why pictures are sometimes unidentified. However, keep in mind that a two-way contact may continue for a long period with each frame taking at least 8 seconds to scan. Therefore it often happens that a distant receiving station latches on to a transmission half way though a QSO and only copies a small part of it. The most annoying thing is to watch an interesting frame building up and a burst of electrical or radio interference spoils it or, the signal fades shortly before the end. Although tolerable because of the strong signal, lines of interference can be seen through the callsign and the body and lower wing of the aircraft in **Fig. 9**.

Fig. 12: FAX.

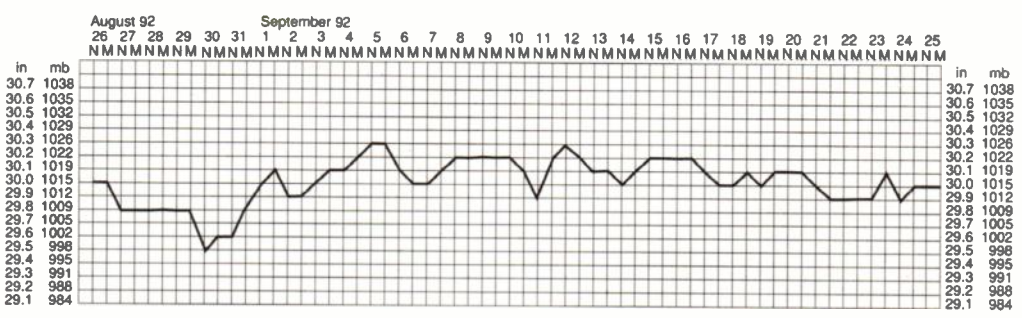
Fig. 13: FAX.

Fig. 14. FAX.

Amateur FAX

In addition to his interests in DXTV and computing, David Glenday's computer is loaded with Technical Software's RX-8 program which he uses to decode amateur FAX transmissions around 14.230MHz. Although he received a positive ident. from the Italian station I0MKW, **Fig.12**, on September 22, he could not identify the two transmissions that he copied from Germany, **Figs.13 & 14**, on the 27th. "With a drum speed of 120 r.p.m", said David, "these are VERY slow scan pictures, taking almost 5 minutes to transmit!".

Fig. 15.



amateur bands round-up

Paul Essery GW3KFE, PO Box 4, Newtown, Powys SY16 1ZZ

Simon Griggs in Chelmsford was 'turned on' by my reference to cheap and cheerful ways of at sampling new modes, but he wonder about getting hold of software to suit. As far as the Spectrum and the BBC computers go, a little bit of 'asking around' at the local club - another good reason for being a member! Ask around, or even advertise or buy. Simon seems to have been mainly on c.w. this time; on 7MHz we see ZA1Z, ZF1WD, PT7VTD, on 10MHz 9K2MD, VE1UK, W1ZFY,N4IQ, PJ2AM, on 14MHz 4K2OLP, 4K3/UA1ZFQ, UZ9SWP, SV2BFL, VK2PP & SV1LP, while 21MHz showed PY8JA, JA5CKJ, UL7LFB, JA9BO, KP4SJ, ZL1BSG, JA0DWY, SV1BZ, EC8AXM, LU6HGC, UA9OA, JA2YAV, V73VY, VP5G, and on 28MHz EA8AT. Switching to sideband, we see 14MHz r.f. from ZS4RB, 4S7AVR, on 21MHz K6DUE, 7X2VFK; on 28MHz JT3JIB, TI2CC, JR4ABB & JH1AJT.

A first letter from **Shaun Inns**, in the Nechells district of Birmingham, is a 28MHz addict, and his score for this time shows OD5MM, OD5RZ, ZS1LVH, D2EL, 9X5AB, ZS1GRM, WP4KET, TA1AZ & VO1SA. On a different tack, Shaun wonders where to find the ZLs, since he hasn't as yet heard one. Try around 0700UTC, on 14/21/28MHz in that order for the long path opening. If the band is open, you should hear them between, say 14.1-14.2 working into G; and - again if the band is open - the equivalent regions of 21 and 28MHz, though the latter is a bit unlikely unless you catch an opening. The other thing to be sure is that you have decent reception from the Caribbean, since this indicates the antenna has a lobe in the right direction. Later in the morning, they may come in by the short path over Europe.

Ted Trowell (Sheppey) notes the sideband signals from ON7SF & ON7BW on Top band, plus c.w. from ZA1W, UD6DCP, SO4CW, 3A/G3XJS/M on 7MHz & 4L0FWW, K2DSO, ZL4HB EA6DI on 10MHz. On 14MHz 4L0FWW, 4K4NN, UA9KCN & UL7Vu all leapt into the log, while 18MHz yielded YL2PQ, DL2MDU/CT3, AM8AF, K1VMI, 9D0RR, 5N0ZKJ & AM6ZS. Finally, to 21MHz where Ted booked in OE1NBW/5B4, YN/SM0OIG, 4L1FA, T77C, YO9FHU/VE1, EF8VBV & OD5/SP1MHV.

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Oown to Hastings and **John Heys**; on 21MHz sideband signals included 9V1YU, 9V1YJ, DU9GKK, DU1YP, UJ8JMM, 9M2ZA, 9M2YY, D2EL, TU2JL, VU2JJQ, OD5SK and an assortment of West Coast Ws I,ike W0 and W6.

Reg Williams in Stroud is a 28MHz addict, and has a 3-el monoband beam up along with a half-sized G5RV for the other bands. 28MHz signals picked out invcluded CE6EZ, CP2EN, CX6AT, LU1EMB, PY2EYE, ZP5CF, FY5EM, 3X0HNU, D2FGC, D44BS, FH8CB, J6/F2WT, J5UAI, EL2PP, DL3JFN, GI4SNA, IK2OBP, OE5BGN, SP9VOT & 9A3ER. Notice how the DX signals in the list mostly lie on the N-S axis; this is a sign that the m.u.f. has barely reached 28MHz, and a further rise in m.u.f. is required before an east-west opening would be noted. Thus if the band is just opening or just going out, you may be alerted by this.

Much Fun

Next to **Eric Masters** in Worcester Park, Surrey, who sticks to 7MHz with the Lake DTR7 receive side, and a 26m antenna fed against a quarter-wave counterpoise. With this simple set-up much fun has been had on the band, listening to the various c.w. styles, as expressed in the signals of GM3MXN, GI4PCY, DJ0PJ, DL6PL, FD1PQE, SM6SLC, GW0RTP, DL1HQE, EA6ZY, F1JNE, HA6OV, HB9IQP, I1QII, LY2BN, ON4GU, ON5RV, PA0TJJ, UB3JWW, UB5FDM, RB5HAW, SP6DAY, UA4FLB, OH6MMC, OZ2AGR/P, OZ3EDR/P, OZ9EDR/P & SM4GL.

Mike Birch in Thirsk notes on 10MHz S21ZC, 9D0RR, FP/G3TKN, ZL2AGY, ZL3KR, VK2BKH & VK3XU.

Over to Malta now and **Vince Cutajar** who tried 24MHz and nailed ZD8Z & ZB2JI, while in 18MHz KP4CKY, FR5DX, ZB2JI, VP5JM & HB0/DL1MFS.

John Weston-Smith had an ex-surplus Philips PCR3 receiver, and he would like to get hold of another speciment just for the nostalgia. However, just recently a second-hand Yaesu 7700 was bought for use in his work, and lo! a quick spin around the amateur bands and the fifth signal logged was a 'new one' in the shape of ZD7DP.(21.209MHz, 2046UTC). Any offers of a PCR3 to John at Burgraed House, Chart Road, Sutton Vallence, Kent ME17 3AW.

Kingspark, Glasgow is home to **John Scott**; he shares it with a Kenwood R2000, fed by way of an a.t.u. to some 40m of wire thanks to a good neighbour. In addition there is a discone connected to a Realistic scanner for v.h.f./u.h.f. Another interest is the local packet-radio network. The list on 3.5 shows GB0ESS, GD4OEL, GX4CRC, GB4FMF. A flip to 7MHz showed G0MSJ/MM, G0RHV/MM, GB2SMC, GB4ONY, GB2NTS, GB2NTU & GB2NTE. More time was spent on 14MHz, where VK6WC, VK3AQH, VE2NB, CT1EMH, 9A2YC4N7M, VU2RAK, W1RVK, VK2GWP, W2ONV, ZS1AU, K2QAU, AM25CWTT, GB4SMM, CT1GG, W2IBD, VK5VN; while AA4PC, DU1PX, 4X6TC, W1TAK, W3FX, W8CF, W1JUN, XU7VK, WB2VDH, YB1CJG, W2JJX & TK5BF.

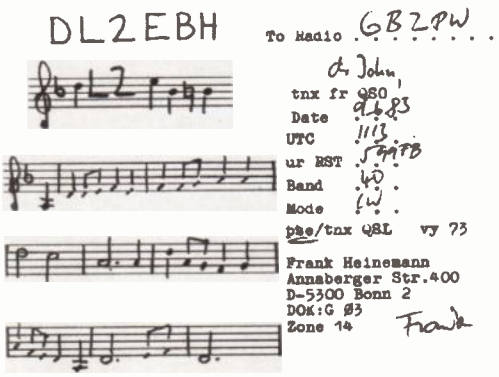
The interference **Gerald Bramwell** in Manchester was suffering has been solved with the aid of a local amateur. It seems the problem was radiation from the mixer stage of an ancient radiogram which was being picked up in Gerald's solid-state i.f. strip. So - things are looking up! On the h.f. bands Gerald has four modes on tap: sideband, RTTY, c.w., and narrow-band f.m. For Top Band the log includes c.w. from YL2PQ, UA2DTA/MM, ON7TK, DL7UCW, DF1DV, IN3KNK, F3AT, G4DBN, SM5EDX, GD4BEG, OZ3FI, PA3DLA; turning to sideband produced UB4LRG, UB5NBJ, RB4YIC, HB9JND, GW0OSQ, SP5MXV, I3DLI, GW3OLV, GW4YDA, F3NG, SV1AOZ & EA3JE. Turning to 3.5MHz, we find various ex-USSR and European calls on c.w. and VO1FG, K1JJ, K1BQ, VE2AL, K8UR/P/4, W4XQ, UL0A, RF6FY, UF6VX, UW9CM, UI8BAA, JA6BJJ, VK6ACY, VK3DZM, 5B4KH, A92BE, 4X1EL, VK6LK, OD5VT, 7X2BK, VK3AJJ/P, JR3GIY & PY1HY. Sideband on 7MHz produced WA2WYR, RA9WE, JH2HFD, 5N0SAI, EA9LZ, 4X1EL, PZ1EE, PT7BSH, 5B4ADA, OD5S, 4X6DL, JA5AQL, EA9UK, 5N0BRC, PZ1EL, AP/WA2WYR, ZW5B, EA4KR/EA8, EG8CMR & HF0POL. Again, not a lot of c.w. on 14MHz, but lots of RTTY by way of VE1UK, KB2HK, NA0Y, AA5XZ, KE0K, W3LPL, VE1QS, N1GMU, W4EEU, VE1OC, W3KH, NI0F, K8CV, VY2SS, RB0HZ, EA7LY, CU2GHP, EA6/AA5UK, SV1LK, 4X6UO,EG8CMR, 6W6JX, VK6MO, CX5BN, HI8BG, FM5WD, YV6BTM & CE8ABF.

Turning to sideband, we find all W call areas save W6 and W7, XO3AT, VE1UK, VE1QX, VE1OC, VO1WA, VY2SS, CN8US, LU3DFJ, CX2CS, PY5BI, LU8FDZ, TU2CI, 5N8HKC, ZP5PTB, OD5ZZ, FR5ZN, CX4SB, LU3OE, JY5IN, KP4DKE, YV500RYV, AM8AMT, PY3CF, LU8HMP, HK1HHX, LU1FOW, TU4EA, FM5CW, CX7BV, ZS5AV, TR8JH,CO2CF & YV5NI. Turning to 18MHz Gerald then notes N1HXA, VE2AM, W1TRB, KS9C, VE7IM, KB2HK, VE1US, KB2BB, ZP5CF, AM8AMT, EA8PP & PJ8AD, plus smaller fry. RTTY first again on 21MHz, by way of KS9W, N9NML, AA1AF, WB5FEX, K4HSP, XO3AT, W0NA, KA5YSY, VE7ZZZ, K9ZO, KV8H, WB8OGM, WB2DZH, WB2CJL, W9KVF, KI4XO, VE7KD, UG7GWY, ZS6EZH, VP2EE, HP2CWB, CX5BW, JE2UFF, J73WA, PJ2MI, PY2SHU, 6W6JX, PW2N, CE6EZ & P40RY, before turning to sideband, and XO3AT, VE7DGI, WB0CEI, various East Coast Ws, TA2DXE, YV5LKA, CX3ABE, PZ8CW & ZL1MH.

Gerald managed to find opening to USA on both 24MHz and 28MHz. on 24MHz K2DFD, KE2SL, N9DEO, N2MWX, KP2J, ZF1HJ, CE2EZE & FM5GD plus Euopeans. Finally to 28MHz where WA3IIA, G4ZPZ, G0SJK were noted on narrow-band f.m. plus N1IFG, N8TVE, KB8NSU, K9LJM, N8SVM, WA1WRJ, W4ZR, W3IUR, N3KAE, KE8CNF & KF8WB. As Gerald's list was so long I have pruned it quite severely, removing all the more or less common-or-garden signals. Sorry Gerald!

Deadlines!

December 1, January 8, February 5, to reach me at the address given above. Notice these are latest dates. If you are in doubt, just aim at the beginning of the month! Sorry about the tight December date, but this is to cater for the Christmas postal disruption.



airband

Godfrey Manning G4GLM
c/o The Godfrey Manning Aircraft Museum,
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Here's a chance to own a real aeronautical radio set. **Peter Werba G7FXO** (Swanage, Tel: (0929) 425805) has for sale an ARC 52 transceiver which offers 1750 channels in the 229-400MHz range. As it is capable of transmitting in the u.h.f. airband, consideration should be given to the purpose to which the purchaser puts it (e.g. non-functioning museum display, or modify to cover an amateur band). Peter is on the look-out for C41, ARC 44, T1131 and R216 sets if anybody can offer one of these.

Information Sources

Here's a new facility from 'Airband' itself. I'm so often asked to repeat certain basic information that I have now produced the 'Airband Factsheet'. All you have to do is to send a self-addressed stamped envelope, big enough to hold an A4 sheet of paper, marked 'airband', to the Editorial Office. Please note don't send your envelope to me direct as I won't be holding stocks of the 'Airband Factsheet'!

A brand new ATP (G-BUKJ) awaits delivery.

Many of you are, I know, interested in callsigns. A recent publication, *Airlines and Airports Coding and Decoding*, by DerogOe, Paul and van Stelle (Airnieuws Nederland, ISBN 90-74250-03-3) is found useful by **Dr. J.M.H. Boyce** (Bridgend). The book includes lists of callsigns, airline codes, aerodrome IATA and ICAO codes/decodes.

A new appendix to Tim Christian's *World HF Aeronautical-Mobile R/T Frequency Allocations* is now available, cost £2.00 inclusive of UK postage, direct from the author at Isoplethics, 157 Mundesley Road, North Walsham, Norfolk NR28 0DD, or the whole book (including updated appendix) can be bought for £6.99.

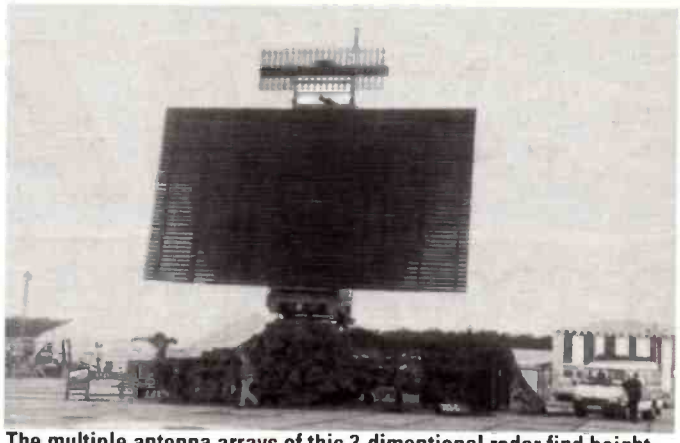
Follow-Ups

Those nice 'Growlers' (Shackletons) in October stirred the nostalgic tendencies of a member of the Shackleton Association. If you would like to join (and many ex-Shack crew are already members) then contact the Secretary, Peter Dunn, 'Meadow View', Perks Lane, Prestwood, Great Missenden, Buckinghamshire HP16 0JH. Tel: (02406) 3867. Currently the Association is raising funds to re-work the two examples currently with Air Atlantique at Coventry so that they may once again appear in displays.

Back to September, **Sean Carvin EI2CR** (Dublin) and **Dr. Boyce** pinpoint BIRCH at N52°24.1' W001°55.5' which is south-west of Birmingham Airport at 10nm out on the 291° radial from Honiley. This point fixes a hold.

Sean also comments on North Atlantic traffic. If a group of frequencies becomes overloaded, then any sensible assignment may be made and so it is not easy to predict which family of frequencies any particular flight might make contact on. The frequency pairings that I gave in September therefore can't be relied on. *The Irish Aeronautical Information Publication* makes all this clear. In Sean's part of the world, the following are typical procedures. Westbound transatlantic flights on Shannon 135.6 transfer to Shanwick 127.9MHz when passing 15°W. The h.f. allocation is made soon after. On leaving Gander's v.h.f. (127.1MHz) eastbound flights are then given their h.f. assignment. Two h.f. channels are always given: primary and secondary. How long before satellites replace h.f. I wonder? On some airlines, passengers can make satellite-connected 'phone calls whilst in flight; pilots don't seem to be that lucky.

Staying with September's issue, **Noel Fairhurst** (Manchester) and **Dr. Boyce** write about Shuttle callsigns. Noel describes himself as 'keen and incredibly old' (!) and lives within 2km of Manchester Airport's 24 threshold. The letter in the callsign does depend on which flight of the day is on that route, but it is an over-simplification to assume that the sequence starts at A and ends with Z, as the progression isn't that logical. If they put an extra service on a route, it will usually give 'Shuttle' followed by the last two registration letters as its call.



The multiple antenna arrays of this 3-dimentional radar find height as well as azimuth.

You Write

When holidaying in Somerset, **Anne Reed RS87871/G20126** (Cheltenham) took advantage of the clear blue skies to observe plenty of civil and military aircraft activity. Why don't I get weather like that on my holidays?

Ever since the 1950s **J.E. Dean** (Ashbourne) has been interested in radios and aircraft. At that time he was given a crystal set - nicely made in a Bakelite case. There was a real 'cat's whisker' wire to pick out the best point on the crystal! An HAC one-valver followed next. Radio reception is presently hampered by the proximity of a television transmitter. I doubt if you are suffering from harmonics as the lowest of these will be above 800MHz (some would extend well over 1GHz!) so direct breakthrough by the strong signal is far more likely to be the problem. Being within 6km of the Trent v.o.r./d.m.e. (TNT, 115.7MHz) there's plenty of civil and military traffic to see in the area.

Living in Edinburgh, **Vincent Dagostino** takes a natural interest in his local airport. The SIDs enable pilots to fly away from the airport by sole reference to cockpit instruments and yet ensure that as much of the engine noise as possible is directed over the Firth of Forth where it will cause the least inconvenience. There is no need for the pilot to look out of the window to confirm that the Firth is being overflown, but I can tell you from my own experience that the view of the road bridge is most impressive if the weather happens to be clear. SIDs such as GRICE and TALLA terminate over the reporting point or beacon of the same name, and from there on the airways system is joined under radar control. The precise route depends partly on which runway is being used for departures, and TALLA 2 Charlie is one example of such a route. Full details are given in the let-down plates for Edinburgh and these can be bought by post from Aerad or Jeppesen (see 'Airband Factsheet' for addresses).

To prove that it really exists, Vincent photographed the Talla v.o.r./d.m.e. at the top of Broad Law (near Peebles). Its callsign is TLA, the v.o.r. is on 113.8MHz and the d.m.e. on channel 85. Location is N55°30.0' W003°21.1'.

Receiving Hardware

Vincent has also been experimenting with v.h.f. antennas. At first a 27MHz Citizen's Band (CB) antenna was tried but wasn't very good. Some compromises are necessary in the construction of CB antennas, because the law places restrictions on their design. Also, the intended frequency is less than four times that of the v.h.f. spectrum and so there is an element of luck as to whether or not adequate performance will result.

Vincent's next experiment was to make a $\lambda/4$ dipole out of coat-hanger wire. I'm not sure why this material is so popular for antennas other than that it is readily available. If you're lucky, some of this wire is well protected against corrosion, but check this first by leaving a sample in cold tap-water. As v.h.f. energy only flows in the outermost layers of any conductor, so a tube is just as good as a solid rod when it comes to making

The first Airbus with 4 engines: A340 long range airliner.

CONTINUED ON PAGE 47 ➡

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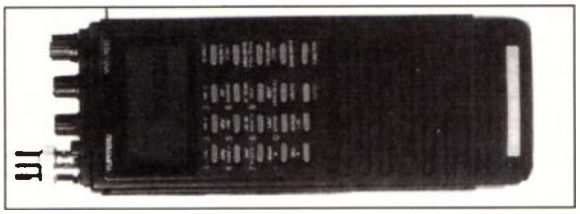

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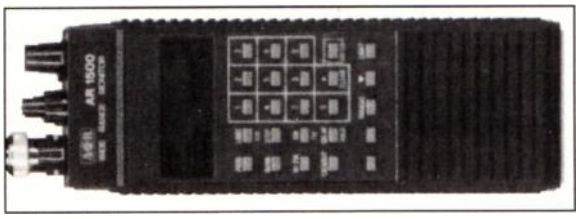

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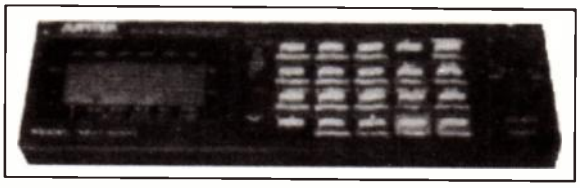

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scanning

Alan Gardener
PO Box 1000, Eastleigh, Hants SO5 5HB.

My thanks to all the readers who have written with comments, suggestions and press cuttings relating to the illegal use of scanners. It would seem that nearly every local newspaper has featured some sort of scanner story during the past few months, some of them have got their facts right, the majority haven't. For the most part the stories have concentrated on how easy it is to listen to cellular telephone conversations or the emergency services. The problem with all of the stories is that they concentrate on illegal aspects of scanning and portray the hobby as being rather unsavoury.

During the height of the 'Dianagate' affair I faxed letters to all the main newspapers in order to try redress the balance in the reporting of scanning related stories. I pointed out that it was not illegal to own a scanning receiver, that they did have legitimate uses and that the vast majority of owners acted in a perfectly responsible manner. I also suggested that the main problem with eavesdropping was that the services affected had not kept up to date with technology and that the real solution was scrambling, rather than hoping that stricter laws would prevent the use of scanners for criminal intent. As far as I am aware none of the papers responded to my letter (apart from the *Telegraph* who were polite enough to acknowledge its receipt) but I hope that this story serves to demonstrate how difficult it is to change the perceptions of newspaper editors once they have latched on to a particular aspect of a story.

As well as the question of the legality of scanning receivers, at least two newspapers and the satellite station Sky News have picked up on the frequencies listed in *The UK Scanning Directory* published by Interproducts. The booklet, which I have mentioned in previous columns, is compiled by Richard Barnes who lives in Perth, Scotland. He has been interviewed on several occasions and points out that all he has done is compile information, which in most cases has already circulated amongst enthusiasts, and that he is not breaking the law by publishing such information. I am not too sure about the last point as there could be subtle differences between Scottish and English law, but I would imagine that it is possible for any of the users mentioned in the publication to bring a private prosecution against the publisher for disclosure of confidential information. The reason that none have so far taken this course of action is probably that they don't feel that it is worth the effort or cost of bringing a test case to court in view of the small financial return should they win the case.

All of this may be news to schoolboy Michael Bellamy who according to a Plymouth evening newspaper has just had all of his radio equipment confiscated as a result of a police raid. The police were acting on the basis of a tip-off and were particulary concerned about a frequency list that was in his possession. I think at this stage it should be said that there was more to this case than the facts reported in the newspaper article. As with so many of the cases reported in the press the equipment was used in connection with more serious offenses and it is most unlikely that any prosecution will be based solely on the illegal use of a scanning receiver.

Once again I would ask readers to use their receivers responsibly.

Speed Radar

One reader, whose name I won't mention in order to spare his blushes, has been having naughty thoughts about whether it is possible to detect radar speed traps with his scanner. Tut Tut! I don't think I would be answering this question if it was possible, but perhaps a bit of background information may be of interest.

The majority of radar speed traps work on the so called 'Doppler' effect. The most usual explanation of this principle is based on the noticeable change in pitch of a fire engine siren as it first comes towards and then moves away from a static observer. The movement causes compression or expansion of sound pressure waves dependent upon the speed and direction of the source. If we transmit a radio signal from a directional antenna towards a moving object and use another directional antenna to receive a small proportion of the signal which is reflected back, we have the basis of a simple radar system. The reflected signal is altered in frequency by the movement of the reflecting object and this can be compared against the original signal in order to determine the speed and direction of the moving object. In order to make the equipment as compact as possible it is advantageous to use microwave frequencies for this purpose as it allows the use of high gain, narrow beamwidth antennas. This is particularly important if you want to be able to identify the speed of individual objects moving at relatively high speeds.

Several frequency bands have been set aside for microwave radar systems or similar devices, the three most common bands being X band 10.5-10.55GHz (That's 10 500MHz) K band 24 050-24 250GHz and finally Ka band 34 200-35 200GHz. As you can see all of these frequencies are well above the upper frequency limit of any scanner currently available. However, it is possible to buy dedicated receivers for these particular frequency bands, I mean, of course, the radar detectors offered for sale in many of the motoring magazines. These devices are very sensitive wideband receivers which are specifically tuned to the bands used by speed detecting radars. The idea behind them is that they will be able to detect the signal being transmitted by the radar unit before the radar can detect the very much weaker signal reflected back from your car.

Before You Buy

By now you are probably asking 'Do they work?' - well yes they are very effective at detecting radar. The problem is that there are a lot more radar units around than you might at first imagine. I recently had the opportunity to try one of the more sophisticated radar detectors in my car and found that when I was driving around town or city centres I kept on getting lots of false alarms. This puzzled me at first as I couldn't see any obvious source apart from the occasional set of traffic lights fitted with microwave motion detectors. It was only after some time that I realised that the majority of false alarms were occurring when I passed places such as supermarkets, DIY stores or large public buildings. In fact, almost anywhere fitted with automatically opening doors! The microwave movement detectors used for this purpose generally have a much wider beam pattern than those used for traffic control. This is because they have to detect people approaching from several different directions in order to open the door well in advance of anyone reaching them. One further point is that the human body reflects a much smaller amount of microwave energy than that from a car so the microwave source may have to be slightly higher powered.

Other factors that you should consider before rushing out to buy a detector are that not all speed detection systems use radar. Some systems work on the time it takes for a car to pass two fixed points or sensing cables either laid across or buried in the road surface. The most recently introduced automatic cameras now being fitted at strategic points along roads or traffic lights work on a variety of detection methods. If radar is used

UK PRIVATE VHF MARINE BAND ALLOCATIONS

Channel	Ship TX	Shore TX	Use
29	157.450	162.05	PMR some areas
89	157.475	162.075	PRIVATE MARINE
30	157.500	162.100	PMR some areas
90	57.525	62.125	PRIVATE MARINE
31	157.550	162.150	PRIVATE MARINE INLR some areas
91	157.575	162.175	PMR
32	157.600	162.200	PMR some areas
92	157.625	162.225	PMR
33	157.650	162.250	PRIVATE MARINE
93	157.675	162.275	PMR
34	157.700	162.300	PRIVATE MARINE
94	157.725	162.325	PMR
35	157.750	162.350	PMR some areas
95	157.775	162.375	PMR
36	157.800	162.400	PRIVATE MARINE
96	157.825	162.425	PMR
37/M1	157.850	157.850	MARINAS Simplex
97	157.875	162.475	PMR
38	157.900	162.500	PRIVATE MARINE
98	157.925	162.525	PMR
39	157.950	162.550	PRIVATE MARINE
99	157.975	162.575	PMR
40	158.000	162.600	PRIVATE MARINE
100	158.025	162.625	PRIVATE MARINE
41	158.050	162.650	PRIVATE MARINE
101	158.075	162.275	PRIVATE MARINE
42	158.100	162.700	PRIVATE MARINE
102	158.125	162.725	PRIVATE MARINE
43	158.150	162.750	PRIVATE MARINE
103	158.175	162.775	PRIVATE MARINE
44	158.200	162.800	PRIVATE MARINE
104A	162.825	162.825	MARINE TELEX CHANNEL Simplex
104B	158.225	158.225	MARINE FAX CHANNEL Simplex
45	158.250	162.850	PRIVATE MARINE
105	158.275	162.875	PMR
46	158.300	162.900	PRIVATE MARINE
106	158.325	162.925	PMR
47	158.350	162.950	PRIVATE MARINE
107	158.375	162.975	PMR
48	158.400	163.000	PRIVATE MARINE
108	158.425	158.425	PRIVATE MARINE Simplex
49	158.450	158.450	PRIVATE MARINE Simplex
109	158.475	158.475	PRIVATE MARINE Simplex
50	158.500	158.500	PRIVATE MARINE Simplex
88/M2	161.425	161.425	MARINAS Simplex

for such a purpose it is generally a very narrow beam (only 3 degrees wide, or less) which is aimed at an angle of about 22 degrees across the road. The chances of detecting such a signal before you actually pass through it is pretty minimal, unless some of the signal is scattered off other vehicles passing through the beam before you.

The best course of action would seem to be to stick to the speed limit!

Marine Band

My thanks to readers **Jon Payne** of Lincolnshire and **Pat Marindale** of East Yorkshire who have sent me a lot of information on the subject of Private v.h.f. Marine band allocations and rescue service communications. Jon has given a fairly detailed description of the way in which the marine band is used in a rescue situation which is as follows.

1: Coastguards, lifeboats etc., initially call the Maritime Rescue Co-ordination Centre (MRCC) on channel 0 (156.0MHz). Once they are briefed on the situation they may continue operating on channel 0 or change frequency depending on the nature of the incident.

2: In a search and rescue operation only the coastguard, lifeboats and SAR helicopters are allowed to use channel 0. If any other passing vessels offer help, communications may then also take place on channel 67 (156.375MHz).

3: If the vessel in distress has a v.h.f. radio then the MRCC will call on Channel 16 (156.80MHz) and request a change to channel 67 (156.375MHz). If the vessel only has h.f. radio equipment then all communications will then change to HF.4. If any volunteer vessels wish to call the distressed vessel this is usually done on one of the inter-ship channels such as 6 (156.300MHz) or 8 (156.40MHz).

Jon also mentions that the missing channels I discussed in the October column are nearly always assigned to shore based users who are associated with maritime operations. One example of this is the lifeboat service along the eastern coastline of Britain which uses channel 31 (157.55MHz) for on-shore communication between tractor, launchers, boat and boathouse. The lifeboat may also occasionally use this channel to keep in touch as they are not allowed to use channel 0 for this purpose. Pat Martindale has included a very comprehensive list of private channel numbers some of which are allocated for Private Mobile Radio use in areas away from the sea. It should be noted that a fair number of the channels are listed as duplex pairs, that is to say that the ship will transmit on one frequency and the shore station on another. In some cases these channels are used as single simplex frequencies where this type of operation is more suitable. Typical users of private channels include ferry companies, port pilot boats, shipping lines, port operators, tugs, fuel barges and the lighthouse service, so why not check out this part of the band.

My thanks to Pat and Jon for this information.

Transmitter Power

A reader from Glasgow signing himself **H.T.** has written to me querying a point I raised in the June column relating to the transmitter power of 49MHz type approved transceivers. He wonders why I stated that the transmitter power was 100mW (0.1W) when the DTI Radio Communications Data Sheet states that the maximum e.r.p. for such devices should only be 10mW.

The clue here is the inclusion of the term e.r.p. This stands for Effective Radiated Power which involves a measure of the radiation efficiency of the antenna used with the transmitter. This is based on a theoretical antenna known as an isotropic radiator, such a device radiates radio waves in all directions and can be considered to be a point source of energy. It is not possible to construct such an antenna as the cable connecting it to the source of radio frequency energy would distort the radiated pattern and produce a stronger signal in some directions.

Most practical measurements are therefore based on a standard half wavelength dipole. This has the advantage of being easy to construct with an easily predictable radiation pattern which you can imagine as looking rather like a doughnut when viewed in cross section. Most antenna gains are expressed in decibels or dB relative to either an isotropic source in which case the figure is quoted as dBi or a dipole in which case dBd is used. Note that the dBd figure is 2.15dB higher in value than that which would be used for a dBi figure. This is sometimes used to advantage in antenna advertisements so if the dBi or dBd symbol is not used it is more than likely to be dBi which gives a much more impressive figure.

In the case of the 49MHz equipment the antenna attached to the transceiver is very small in terms of wavelength at the operating frequency. This means that the antenna is much less efficient than the reference antenna used to define its e.r.p. so it has to have a higher transmitter power to achieve the required e.r.p. I hope that this solves the mystery for you.

In his letter H.T. also mentions a book which he feels will be of particular interest to readers. This is *Monitoring NASA Communications* by Anthony R. Curtis, published by Tiare Publications 1992, ISBN 0-936653-30-2. The book details how to monitor NASA on short wave, v.h.f., u.h.f. and satellites and includes descriptions of what equipment is required and where to listen for transmissions. Sounds like a good read for the Christmas Holiday period.

Festive Scanning

Well that's the end of another column, in fact looking back it's now five years since I first started writing 'Scanning' for *SWM*, doesn't time fly when you are having fun!. My very best wishes to all of you especially those who have contributed items over the past few years. A very Happy Christmas to you all. Until next month - Good listening

Airband 43 ➨

antennas. Unfortunately, coat-hangers are not designed for good surface conductivity and that is why aluminium or even copper makes a better material. You could try a pair of lengths of coaxial cable, connecting the two braids as the two elements and ignoring the cores. If you do stick with coathangers, Vincent, then you'll find a stout pair of wire cutters easier to handle than a hacksaw when cutting the material to length. Finally, a 1:1 balun will enable the coaxial feeder to be connected to the dipole with improved performance; look for advertisements in *SWM*.

Tim Christian is working on his t.r.f. receivers. Yes, these valve sets do use technology that would have been common pre-war! Tim obtains worthwhile performance and can cover 2-140MHz on equipment containing a total of just seven valves! One receiver happily resolves s.s.b. and a 10µV signal produces 50mW of audio. Even 1µV is still readable with headphones. Selectivity is as good as a direct conversion receiver and adjacent a.m. stations are cleanly separated. The h.f. version is a 1-V-1 or, for those too young to remember this nomenclature, there is an r.f. amplifer preceding the detector and an a.f. amplifier after the detector.

Frequency and Operational News

Most active aerodromes are protected by a small volume of airspace by which they are surrounded. During the operational hours of this Aerodrome Traffic Zone (ATZ) all flights within the Zone must make the appropriate radio contact with the aerodrome authority (who need not necessarily be a controller) and must fit in with existing circuit traffic. In addition, military aerodromes often have a surrounding Military ATZ (MATZ) with an ordinary ATZ inside it. Civil aircraft are not required by law to observe the MATZ but a penetration service (usually controlled by radar) is normally provided. Civil aircraft are sensible to make use of this.

At Greenham Common the ATZ has been withdrawn and at Bristol (Filton) the MATZ has been withdrawn. Both MATZ and ATZ have gone at Abingdon, Binbrook, Elvington and Kemble and presumably these aerodromes are closing as part of the 'peace dividend'. This information is extracted from GASIL (9/92) by the CAA.

As part of the improvements in UK air traffic control, a new en-route centre is in a late stage of construction at Fareham, Hampshire, and will presumably take over some of the workload currently handled at LATCC.

Midhurst SIDs from Heathrow are usually on 121.32 and traffic in the south-west of the London TMA (such as Ockham arrivals for Heathrow) are on 130.92MHz, reports Dr. Boyce.

H. Porritt (Northumberland) draws attention to Pennine Radar (128.675MHz) where the controller is actually based at the Manchester sub-centre. The communications relay and radar head nearest to the Newcastle area are both at Great Dunfell.

The next three deadlines (for topical information) are January 8, February 5 & February 26. Replies always appear in this column and it is regretted that no direct correspondence is possible. All letters to 'Airband', c/o The Godfrey Manning Aircraft Museum, 63 The Drive, Edgware, Middlesex HA8 8PS. Genuinely urgent information/ enquiries: 081-958 5113.

Abbreviations

a.f.	audio frequency
a.m.	amplitude modulation
CAA	Civil Aviation Authority
d.m.e.	distance measuring equipment
GASIL	General Aviation Safety Information Leaflet
GHz	gigahertz
h.f.	high frequency
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ISBN	International Standard Book Number
km	kilometres
LATCC	London Air Traffic Control Centre
MHz	megahertz
mW	milliwatts
N	north
nm	nautical miles
r.f.	radio frequency
R/T	radiotelephony
SID	Standard Instrument Departure
s.s.b.	single sideband
TMA	Terminal Manoeuvering Area
t.r.f.	tuned radio frequency
µV	microvolts
u.h.f.	ultra high frequency
v.h.f.	very high frequency
v.o.r.	very high frequency omni-directional radio range
W	west

decode

Mike Richards G4WNC
200 Christchurch Road, Ringwood, Hants BH24 3AS.

Dr **Wood** of Ledbury is just upgrading to an external antenna and asks where's the best place to buy an antenna pole. This may sound like a pretty basic question, but it's one that most listeners have to deal with. The most common solution is to visit the local amateur radio shop, as they usually carry a good stock of poles and fittings. If you don't have a local radio shop, the next step is to look up your local TV aerial shop as they should have the necessary parts. An alternate source of aluminium poles is to use *Yellow Pages* to look up your local aluminium supplier. A visit here will often reveal a useful off-cut at a good price. However, you'll probably still need a radio shop to get hold of the various fittings. Alternatively, you can get the fitting you require mail order, from companies like Sandpiper Communications, Pentwyn House, Penyard, Llwdcoed, Aberdare CF44 0TV or Aerial Techniques, 11 Kent Road, Parkstone, Poole BH12 2EH.

Next comes an unusual request from **Mr R. Pratt** of Portsmouth. He's recently purchased a series 3 Psion Organiser and wonders if anyone has any software for decoding utilities. The main problem is due to the machine using the programming language OPL. Can anyone help? The only solution I can think of is to use the optional RS-232 interface to connect the Psion to a PK-232/Kantronics KAM type decoder. However, the main practical limitation is likely to be the small screen display.

Another request for help comes from **P. Bailey** of Derby. He has an Archimedes computer which, although good for educational use, is not the most popular machine for decoding. Does anyone out there know of RTTY/c.w. decoding software for this machine? If not, surely this would make an excellent project for a fifth/sixth form student? Any info to the address at the head of the column please.

Hoka Apology

I've goofed! Back in the August 'Decode' I mentioned the Hoka audio tape of utility signals. All was well except for the price I quoted which was £20.00. The correct price was in fact £8.95 making this tape excellent value for money. If any readers would like a copy please check the Hoka advert for the latest prices. Incidentally, this tape is apparently supplied with all new purchases of the Hoka Code 3 package. Once again my apologies to Ron Touw of Hoka UK for the inconvenience.

Beginner's List

I'm still reeling from the demand for this list. Ever since the October issue was published, I've been answering letters at the rate of 200 a month! It seems you all wanted a copy of Day's list. If any of you are still interested, just send me three first or second class stamps to secure your copy. Please ensure you make it clear you want the *Beginner's List*. If you can see your way clear to enclosing an address label - my eternal thanks! As and when the list gets updated, I'll mention it in the column (after I've drawn a sharp breath and prepared myself for the onslought!).

Tuning Systems

This month I've received a couple of letters asking how to use an oscilloscope to tune RTTY signals. Rather than limit my reply to oscilloscopes, I thought I'd provide a general description of the commonly found tuning systems.

In the early days of RTTY, most listeners used equipment that had primarily been designed for use by radio amateurs. These early decoding systems were usually based around a pair of audio filters, one for each of the two RTTY tones. The simplest tuning system was used a centre zero meter to indicate correct centring of the signal. This system was derived from the distortion measurement system used on commercial land-line based systems. Let's just spend a little time looking at how this systems works as it provides a useful foundation for the more advanced systems I'll be describing later.

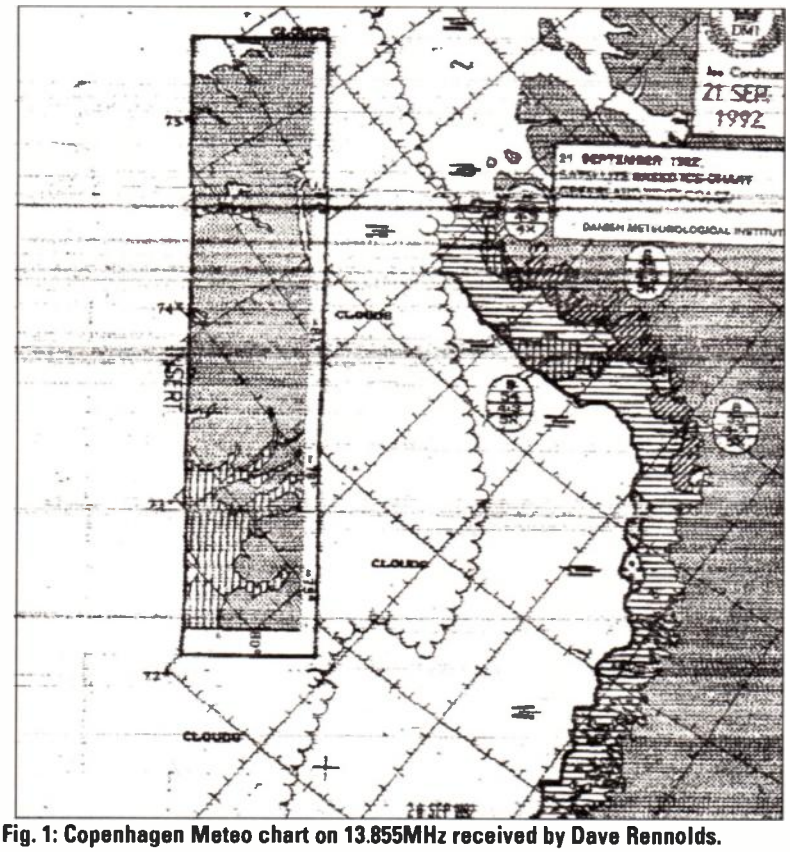

Fig. 1: Copenhagen Meteo chart on 13.855MHz received by Dave Rennolds.

The first point to consider is just how the RTTY signal is constructed. If we ignore the coding and decoding process, we can think of a RTTY signal as just a sequence of marks and spaces. Conventionally a mark is a positive voltage while a space is negative. If we assume that both the mark and space are the same value, but opposite polarity, we can look at how our centre zero meter would react. The important point about a centre zero meter is that a negative voltage causes it to move left, whilst a positive moves it right. So if we apply our RTTY signal to the meter the needle should swing to and fro at the same speed as the RTTY signal. It's here that we come across the first trick. The centre zero meters used for RTTY signals are designed so that they can't swing as fast as the signal. So what happens? Well, if the marks and spaces are the same voltage and last exactly the same time the needle will stay in the centre. The reason for this is that the positive and negative swings cancel each other out.

However, if either the duration of voltage vary, the needle would move to the right or left depending on the error. This feature is used on land line systems to indicate the distortion caused by the relay systems. The only problem is that for the measurement to work you have to send a RTTY signal that alternates evenly between mark and space. On land line systems this is done with a special tester that sends what's called reversals or revs. To export this system to a keyboard operated RTTY link we will need a combination of letters that produces this evenly balanced signal. The solution is to repeat the letters RY - it's not perfect, but close enough for tuning purposes. This is the origins of the repeated RYs that are seen at the start of so many RTTY transmissions.

Another of the early tuning systems used a pair of light emitting diodes connected to the mark and space detectors in the decoder. With this system the l.e.d.s flicker in harmony with the incoming RTTY signal. To find the correct tuning point you swing the tuning dial until both l.e.d.s are about the same brightness. As with the meter system, this technique only works properly when the transmitter is sending 'revs' or RYs.

One of the most sophisticated early tuning aids was called a phase shift monitor scope. This was a very grand name for a comparatively simple instrument. In use the audio signal from the receiver is applied directly to the scope which has a tuned circuit set at the mid point of the received audio tones. Correct tuning is shown by a stable cross on the oscilloscope's display. If the tuning is inaccurate the cross will rotate - the direction giving an indication of which way to tune. Although these units still have their uses you're unlikely to find one in the local radio shop. There is another form of oscilloscope tuning system that takes the mark and space outputs from a decoder and displays the result. In practice though these have been replaced by some of the more modern systems.

The introduction of integrated circuits that could accurately convert frequency to voltage, came a more useful tuning indicator. Perhaps the most popular version of which was the Toni-Tuner. This employed a line of ten or more l.e.d.s in the form of a bargraph display. This unit required no special outputs and could be connected directly in the audio output of the receiver. The resultant display consists of a pair of flashing l.e.d.s representing the mark and space elements of the signal. As you tune the receiver the pair if l.e.d.s will sweep up or down the

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band. The correct tuning point is generally when the signal straddles the centre point of the display. An additional benefit of this system is that you can use it to measure the shift of the signal. The shift being indicated by the spacing between the illuminated l.e.d.s. The system can also be used to tune virtually all types of utility signal from c.w. to FAX. It's because of this versatility that this basic system has become the standard for most decoding systems. Most of the developments have occurred with the extensive use of computers for decoding. In these systems the l.e.d. display is dispensed with and the computer screen used to give an equivalent, and often far more detailed display. The computer based systems also have the advantage of being able to quickly and easily change scale and sensitivity.

The advent of the computer based decoder has also brought about a new variant of oscilloscope tuning. In this system you are presented with a screen featuring three horizontal lines, one top and bottom and the third in the middle. The system is at its best when tuning FAX signals where you need to accurately set the signal for best image contrast. The middle line represents the centre point of the decoder while the top and bottom lines represent peak black and white respectively. When using this system to tune a FAX signal you can easily set the signal for best contrast.

The last system I'll cover here is the spectrum analyser display. This system is an extension of the bargraph display, but can show the relative amplitude of the signals. A common example of this technique can be found in the Hoka Code-3 speed/shift measurement option. The system really comes into its own when trying to tune some of the more complex utility modes. If you've any details or comments on other tuning systems, please drop me a line with the details.

TORG 10

There are only few decoding packages that can handle this system and possibly even fewer stations using it! The only one reported to me so far is SAAMC Moscow using 18.49MHz. The information sent is usually weather data relating to the South Pole and southern Australia. I managed to decode this station with the Hoka Code-3 set to TORG 10, 100 baud with a 500Hz shift. Does anyone out there have any further information?

Ships Callsigns

Last month I printed a request from Robert Hall for details of any publications that link ships names to callsigns. I've had an excellent response which I'll share with you all here. Not surprisingly, the most recommended publications are those from the International Telecommunication Union (ITU). The two key books are: *List of Ship's Callsigns* and *List of Ship Stations*. I suspect that the *List of Ship's Callsigns* will be the most useful as it cross references the callsign to the ships name and type of vessel. This is the conversion that most listeners will be using. The *List of Ship Stations* is indexed by ship name and gives a host of information such as callsign, country, type of vessel, transmission bands and telegraph charge rates. As to the price, they're not cheap. The callsign list is around £40.00 while the ship station list is slightly more expensive at about £50.00. It's difficult to be specific on price due to the rapidly fluctuating economic climate. So where can you get a copy? There are several choices as follows:

ITU Sales and Service, Place des Nationa, CH-1211 GENEVA 20, Switzerland.

Axdon Books, 32 Atholl Street, Perth PH1 5NP.

Interproducts, 8 Abbot Street, Perth PH2 0EB, Scotland

Alternatively, you can try your local branch of Kelvin Hughes who should be able to get you a copy. My thanks to **Geoff Halligey**, **Roger Haddock**, and **Harry Scrase** for supplying the information.

Ron Galliers of Islington suggests that readers may like to also consider the *Lloyds Register of Shipping*. This gives a two way check of callsign to ship and *vice versa* so covers both the ITU books in one publication. The only snag is that he's pretty sure it only deals with ships that are registered with Lloyds. I don't have a suppliers address, so it may be best to approach Lloyds of London direct.

The final suggestion comes from **Ivo Swinnen** of Belgium. He recommends the *Utility Address Handbook* by Reinhard Klein-Arendt. It's published in Germany by Willhelm Herbst Verlag, Postfach 450506, D-5000 Koln 41, Germany. The book has an introduction in four languages, including English and English is also used through-out the book. As well as listing utility stations world-wide, it contains all MARS and CFARS stations, non-directional beacons and an extensive ship list. This includes oil rigs and virtually all the ships of the US, UK, German, French and Canadian Navy's. There is also a list of coastguard ships and all British lifeboats. As with the previous books, I don't have a current price so I would suggest you contact the publishers in Germany.

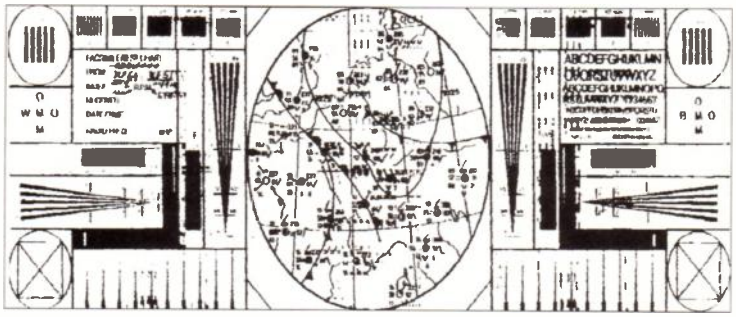

Fig. 2: Offenbach test chart received by George Newport. The test picture is not round due to the Wavecom drum speed being only 60/90 or 120 r.p.m. and it needs 240 r.p.m. to stop the distortion.

Copenhagen Met

Dave Rennolds of Oxford, uses the Universal M-900 for FAX reception with his Icom IC-R70 receiver. He's sent in some interesting ice charts that he's received from Copenhagen Met over the past month. The latest schedule runs with ice charts at the following times:

003, 0028, 0943, 1008, 1153, 1218, 1243, 1308, 1333, 1803 and 1828UTC.

The frequencies in use are:

5.85, 9.36 13.855 and 17.51MHz all using the callsign OXT.

Universal M-8000

Whilst at the Leicester Rally in October, **Tony Dewsbury** gave me details of the latest decoder from the Universal stable. The M-8000 represents the latest development in a long line of well respected decoding systems from this American manufacturer. One of the key differences with this new model is the VGA colour output. This enables the M-8000 to display all its information with much higher resolution. It also means that more information can be presented to the listener. An example of this is the extensive status and tuning displays. In addition to a bargraph display there's a spectral display and a simulated X-Y tuning scope.

The M-8000 is capable of decoding a whole range of standard and complex modes including the multi-tone piccolo system. For those with an interest in the ARQ modes the M-8000 can be programmed with upto three Selcals. These automatically activate your printer when they're received. This is potentially a very powerful tool.

The M-8000 also features an external comms port that enables the receive modes to be completely controlled from an external terminal or computer.

There are a whole host of other powerful features that I won't mention here.

If you're interested and would like the latest information and prices, contact Dewsbury Electronics, 176 Lower High Street, Stourbridge, West Midlands DY8 1TG. Phone 0384 390063 FAX 0384 371228.

Frequency List

Just to conclude this month, here's the latest loggings sent in by readers. If you would like a copy of the complete list just send three first or second class stamps to the address at the head of the column. Please make sure you ask for the DECODE list, and again if you can, please include a return address label. This helps to speed-up the turn round time of the letters. The format for the list is the usual - frequency, mode, speed, shift, callsign, time and notes.

1.613MHz, c.w., -, -, OXZ, 2206, Lyngby Radio

3.71MHz, FAX, 60, 576, RGJ61, 2228, Samara Met faint chart

4.2155MHz, ARQ, 100, 170, OXZ, 0043, Press to Danish ships

5.2369MHz, FAX, 120, 576, IBH, 0513, USAF AWS Vincenza

5.6333MHz, RTTY, 75, 850, IBH, 0524, USAF Met traffic

7.6098MHz, RTTY, 50, 350, 3XA, 2334, Conakry air

7.625MHz, RTTY, 100, 800, HZN47, 2347, Jeddah Met

8.090MHz, c.w., -, -, NRV, 2140, USCG GUAM

9.103MHz, ROU-FEC, 164.5, 400, V5G, 1101, MFA Bucharest

9.318MHz, RTTY, 50, 400, -, -, Grengel Met

10.215MHz, RTTY, 50, 400, MBC, -, Morocco News

13.3658MHz, RTTY, 50, 400, 5YD, 1803, Nairobi Air

14.095MHz, RTTY, 45, 170, W1AW, 2235, ARRL Bulletin

14.925MHz TDM-342-1, 48, 1000, RFTJ, 1930, Dakar Senegal

14.97MHz, SWE-ARQ, 100, 400, -, 1307, MFA Stockholm

18.22MHz, FAX, 120, 576, JMH5, 1315, Tokyo Met

18.597MHz, TWINPLEX, 100, -, -, 1350, MFA Madrid

May I wish all readers & contributors to Decode a very merry Christmas & a happy new year.

info in orbit

Lawrence Harris
5 Burnham Park Road, Peverell, Plymouth, Devon PL3 5QB

Having scaffolding around the house for several days in September and October stopped me using my large 1.6m METEOSAT dish, but on one quiet weekend, I connected up the small portable dish to the receiver using a long cable. To my surprise METEOSAT 5 was back in operation. An administrative message is broadcast every three hours (from 0218UTC onwards on alternate channels), which said that METEOSAT 5 was being used as the operational geostationary satellite from September 8, for a few days. Picture quality was excellent. The Florida region of the USA has had many storms during its hurricane season, and for a few more months we can still receive good signals from METEOSAT 3 (M3) which remains located over 50° longitude. From this position we have a grand view of the north Atlantic and the lakes of Canada and on September 26 several storms were visible near Florida.

For those wanting to see the METEOSAT 3 transmissions without moving their antenna away from METEOSAT 4, there are regular re-transmissions of these M3 images by M4. At 0118, 0418, 0718 & 1018UTC the north and south American infra-red images are transmitted (called LY and LR). At 1314, 1614 & 1914UTC a visible image of North America is added, since by then the sun has risen over the USA.

Current WXSAT Scene

During recent weeks we have had the full complement of polar orbiting NOAA satellites providing regular pictures throughout the day. NOAA 10 is usually switched off for a few days each time its passes coincide with the slower orbiting NOAA 12.

One significant change to the CIS (Commonwealth of Independent States - formerly Russia) satellites, was the switching off of METEOR 2-19. Previously METEORS 2-19 and 2-20 have alternated operations every few weeks, and in a predictable manner. This apparently ended in July and no class two WXSATS appear to have been operating since then. The class three satellites METEORS 3-3 and 3-4 were both in operation during August, with 3-3 transmitting on 137.40MHz and 3-4 remaining on 137.30MHz. Consequently the 137.85MHz frequency remained unused. In early September METEOR 3-4 was approaching the terminator (night-day boundary) and was then switched off, perhaps to conserve power. For a few weeks METEOR 3-3 remained the only CIS WXSAT in operation - an unusual event.

On September 30 at 1215UTC, a few minutes after I had switched off my scanner to go and have lunch, **Brian Dudman** of Harrow, a regular correspondent to this column, rang me to say that he had just received signals from METEOR 3-5 on 137.85MHz. This is the first time that I have seen class three WXSATS using this frequency. As I write this, METEOR 3-3 has been switched off, leaving only 3-5 operating. No doubt there are more surprises on the horizon (literally!).

METEOSAT operations

With the planned move of METEOSAT 3 to a more westerly position over the USA, sadly, here in Britain we will lose the ability to receive direct transmissions. The more positive aspect from our (UK) point of view will be the subsequent transmission by METEOSAT 4 of images from the more westerly position of METEOSAT 3.

These changes to METEOSAT 3 operations were announced by EUMETSAT in press releases from which I can provide these details.

When METEOSAT 3 moves further west over the USA in early 1993, it will be out of the range of both the Data Acquisition Telecommand and Tracking Station (DATTS) in Germany, and the Centre de Meteorologie Spatiale (CMS) in Lannion, France. Consequently, the US Weather Service Agency, NOAA, is installing relay equipment at its Wallops Island facility on the east coast of the USA. Commanding of METEOSAT 3 will continue from the ESA Space Operations Centre in Darmstadt in Germany, with control and other commands being transmitted to the satellite by a trans-Atlantic link. The raw METEOSAT 3 data will be computer processed at Darmstadt and then relayed to USA users via the satellite link. For UK and other European users, some METEOSAT 3 images will continue to be relayed via METEOSAT 4 from CMS in Lannion, France. The schematic diagram illustrating METEOSAT data flow around the USA and Europe can be seen in **Fig. 1**.

Wefax Data

Co-ordination between meteorological satellite operators is organised through regular meetings of the group known as the Co-ordination of Geostationary Meteorological Satellites (CGMS). They defined the system known as WEFAX as the world standard for the transmission of image data to basic user stations, such as those operated by amateurs here in Britain. WEFAX is similar to the Automatic Picture Transmission (a.p.t.) system used by all of the polar meteorological satellites, and so allows the decoding of METEOSAT signals using normal a.p.t. hardware, with minor modifications. There are many thousands of WEFAX/a.p.t. stations now in operation world-wide.

The DCP System

This group (the CGMS) also co-ordinated the data collection systems used by most of the geostationary meteorological satellites. Identical Data Collection Platforms (DCP - see **Fig. 2**) can be deployed in most parts of the world, to use the Regional Data Collection Systems (RDCS) provided by each satellite operator.

In addition, the operators co-ordinate the operation of the International Data Collection System (IDCS), which can be used by mobile data collection platforms.

This IDCS is of particular use for weather reports transmitted automatically by large airliners, merchant ships or from freely drifting buoys or balloons. The data collection platform automatically transmits data to the nearest geostationary meteorological satellite, which relays the information through its central ground station to the end users.

Operators of METEOSAT receiving systems can hear the DCP messages as bursts of strange noises in between the transmission of METEOSAT image frames, during the 20 second 'quiet' periods.

For further information, write to the World Meteorological Organisation, Geneva, Switzerland and request WMO 411; "Information on Meteorological and other Environmental Satellites". For further details on the METEOSAT system and EUMETSAT programmes you can write to: The Information Division, EUMETSAT, Am Elfengrund 45, D-6100 Darmstadt-Eberstadt.

NOAA WXSATS

NASA have recently announced that they plan to reduce the operations of NOAAs 9 and 10 as part of a $15 million savings project. This is scheduled for December this year, but later information suggests that some equipment (including a.p.t.) on board the satellites may be left operating. Other satellites affected include NIMBUS 7, ERBS and UARS (scheduled for Spring 1993).

The NOAA program includes four currently operational weather satellites, of which the longest operating is NOAA 9, launched on 12 December 1984. It continues to provide good data despite suffering from a number of equipment failures. Its AVHRR (Advanced Very High Resolution Radiometer) scanning motor has periods of unusable data; another scanner has failed, as have its battery prime charge regulators.

NOAA 10 was launched on 17 September 1986 into a morning

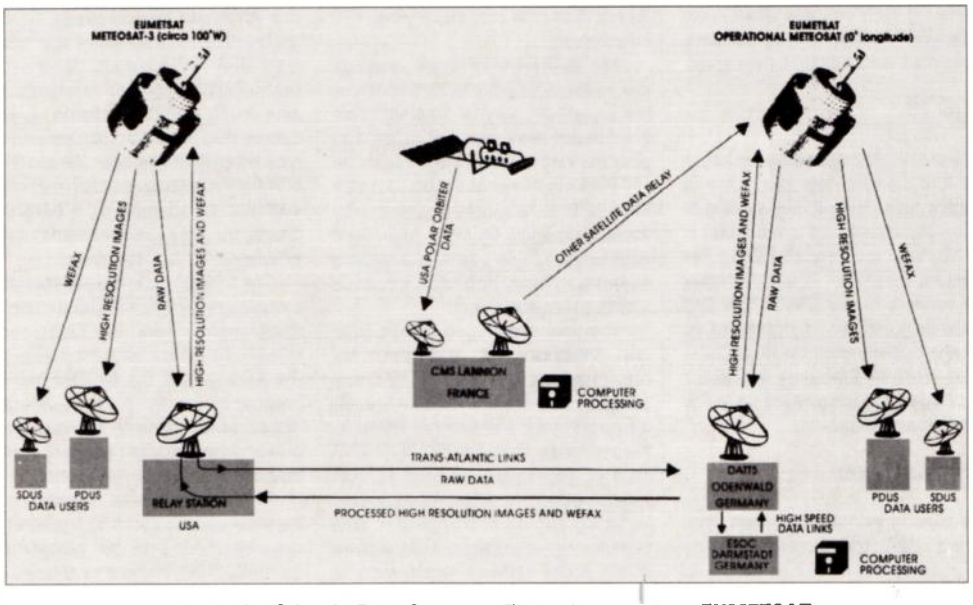

Fig. 1: The Atlantic Data Coverage Extension; courtesy EUMETSAT

Fig. 2: An Automatic Data Collection Platform located in Greenland; courtesy EUMETSAT.

descending orbit, and is classed as the stand-by for NOAA 12 and has been allowed to continue transmitting a.p.t. for both amateur and professional users, despite also experiencing some equipment failures. Its AVHRR scan motor has a high jitter.

NOAA 11 is one of the operational satellites, launched on 24 September 1988 into an afternoon ascending orbit, that is, it crosses the equator travelling northwards during the afternoon. Being sun-synchronous it always passes the UK (and every other place on the globe) during local afternoon hours. It too suffers from some equipment problems but is generally healthy.

Finally, NOAA 12, launched on 14 May 1991 into a morning descending orbit, is the latest operational WXSAT and has a healthy status. The next launch is that of NOAA 13 which has been re-scheduled for October 20, so might possibly be operating by the time that this appears.

GOES 9

The next launch in the American GOES programme is currently scheduled for December 1992. I'll keep you posted as and when I get more news on this.

Computers

Many readers are writing to ask about the best way to start setting up a domestic WXSAT receiving station, and most ask for more advice about the most suitable type of computer to purchase. I have covered this topic a couple of months back, but so many letters request help that further mention seems justified.

For those who are actually proposing to purchase a computer for WXSAT use I recommend one of the PC clones, that is, one which runs 'IBM' compatible software. The reasons for this recommendation are numerous, but if anyone feels that I am being unfair to many other good machines, do write, and I will be happy to air your views!

Some of the 'educational-user' machines - the Nimbus, Archimedes, and others are served quite well for the WXSAT field. **Michael Barton** of Milton Keynes is an electronics student who, as part of his studies, is building an a.p.t. decoder to feed an Archimedes computer. However, most users may want to run other non-satellite programs on their computer, and that is where you can run into problems. For purely WXSAT use you can buy almost any '286' machine (that is, one using the 80286 processing chip) and if you monitor computer prices as I do, you will be aware of the price reductions which this type of computer has experienced, partly as a result of the recession.

Computer Prices Down

The '386' that I bought last February has dropped in price quite dramatically, as have all IBM clones. Even the new Ambra computer, which was only released a few months ago, has had its price cut. Fellow Plymothian **Alan Wilkins** recently bought a '386SX' computer fitted with 2Mb RAM and a 44Mb hard disk. One important part is the SVGA monitor, which, as I mentioned recently, offers very good resolution. Alan mentions that his SVGA monitor is non-interlaced. It is possible that when the monitor's highest resolution is selected (software may provide the choice of different resolutions depending on your monitor) the monitor may actually be non-interlaced, but this is only available on the more expensive monitors. Most monitors only provide non-interlaced displays when the lower resolutions are used. A check of the manual will tell you, but do this before purchase!

Robert Slater of Birmingham has asked me to assist his plunge into bankruptcy by sending him the latest Kepler elements to use with his recently acquired tracking program. He fears that he can see overdrafts looming as he assembles a receiving station. Careful, Robert!

Steve Larby of Germany is a PC GOES/WEFAX user and he apparently uses the AOR 3000 model receiver. As has been mentioned before, the optimum bandwidth for WXSAT picture decoding is about 50kHz and so specially designed receivers are invariably used. Conventional receivers having about 12kHz bandwidth will not provide good quality pictures. Some experts in receiver design have successfully modified their conventional receivers to cope with the full bandwidth. Steve also uses an AOR wideband active antenna for h.f. reception.

Another German reader, **Wolfgang Seyfried** monitors the American Shuttle as well as the WXSATS, though, of course, using different receivers.

Amiga

I mentioned that some readers are developing their own software for specific computers and said that I would keep this column up-to-date with their work. **Nick Grundy G4NKV** of Selby has continued to develop his 'Satrack' software for the Amiga, and his latest version is 3.0. Nick's program has some new features and anyone wishing to contact him can do so by sending an s.a.e. to him at Bar Farm, 15 Main Road, Drax, Selby, N Yorkshire YO8 8PA.

Solar Activity

John Wills of Romford asks about the possible effects of recent high solar activity on WXSAT signals. I spent many years professionally studying solar activity and became quite interested in this particular field, helping to set up some solar radio telescopes at the Radio and Space Research Station, which later moved to the Rutherford Appleton Laboratories near Didcot.

WXSATS use two distinct bands for data transmission - 137 & 1690MHz. On some occasions when the sun is active, particles from solar explosions (flares) reach us and interact with earth's upper atmosphere allowing some signal reflection to occur at v.h.f., and so transmissions may then carry much further than normal.

The difference between satellite and terrestrial transmissions is that satellite transmissions are beamed directly into the antenna from above the ionosphere, and so are available to any antenna within the satellite's footprint (that area which can 'hear' the satellite signal).

There is very little effect on satellite transmissions in the 137MHz band because the satellites are orbiting the earth, and so remain above the horizon for limited periods. At best, there might be a small amount of reflected signal received for a short period near the horizon.

An earth-based v.h.f. transmitter usually has a reception area consisting of those stations in its direct line of sight, and so this will normally be limited to its horizon. Consequently, earth-based v.h.f. transmitters can sometimes be heard many miles away during enhanced solar activity.

Solar Heating

The 1690MHz band has only limited susceptibility to solar interference because of the use of dishes and other highly directional antennas used at these frequencies. The main problem concerns the sun passing through the antenna during the equinoxes at about mid-day for a few days. At this time the main problem is thermal - the focused image of the sun gets very hot! If you have a pre-amp near the focus of the dish it can be damaged by the heat. Solar activity itself has no significant effect on this WXSAT band.

It is worth mentioning that several amateurs build solar telescopes which include a dish and pre-amp to operate at frequencies near 1690MHz, and so need to be able to track the sun, compared with those that can remain pointing at the geostationary satellite.

Kepler Elements

I can send a print-out of the latest elements upon receiving an s.a.e. plus two separate stamps. All weather satellites are included, together with their transmission frequencies if operating. This data originates from NASA.

Frequencies

NOAAs 9, 11 a.p.t. on 137.62MHz; NOAAs 10, 12 on 137.50MHz; NOAA beacons on 136.77 and 137.77MHz; METEOR 3-5 on 137.85MHz; OKEAN 3 on 137.40MHz (rarely); FENGYUN 1-3 expect on 137.80 or 137.06MHz

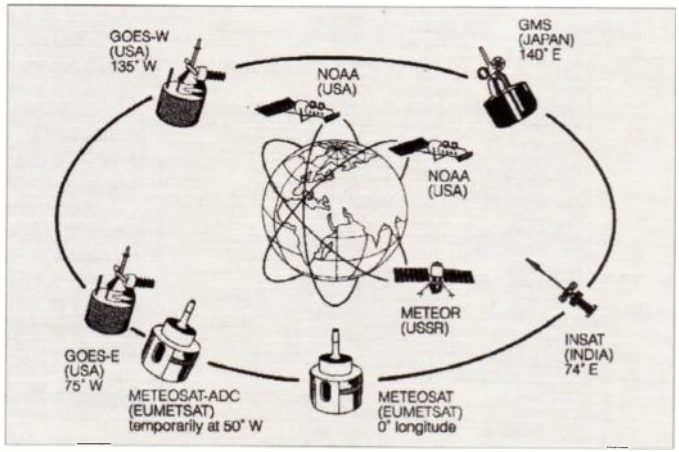

Fig. 3: Global Meteorological Satellite System; courtesy EUMETSAT.

long medium & short

Brian Oddy G3FEX, Three Corners, Merryfield Way, Storrington, West Sussex RH20 4NS

Medium Wave Chart

Freq kHz	Station	Country	Power kW	Listener
520	Hof-Saale	Germany	0.2	L*,P*
531	Ain Beida	Algeria	600	N*,Q*,T*
531	Leipzig	Germany	100	B*,P*,Q,T*
531	Oviedo	Spain	10	P*,Q
540	BRT-2 Wavre	Belgium	150/50	B*,C,F*,G,H,N*,P*,Q,S,T*,V
540	Solt	Hungary	2000	P*
540	Sidi Bennour	Morocco	600	F*,P*,Q*
549	Les Trembles	Algeria	600	F*,H*,N*,P*,Q*
549	DLF Bayreuth	Germany	200	B*,C*,H,P*,Q,S,T*
558	Espoo	Finland	100	W*
558	Rostock	Germany	20	P*
558	Valencia	Spain	20	B*,P*,Q,T*
567	Berlin	Germany	100	P*,T*
567	RTE-1 Tullamore	Ireland (S)	500	B*,C*,E*,G*,H*,J*, K*,Q,S,T*U,V
576	Vidin	Bulgaria	100	P*
576	Muhlacker	Germany	500	H,T*
576	Stuttgart	Germany	500	B*,P*,Q*
576	RNE-5 Barcelona	Spain	20	H*,Q*
585	Orf Wien	Austria	600	H,T*
585	FIP Paris	France	8	B*,P*,Q,V
585	RNE-1 Madrid	Spain	200	F*,G*,H*,J*,P*,Q*,S*,T* U,X*
585	Gafsa	Tunisia	350	Q*
594	Frankfurt	Germany	1000/400	B*,H,P*,Q*
594	Muge	Portugal	100	C*,P*,Q*,T*
603	Lyon	France	300	Q*
603	Sevilla	Spain	20	H*,*,Q*
603	Sousse	Tunisia	10	L*
603	BBC-R4	UK	2	B*,F*,G*,T*
612	RTE-2 Athlone	Ireland (S)	100	B*,H*,J*,K*,Q*,S,U
612	Lerida	Spain	10	Q*,T*
621	RTBF-1 Wavre	Belgium	80	B*,F*,G*,H,P*,Q*,S*,T*,V
621	Orava	Czech	14	L*
621	Batra	Egypt	2000	L*
621	Barcelona	Spain	10	H*,L*,P*,Q
630	Vigra	Norway	100	F*,L*,P*,Q*
630	Tunis-Djedeida	Tunisia	600	L*,P*,Q*
639	RNE-1 Almeria	Spain	20	B*
639	La Coruna	Spain	100	H*,P*,Q*,S*,T*
648	Sobota	Slovenia	10	L*
648	Palma de Mallorca	Spain	10	L*
648	BBC Orfordness	UK	500	B*,C,P*,Q,S,T*,V
657	Burg	Germany	250	P*,Q*
657	RCE-2 Madrid	Spain	20	H*,P*,Q*
657	BBC-R Wales	UK	2	B*,S,T*
666	Bodenseesender	Germany	300/180	C*,P*
666	Lisboa	Portugal	135	Q*
666	Barcelona	Spain	20	L*,P*
675	Marseille	France	500	H*
675	Hilversum-3 Lopic	Holland	120	A*,B*,C*,G,N,P*,Q,S*,T*,V
675	Uzhgorod	Ukraine	50	L
684	RNE-1 Sevilla	Spain	250	B*,F*,H*,P*,Q*,T*
684	Beograd	Yugoslavia	2000	F*,Q*,T*
693	Berlin	Germany	250	P*
693	BBC-R5 Droitwich	UK	150	C,G,J,S,T*,V
702	Aachen/Flensburg	Germany	5	F*,H,P*,Q*
702	Monte Carlo	Monaco	300	H*,P*,Q*
702	Zamora	Spain	5	H*,Q*
711	Rennes 1	France	300	B*,H,P*,Q,V
711	Heidelberg	Germany	5	P*,T*
711	Laayoune	Morocco	600	F*,H*,Q*
720	Norte	Portugal	100	P*,Q*
720	Sfax	Tunisia	200	L*
720	BBC-R4 Lots Rd London	UK	0.5	B*,G,Q,S*,T*
729	RTE-1 Cork	Ireland (S)	10	B*,F*,P*,Q,S,T*
729	Oviedo	Spain	50	H*,P*,Q*,T*
738	Paris	France	4	P*,Q
738	RNE-1 Barcelona	Spain	250	B*,H*,P*,Q*,T*,X*
747	Hilversum-2 Flevo	Holland	400	B*,G,H*,J*,N,P*,Q,S,T*,V
747	Gobabis	Namibia	100	I*
747	R.Cadena, Cadiz	Spain	10	P*
756	Brunswick	Germany	800/200	B*,C*,G,H*,P*,Q*,T*
756	Blantyre	Malawi	50	I
756	BBC-R4 Redruth	UK	2	Q
765	Sottens	Switzerland	500	B*,P*,Q*,T*
774	Hrvatski R.	Croatia	50/10	L*
774	BBC-R4 Ennisk'	Ireland (N)	1	P*
774	RNE-1 S.Sebastian	Spain	60	B*,P*,Q*,T*
783	Burg	Germany	1000	B*,P*,Q*
783	R.Porto, Miramar	Portugal	100	F*,Q*,T*
783	Dammam	S. Arabia	100	H*
792	Limoges	France	300	P*
792	Sevilla	Spain	20	P*,Q*,T*
801	Munchen-Isman	Germany	300	H*,P*,Q*,T*
801	Burgos	Spain	10	H*,P*,Q*
810	SER Madrid	Spain	20	F*,P*
810	BBC-Scot	UK	100	B*,E,F*,G*,H,M*,P*, Q*,S,T*,Z*
819	Sud-Radio	Andorra	900	B*
819	Batra	Egypt	450	L*
819	Toulouse	France	50	P*
819	Rabat	Morocco	25	P*,Y*
819	Warsaw	Poland	300	Q*,T*
819	San Sebastian	Spain	5	P*
837	Nancy	France	200	P*
837	R.Popular, Sevilla	Spain	10	B*,P*,Q*
846	Rome	Italy	540	H*,P*,Q*,T*
855	Berlin	Germany	100	T*
855	Murcia	Spain	125	H*,P*,Q,T*
864	Paris	France	300	B*,H,P*,Q,S,U,V
864	RNE-1	Spain	10	H*
873	AFN via Frankfurt	Germany	150	F*,H*,J*,N*,P*,Q*,S,T*,X*
873	Zaragoza	Spain	20	Q*,T*
873	R.Ulster,Ennisk'	UK	1	P*
882	COPE Malaga	Spain	5	P*
882	BBC-Wales	UK	100	B*,G*,H,P*,Q,S,T*,U,V,Z
891	Algiers	Algeria	600/300	F*,H*,N*,P*,Q*,S*,Y*
891	Hulsberg	Holland	20	Q*
891	R.Lesotho	Lesotho	100	I*
891	Uzghorod	Ukraine	150	L*
900	Pilsen	Czech	40	L,P*
900	Milan	Italy	600	H*,P*,T*
900	COPE-Bilbao	Spain	10	Q*
900	Qurayyat	S.Arabia	1000	Q*
909	BBC-R5	UK	140	S
909	BBC-R5 Clevedon	UK	50	B*
909	BBC-R5	UK	200	L*,T*
918	R.Intercont.	Spain	20	F*,P*
918	R.Ljubljana	Slovenia	600/100	T*
927	BRT-1 Wolvertem	Belgium	300	B*,C,H,J*,P*,Q,S,T*,V
927	Izmir	Turkey	200	I*
936	Bremen	Germany	100	D*,P*,Q*,T*
936	Venezia	Italy	20	Q*
936	SER Lerida	Spain	2	P*
945	Toulouse	France	300	B*,P*,Q*,T*
954	Dobrochov	Czech	200	T*
954	Al Arish	Qatar	1500	P*
954	RCE Madrid	Spain	20	B*,H*,P*,Q*,T*
954	R.Swaziland	Swaziland	50	I*
963	Sofia	Bulgaria	150	P*
963	Pori	Finland	600	B*,D*,E*,G*,H*,K*,L*,P*, Q*,S,T*,U*,W*
972	Hamburg	Germany	300	B*,G*,H*,P*,Q*,S*
972	RNE-1 Cordoba	Spain	5	T*
981	Alger	Algeria	600/300	F*,G*,L*,N*,Q*,T*
981	Megara	Greece	200	I*
990	Berlin	Germany	300	P*
990	SER R.Bilbao	Spain	10	H,P*
990	BBC-Tywyn	UK	1	B*
999	Hoyerswerda	Germany	20	P*
999	R.Popular, Madrid	Spain	20	G*,H*
1008	Hilversum-5 Flevo	Holland	400	B*,H,N,P*,Q,S*,V
1017	Rheinsender	Germany	600	H,P*,Q*,T*
1017	RNE-5 Burgos	Spain	5	P*
1026	Graz-Dobl	Austria	100	P*,Q*
1035	Prog.3 Lisbon	Portugal	120	P*,Q*,U*
1035	Tshisahulu, Venda	S Africa	100	I*
1044	Dresden	Germany	250	N*,P*,Q*,T*
1044	Sebaa-Aioun	Morocco	300	F*,N*,Q*
1044	San Sebastian	Spain	10	H
1053	BBC-R1 Droitwich	UK	150	C*,S,T*,V
1062	Kalundborg	Denmark	250	B*,F*,H,L*,N*,P*,Q*,T*
1071	Brest	France	20	P*,Q*,T*
1071	Lille	France	40	B*,F*,H,V
1071	Bilbao	Spain	5	L*
1080	Maputo	Mozambique	5	I*
1080	Katowice	Poland	1500	C*,N*,P*,Q&,T*
1080	SER-Granada	Spain	5	N*
1089	Durres	Albania	150	L*
1089	BBC-R1	UK	150	S,T*
1089	BBC-R1 Washford	UK	50	B*
1089	Krasnodar	CIS	300	P*
1098	Nitra	Czech	1500	C*,H*,T*
1098	RNE-5	Spain	10	P*
1107	AFN via Munich	Germany	40	N*,P*,S,T*
1107	RNE-5 Barcelona	Spain	20	N*,P*
1116	Bologna	Italy	60	X*
1116	SER-Pontevedra	Spain	2	P*
1125	La Louviere	Belgium	20	P*,Q,V
1125	Tovarnik	Croatia	300/100	L
1125	RNE 5	Spain	10	H,Q*
1125	BBC	UK	1	B*
1134	Valencia	Spain	10	Q*
1134	Zadar	Yugoslavia	1200	H*,P*,T*
1143	AFN via Stuttgart	Germany	10	B*,F*,P*,S,T*
1143	Messina	Italy	6	Q*
1143	Kaliningrad	Russia	150	P*
1152	Cluj	Roumania	950	L
1152	RNE-5	Spain	10	P*
1161	Strasbourg (F.Int)	France	200	H*,P*
1170	TWR Manzini	Swaziland	50	I*
1170	Krasnodar	CIS	500	P*
1179	Santiago	Spain	10	P*
1179	Solvesborg	Sweden	600	B*,H*,K*,M*,P*,Q*, R*,S,T*,U*
1188	Kuurne	Belgium	5	B*,P*,Q,V
1197	VOA via Munich	Germany	300	C*,H*,Q*,P*,T*
1206	Bordeaux	France	100	B*,H,P*,Q*
1206	Wroclaw	Poland	200	F*,P*,Q*,T*
1215	Lushnja	Albania	500	C*
1215	Kaliningrad	Russia	500	L,T*
1215	COPE Castellon	Spain	2	L,P*
1224	Vidin	Bulgaria	500	P*,Q*
1224	COPE Madrid	Spain	20	H
1233	Liege	Belgium	5	Q*
1233	Nitra?	Czecho	40	P*,T*
1242	Marseille	France	150	P*,T*
1251	Marcali	Hungary	500	T*
1251	Tripoli	Libya	500	L*
1251	Huisberg	Netherl'ds	10	F*,T*
1260	VOA via Rhodes	Greece	500	I*,L*,P*,T*
1260	Valencia	Spain	20	B*,H*,L*,P*,Q*,T*
1269	Neuminster	Germany	600	C*,E*,H*,N,P*,Q*,T*
1269	Novi Sad	Serbia	600/150	L
1278	Strasbourg	France	300	P*
1278	RTE-2 Dublin/Cork	Eire	10	B*,F*,P*,Q*,S
1287	Litomysl/Liblice	Czech	300/200	P*,Q*
1287	Melnik	Czech	400	T*
1296	San Sebastian	Spain	5	P*,Q*
1296	BBC Orfordness	UK	500	L*,P*,Q*,T*,V
1305	Rzeszow	Poland	100	P*
1305	Orense (RNE5)	Spain	5	P*
1314	Kvitsoy	Norway	1200	B*,C*,H*,O,P*,Q*,S,T*,V
1323	R.Moscow	Germany	150	P*,T*
1332	Pescara	Italy	25	X*
1332	Rome	Italy	300	P*,T*,X*
1341	BBC-Ulst.	Ireland (N)	100	B*,C*,H*,K*,Q*,S
1341	SER Tarrasa	Spain	2	T*
1350	Nancy/Nice	France	100	B*,H*,P*,S,T*,V
1359	Berlin	Germany	250/100	C*,P*
1368	Manx Radio	IOM	20	F*,P*
1377	Lille	France	300	B*,H,P*,Q,V
1377	Sandlane	Swaziland	50	I*
1386	Kaliningrad	Russia	500	H*,P*,Q*,S,T*
1395	R.Tirana	Albania	1000	A*,B*,C*,P*,Q*,T*
1404	Brest	France	20	B*,H,O,P*,Q,T*,V
1413	RCE Zaragoza	Spain	20	H*,P*,Q*,X*
1413	Pristina	Yugosl'a	1000	L*
1422	Heusweiler	Germany	1200/600	B*,C*,H,P*,Q*,S*,T*,V
1431	Dresden	Germany	250	P*
1431	Nikolayev	Ukraine	400	L*
1440	RTL Marnach	Luxemb'g	1200	B*,H*,P*,Q,S,T*,V
1449	Berlin	Germany	5	H*,P*
1467	TWR Monte Carlo	Monaco	1000/400	B*,F*,N*,P*,Q*,S,T*
1476	Wien-Bisamberg	Austria	600	C,H*,P*,Q*,S
1494	Clermont-Ferrand	France	20	B*,P*,Q*,T*,V
1494	St.Petersburg	Russia	1000	P*
1503	Stargard	Poland	300	B*,K*,Q*,P*,Q*,S*,T*,V
1512	BRT Wolvertem	Belgium	600	B*,N,P*,Q*,S*,T*,V
1512	Tallin	Estonia	30	L*
1512	Chania	Greece	50	L*
1512	Jeddadh	S.Arabia	1000	I*
1521	Kosice	Czech	600	P*,Q*,T*
1521	Oviedo	Spain	5	L*
1530	Vatican Radio	Italy	150/450	B*,C,P*,Q*,T*
1539	Mainflingen	Germany	700	B*,H*,P*,Q*,S,T*
1548	R.Moscow	Moldavia	500	L*
1557	Nice	France	300	B*,T*
1557	Ardabil	Iran	10	L*
1557	DW via Cyclops	Malta	600	I*
1557	R.Vilnius, Kaunas	Russia	75	A*
1566	Sarnen	Switzerl'd	300	O*,P*,T*
1566	Sfax	Tunisia	1200	L*
1566	Smarje	Yugosl'a	2	L*
1575	Burg	Germany	250	B*P*,Q*
1575	Genoa	Italy	50	V
1575	Cordoba	Spain	5	T*
1584	Ostroda	Poland	1	L*
1593	Langenberg	Germany	400/800	B*,C,H*,P*,Q*,S*,T*,V,X*
1602	Zielona Gora	Poland	2	L*
1611	Vatican Radio	Italy	5	P*

Note: Entries marked * were logged during darkness
All other entries were logged during daylight or at dawn/dusk.

Listeners:
1: Ted Bardy, N. London
A: Leo Barr, Sunderland.
B: Darren Beasley, Bridgwater.
C: Vera Brindley, Woodhall Spa.
D: Vera Brindley, Knapton.
E: Jim Cash, Swanwick.
F: Neil Clarke, Bury.
G: John Eaton, Woking.
H: Ron Galliers, N.London.
I: P.R.Guruprasad, Swartruggens, S.Africa.
J: Robin Harvey, Bourne.
K: Francis Hearne, Bristol.
L: David Hertl, Lenesice, Czechoslovakia.
M: Simon Hockenhull, E.Bristol.
N: Sheila Hughes, Morden.
O: Rhoderick Illman, Oxted.
P: Eddie McKeown, Newry.
Q: George Millmore, Wootton I.O.W.
R: Ken Milne, Basingstoke.
S: Sid Morris, Rowley Regis.
T: Harry Richards, Barton-on-Humber.
U: Tom Smyth, Co.Fermanagh
V: Phil Townsend, E.London.
W: Edward Turnbull, Gosforth.
X: Ted Walden-Vincent, Gt Yarmouth.
Y: Jim Willett, Grimsby.
Z: Michael Williams, Redhill.

Many listeners have sent interesting reception reports to me during the year and extracts from them have been included in LM&S. My sincere thanks to all concerned. May I wish all readers a very Happy Christmas and good listening in 1993.

Long Wave Reports

Note: l.w. & m.w. frequencies in kHz; s.w. in MHz; Time in UTC (=GMT). Unless stated, all logs compiled in the four week period ending September 28.

The broadcasts from Poland on 225kHz have been mentioned in several reports recently, but I did not realise the significance of them until a letter arrived from **Roy Merrall** (Dunstable). He informed me that the 646m high l.w. mast at Konstantinow, believed to be the world's tallest structure, fell down on August 8 last year as a result of errors made during the replacement of one of the three main tension cables. The mast is to be rebuilt to the original height, but it is not expected to be in service until late 1993. An old reserve transmitter at Raszyn has been radiating Polish R-1 on 225kHz, but a newly installed l.w. transmitter at Raszyn should improve reception abroad from October 26. No doubt reports will be welcome, see Station Addresses.

For many years, **Harry Richards** (Barton-on-Humber) has been interested in the broadcasts from Luxembourg. Although most guide books give Junglinster as the location of their l.w. transmitter, he suspected this was not the case, so he wrote to RTL. The data he received indicates that their main l.w. transmitter (2000kW) is at Beidweiller, but a back-up transmitter (1200kW) is available at Junglinster.

Medium Wave Reports

Once again **Sid Morris** (Rowley Regis) has been searching the band for transatlantic DX from an unusual location.

long medium & short

Whilst in Powys, he trekked to the top of Long Mountain, Welshpool with his Sangean ATS-803A portable and a telescopic antenna. At 0240 he listened to a phone-in quiz show broadcast by CKOC in Hamilton, Ontairo on 1150kHz. Their signal rated SIO222. No other transatlantic signals were heard.

Rather poor conditions were noted by **Jim Willett** in Grimsby. Although CJYQ in St.John's on 930 was peaking SIO332 at 0100, no other signals could be heard until 0210, when CJCB in Sydney became audible on 1270. At 0215 he picked up CKPC in Brantford on 1380, their signal was SIO222 and Jim is now awaiting their QSL. CBY in Corner Brook 990 was logged as SIO222 at 0230. The broadcasts from CJYQ were also received by **Tony Bardy** in N.London. He rated them 22232 at 0400.

The sky wave signals from two stations in Saudi Arabia have reached the UK after dark! On September 8, **George Millmore** (Wootton, IOW) picked up Qurayyat on 900kHz (2000kW) SIO222 at 2215. Those from Jeddah on 1512 (1000kW) were logged by Tony Bardy as 20121 at 0230 on October 17. Very good reception from some continental stations was noted in the hour before sunset by **Phil Townsend** in E.London.

For some inexplicable reason **John Stevens** (Largs) has been receiving good ground wave signals from BBC R.Cornwall via Redruth on 630kHz (2kW) during the day, until recently they were inaudible.

Roy Patrick (Derby) has informed me that Sunrise Radio took over the Freemen's Common transmitter on 1260kHz from ILR Leicester (Gem AM) on September 15. Asian programmes are now broadcast 24 hours a day.

A licence to operate Sunshine Radio on 855kHz has been granted to South Shropshire Communications in Ludlow. **David Porter** (Ludlow) has confirmed that the transmitter was powered on October 2 for test purposes, with a measured e.m.r.p. of 150W. The station is expected to be fully operational by mid October, offering a 24 hour service of music, local news and information and national sport. Reception reports are welcome, see Station Addresses.

Local Radio Chart

Listeners:
A: Leo Barr, Sunderland.
B: Vera Brindley, Woodhall Spa.
C: Jim Cash, Swanwick.
D: Neil Clarke, Bury.
E: John Eaton, Woking.
F: Ron Galliers, N.London.
G: Robin Harvey, Bourne.
H: Francis Hearne, N.Bristol.
I: Simon Hockenhull, E.Bristol.
J: Sheila Hughes, Morden.
K: Rhoderick Illman, Oxted.
L: Eddie McKeown, Newry.
M: George Millmore, Wootton, IOW.
N: Sid Morris, Rowley Regis.
O: Roy Patrick, Derby.
P: Harry Richards, Barton-on-Humber.
Q: Tom Smyth, Co.Fermanagh.
R: John Stevens, Largs.
S: Phil Townsend, E.London.
T: John Wells, East Grinstead.
U: Michael Williams, Redhill.

Freq kHz	Station	ILR BBC	e.m.r.p (kW)	Listener
558	Spectrum R.	I	7.50	E*,J,M,N,T,U*
585	R.Solway	B	2.00	L*,N*,Q
603	Invicta Snd(Coast)	I	0.10	F,J,M,N,S,T,U
630	R.Bedfordshire	B	0.20	E*,F,J,M,S,T,U
630	R.Cornwall	B	2.00	M,R
657	R.Clwyd	B	2.00	B,F,L*,M,N,T,U
657	R.Cornwall	B	0.50	M
666	DevonAir R.	I	0.34	J,L*,M,T,U
666	R.York	B	0.80	F,J,N*,P*,T
729	BBC Essex	B	0.20	B,F,M,N,S,T,U
738	Hereford/Worcester	B	0.037	M,N,S,T
756	R.Cumbria	B	1.00	D*,L*,Q
765	BBC Essex	B	0.50	B,C,E,F,M,N,S,T,U
774	R.Kent	B	0.70	F,J,M,S,T,U
774	R.Leeds	B	0.50	B*,C,P*
774	Severn Sound (3CR)	I	0.14	H*,M,N,T
792	Chiltern R.	I	0.27	F,G*,M,N,S,T,U
801	R.Devon	B	2.00	C,I,J,L*,M,N*,T
828	Chiltern Radio	I	0.20	F,S,T,U
828	R.Aire(Magic 828)	I	0.12	D* P*
828	2CR	I	0.27	M,T
837	R.Furness	B	1.00	L*
837	R.Leicester	B	0.45	B*,C,F,M,N,P*,S T,U
855	R.Devon	B	1.00	M,T
855	R.Lancashire	B	1.50	L*,N*
855	R.Norfolk	B	1.50	F,S,T
873	R.Norfolk	B	0.30	B*,C,F,M,N*,S,T
936	GWR (Brunel R.)	I	0.18	J,L*,M,N,T
945	R.Trent (GEM-AM)	I	0.20	B*,M,N,T
954	DevonAir R.	I	0.32	J,M,T
954	R.Wyvern	I	0.16	N,T
990	WABC (Nice & Easy)	I	0.09	N,T
990	R.Aberdeen	B	1.00	L*
990	R.Devon	B	1.00	J,M,T
990	Hallam R.(Gt.Yks)	I	0.25	B*,P*
999	R.Solent	B	1.00	J,M,T,U
999	R.Trent (GEM-AM)	I	0.25	T
999	Red Rose R.	I	0.80	L*
1017	WABC Shrewsbury	I	0.70	M,N,T
1026	Downtown R.	I	1.70	Q
1026	R.Cambridgeshire	B	0.50	F,J,S,T,U
1026	R.Jersey	B	1.00	M,T,U*
1035	R.Kent	B	0.50	F,J,M,S,T
1035	West Sound	I	0.32	L*
1107	Moray Firth R.	I	1.50	L*
1116	R.Derby	B	1.20	D*,L*,N,T
1116	R.Guernsey	B	0.50	M,T,U
1152	BRMB (Xtra-AM)	I	3.00	N
1152	LBC (L.Talkback R)	I	23.50	J,K*,M
1152	R.Broadland	I	0.83	L*
1161	GWR (Brunel R.)	I	0.16	J,M,T
1161	R.Bedfordshire	B	0.10	F,S,T
1161	R.Sussex	B	1.00	M,T
1161	Viking R.(Gt.Yks)	I	0.35	C,P*
1170	Ocean Sd.(SCR)	I	0.12	L*,M,T
1170	R.Orwell (SGR-FM)	I	0.28	S,T
1170	Signal R.	I	0.20	N
1242	Invicta Snd(Coast)	I	0.32	F,J,K*,S,T
1242	Isle of Wight R.	I	0.50	L*,M,T
1251	Saxon R. (SGR-FM)	I	0.78	D*,F,L*,S,T
1260	GWR (Brunel R.)	I	1.60	J,K,L*,M,T
1260	Leicester (Sunrise)	I	0.29	N,O,S,T
1278	Pennine R(Gt.Yks)	I	0.43	M
1305	R.Hallam (Gt.Yks)	I	0.15	C,P*
1305	Red Dragon (Touch)	I	0.20	L*,M,T
1323	R.Bristol (Som.Snd)	B	0.63	L*,T
1323	S'thern Sound(SCR)	I	0.50	F,M,S,T
1332	Hereward R.(WGMS)	I	0.60	B*,J,K,N,S,T
1332	Wiltshire Sound	B	0.30	L*,M,T
1359	Essex R.(Breeze)	I	0.28	F,K,S,T
1359	Mercia Snd(Xtra-AM)	I	0.27	N
1359	R.Solent	B	0.85	L*,M
1368	R.Lincolnshire	B	2.00	L*,P*,T
1368	R.Sussex	B	0.50	F,J,M,S,T
1368	Wiltshire Sound	B	0.10	L*,M
1413	Sunrise R.	I	0.125	F,J,K,M,S,T,U
1431	Essex R.(Breeze)	I	0.35	C,H*,K*,T
1431	R.210 (Cl. Gold)	I	0.14	M,T
1449	R.Peterboro/Cambs	B	0.15	C,M,T
1458	GLR	B	50.00	T
1458	R.Cumbria	B	0.50	L*
1458	R.Devon	B	2.00	M,T
1476	C'ty Snd(1st Gold)	I	0.50	D*,F,L*,M,S,T
1485	R.Humberside	B	1.00	C,L*,P*
1485	R.Merseyside	B	1.20	L*,N,Q
1485	R.Sussex	B	1.00	M,S,T
1503	R.Stoke-on-Trent	B	1.00	A,C,L*,M,N,T
1521	R.Mercury	I	0.84	F,L*,M,S
1530	Pennine R(Gt.Yks)	I	0.74	C,L*
1530	R.Essex	B	0.15	F,M,S,T
1530	R.Wyvern	I	0.52	M,N,T
1548	Capital R. (Gold)	I	97.50	M,T
1548	R.Bristol	B	5.00	L*,M
1548	R.Forth (Max AM)	I	2.20	L*
1548	R.Hallam (Gt.Yks)	I	0.74	B,C
1557	Chiltern R.(Gold)	I	0.76	C,D*,L*,N*
1557	Ocean Sound (SCR)	I	0.50	L*,M,T
1557	R.Lancashire	B	0.25	L*
1557	Tendring R.(Mellow)	I	?	T
1584	R.Nottingham	B	1.00	B,L*,M,T
1584	R.Shropshire	B	0.50	N
1584	R.Tay	I	0.21	L*
1602	R.Kent	B	0.25	J,L*,M,P*,S,T

Note. Entries marked * were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

Short Wave Reports

During September the propagation in the h.f. bands were frequently upset by the effects of solar activity. On some days the activity was so intense that sudden ionospheric disturbances (s.i.d.) resulted and reception from many areas was disrupted.

The solar activity resulted in daily variations in propagation in the **25MHz (11m)** band. Unfavourable conditions and high noise levels often prevented listeners in the UK from hearing the broadcasts from R.Australia via Darwin on 25.750 (Eng to Japan, China, N.Europe 0800-0900), but they were received some mornings. **David Edwardson** (Wallsend) was one of the few contributors who picked-up their *Waltzing Matilda* signature tune at 0757. He listened to their bulletin of news and noted SINPO 35543 in his log. Their transmission, which is beamed on a trans-polar (Arctic) route, also reached S.Africa. **P.R.Guruprasad** (Swartruggens) quoted 25222 at 0835.

The broadcasts from UAE R, Abu Dhabi on 25.690 (Ar to ? 0900-1600) were noted in several reports. The signal ratings ranged from 25443 at 1058 by **Richard Radford-Reynolds** in Guildford to a potent 55545 at 1515 by **Chris Shorten** in Norwich. Also logged were DW via Julich, Germany 25.740 (Ger to M.East, E.Asia 1100-1355), rated 15111 at 1228 by **Ron Galliers** in N.London; RFI via Issoudun, France 25.820 (Fr to E.Africa 0700-1550) 44423 at 1430 by **Simon Hockenhull** in E.Bristol; R.Nederlands via Flevo 25.940 (Du to W.Africa 1030-1115, Sun Only) 35322 at 1044 by **Jim Cash** in Swanwick.

In the **21MHz (13m)** band three of R.Australia's broadcasts have been reaching the UK: 21.525 from Darwin (Eng to SE.Asia 0200-0800), rated 44444 at 0737 by **Eddie McKeown** in Newry; 21.590 from Carnarvon (Eng to Pacific areas 0100-0900) SIO333 at 0850 in Largs; 21.725 from Darwin (Eng to S.Asia 0800-1300) SIO223 at 1205 by **Michael Williams** in Redhill, also received in Gibraltar by **Charles Beanland** and rated 33323 at 1155.

Also noted during the morning were R.Japan via Moyabi 21.575 (Eng, Jap to Europe 0700-0900) rated SIO433 at 0700 by **Cyril Kellam** in Sheffield; also 21.640 (Jap to Europe, M. East, Africa 0800-0900) 35553 at 0820 in Wallsend; R.Pakistan, Islamabad 21.520 (Eng to Europe 0800-0845) 45433 at 0828 by **Peter Polsen** in St.Andrews; VOA via Wertachtal 21.570 (Ar, Eng to M.East, N.Africa, Europe 0700-1100) 33333 at 0856 by **Peter Pollard** in Rugby; DW via Trincomalee 21.640 (Ger to Pacific, SE.Asia 0700-1000) 24333 at 0907 in Guildford; R.Pakistan, Islamabad 21.475 (Ind to S/SE.Asia 0900-1000) 33333 at 1000 by **Robert Connolly** in Kilkeel; R.Austria Int via Moosbrunn 21.490 (Ger, Eng to Australasia 0800-1100) 45333 at 1008 by **John Eaton** in Woking; UAE R.Dubai 21.605 (Ar, Eng to Europe 0615-1645) 55454 at 1033 in Swanwick; BBC via Limassol 21.470 (Eng to M.East, E.Africa 0430-1615) SIO244 at 1050 by **Kenneth Buck** in Edinburgh; Vatican R, Italy 21.850 (Port, Sp to S.America 1100-1215) SIO333 at 1131 by **Philip Rambaut** in Macclesfield.

During the afternoon the BBC via Ascension Is 21.660 (Eng to Africa 0900-1745) was 55444 at 1229 in Swartruggens; RFI via Issoudun 21.635 & 21.645 (Eng to E.USA, C.America, Caribbean 1230-1300) both rated 55555 at 1235 in Norwich; R.Kuwait 21.675 (Ar to Europe, USA 1300?-1800) SIO444 at 1420 by **John Coulter** in Winchester; BSKSA Riyadh, Saudi Arabia 21.505 (Ar [Home Service] 1030-1700) 34333 at 1452 in N.London; R.Sweden via Horby 21.500 (Eng to USA 1500-1600) 43333 at 1500 by **Sheila Hughes** in Morden; DW via Wertachtal 21.600 (Eng to Africa 1500-1550) SIO444 at 1500 by **Bryan Kimber** in Hereford.

Later, WYFR Okeechobee 21.500 (Eng to Europe, Africa 1700-1900) was rated 45433 at 1830 by **Darren Beasley** in Bridgwater; WCSN Scotts Corner 21.545 (Eng to Africa 1800-2000) SIO333 at 1815 by **Bill Clark** in Rotherham; R.Nederlands via Bonaire, Ned.Antilles

Long Wave Chart

Freq kHz	Station	Country	Power (kW)	Listener
153	Donebach	Germany	500	A*,B,G*,H*,I,J*,L
153	Brasov	Romania	1200	H*
162	Allouis	France	2000	A*,B,C,G*,H*,I,J,K,L
162	Agri	Turkey1000	E*	
171	Kaliningrad	Russia	1000	B,F*,H*,I,J,L
171	Medi 1-Nador	Morocco	2000	E*
177	Oranienburg	Germany	750	A*,B,D*,E*,H*,I,J*,L
183	Saarlouis	Germany	2000	A,B,C,D*,F*,G,H*,I,J,K,L
198	BBC Droitwich	UK	500	A*,C,D*,G,H*,I,J,K,L
198	BBC Westerglen	UK	50	B
207	Munich	Germany	500	A*,B,D*,F,H*,I,L
207	Azilel	Morocco	800	E*
216	RMC Roumoules	S.France	1400	A,B,D*,G*,H*,I,J*,K,L
216	Oslo	Norway	200	B,E*,G*,H*
225	Raszyn Resv TX	Poland	?	B,G*,H*,I,J*
234	Beidweiller	Luxembourg	2000	A*,B,C,D*,G,H*,I,J,K,L
234	St.Petersburg	Russia	1000	H*
243	Kalundborg	Denmark	300	A*,B,D*,G,H*,I,J*,L
243	Erzurum	Turkey	200	E*
252	Tipaza	Algeria	1500	I*
252	Atlantic 252	S.Ireland	500	A*,B,D*,E*,F,H*,I,J,K,L
261	Burg	Germany	200	D*,E,G*,I
261	Moscow	Russia	2000	B,J,L
270	Topolna	Czechoslovakia	1500	B,D*,E*,G*,H*,I*,J,L
279	Minsk	CIS	500	B,H*,J*

Note: Entries marked * were logged during darkness.
All other entries were logged during daylight or at dawn/dusk.

Listeners:
A: Vera Brindley, Woodhall Spa.
B: Kenneth Buck, Edinburgh.
C: John Eaton, Woking.
D: Ron Galliers, N.London.
E: David Hertl, Lenesice, Czechoslovakia.
F: Simon Hockenhull, E.Bristol.
G: Sheila Hughes, Morden.
H: Eddie McKeown, Newry.
I: George Millmore, Wootton, IOW.
J: Sid Morris, Rowley Regis.
K: Tom Smyth, Co.Fermanagh.
L: Phil Townsend, E.London.

Tropical Bands

21.590 (Eng to Africa 1730-2025) 44434 at 1925 by **Rhoderick Illman** in Oxted; HCJB, Ecuador 21.455 (Eng, Worldwide u.s.b + p.c.) 35454 at 1930 by **John Nash** in Brighton; WYFR Okeechobee 21.615 (Eng, Ger, It to Europe 1600-2145) 44434 at 1934 by **Vera Brindley** in Woodhall Spa; RCI via Sackville 21.675 (Eng, Fr to Europe 1900-2059) 34433 at 1945 in E.Bristol.

In the **17MHz (16m)** band potent signals have reached the UK from R.Australia some mornings. Their broadcast to Pacific areas via Shepparton on 17.715 (Eng 0030-0730) was rated 55545 at 0705 in Norwich. Also noted was 17.630 from Darwin (Eng to Asia 0700-0900), 42443 at 0855 in Bridgwater.

Also received here during the morning were R.Romania Int, Bucharest 17.905 (Eng to Pacific areas 0645-0715), 44444 at 0707 in St.Andrews; R.Pakistan, Islamabad 17.900 (Eng, Ur to W.Europe 0800-1105) SIO444 at 0800 in Sheffield; Voice of Greece, Athens 17.525 (Gr, Eng to Australia 0800-0950) SIO444 at 0900 in Hereford; AIR via Aligarh 17.387 (Eng to N.E.Asia, Australia, NZ 1000-1100) SIO333 at 1048 in Macclesfield; Voice of Israel, Jerusalem 17.545 (Eng, Fr to W.Europe, C/E/N.America 1100-1200) SIO322 at 1100 by **Tom Smyth** in Co.Fermanagh and 43333 at 1110 in Gibraltar; KHBI, N.Mariana Is 17.555 (Eng to NE.Asia, Russia 0800-1200) 35333 at 1138 in Woking.

After mid-day, Africa No.1, Gabon 17.630 (Fr, Eng to W.Africa 0700-1600) was 33333 at 1250 in Kilkeel; RTM Tangier, Morocco 17.595 (Fr, Eng to M.East, N.Africa 1400-1700) 44444 at 1450 in Morden; BBC via Antigua 17.840 (Eng to USA, C/S.America 1400-1615) 32222 at 1504 in Woodhall Spa; R.Romania Int, Bucharest 17.745 (Eng to Africa 1730-1800) 33333 at 1735 in Swartruggens; R.Japan via Yamata? 17.775 (Eng to ? 1700-1800) 44444 at 1740 by **Darran Taplin** in Brenchley.

Later, the BBC via Ascension Is 17.880 (Eng to C.Africa 1400-2030) was 33233 at 1813 in N.London; DW via Trincomalee, Sri-Lanka 17.810 (Eng to W.Africa, M.East 1900-1950) 45544 at 1902 in Swanwick; VOA via Greenville 17.640 (Fr to Africa 1830-2200) 33333 at 2000 in Oxted; R.Nederlands via Bonaire 17.605 (Eng to W.Africa 1930-2030) 34333 at 2005 in Rugby; VOA via Bethany 17.800 (Eng to Africa 1600-2300) 44444 at 2038 by **Ken Milne** in Basingstoke; R.Havana Cuba 17.705 (Eng to Europe 2100-2200) SIO222 at 2104 in Redhill; RCI via Sackville 17.875 (Eng, Fr to Europe 1930-2159) 34433 at 1945 in E.Bristol and SIO333 at 2132 by **Julian Wood** in Elgin; HCJB, Ecuador 17.790 (Cz, Sw, Ger, Fr, Eng, Sp to Europe 1800-2230) SIO444 at 2130 in Edinburgh; VOFC Taiwan via Okeechobee 17.750 (Chin, Fr, Ger, Eng to Europe 1900-2300) SIO322 at 2205 in Rotherham; UAE R, Abu Dhabi 17.855 (Eng? to ? 2330?-?) SIO222 at 2330 by **Francis Hearne** in N.Bristol.

Good reception over long distances has been noted in the **15MHz (19m)** band on some days. Three of R.Australia's broadcasts often reached here: 15.320 from Shepparton 15.320 (Eng to New Guinea 2200-0730) rated SIO444 at 0700 in N.Bristol; 15.240 from Shepparton (Eng to Pacific areas 0030-0830) 34543 at 0815 in Wallsend; 15.170 from Darwin (Eng, Chin to Asia 0900-1400) 33333 at 1255 in N.London.

Throughout the day there are numerous broadcasts in a variety of languages to areas outside Europe. Among those logged during the morning were R.Pyongyang, N.Korea 15.340 (Eng to SE.Asia 0700-0750) 34444 at 0748 in Norwich; BBC via Tsang Tsui 15.280 (Eng to C.Asia 0100-0915) 24333 at 0909 in Guildford; AIR via Aligarh 15.050 (Eng to NE.Asia, Pacific 1000-1100) SIO333 at 1000 in Hereford; VOA via Greenville 15.265 (Sp to S.America 0930-1130) SIO212 at 1110 in Macclesfield; R.Finland via Pori 15.400 (Eng to USA 1125-1150) 55444 at 1125 by **Edward Turnbull** in Gosforth.

Later, the Voice of Greece, Athens 15.650 (Gr, Eng, Sw to USA, Sweden 1500-1550) SIO434 at 1500 in Winchester; KTWR Merizo, Guam 15.610 (Eng to ? 1500-1630) 42333 at 1510 in Newry; SRI via Sottens? 15.505 (Eng to C/SE.Asia 1500-1530) 53554 at 1515 in Bridgwater; R.Veritas Asia, Philippines 15.140 (Eng ident 1500, Pil

Freq MHz	Station	Country	UTC	DXer
3.200	TWR	Swaziland	0330	G
3.205	AIR Lucknow	India	0027	H
3.210	R.Mozambique	Mozambique	0314	G,M
3.215	R.Orange	S.Africa	1740	D,M,O
3.220	R.HCJB Quito	Ecuador	0310	G
3.220	R.Togo, Lome	Togo	2330	M,O,X
3.225	RRI Tanjung Pinang	Indonesia	2245	M
3.230	R.RSA	S.Africa	1852	M
3.232	RRI Bukittinggi	Indonesia	2245	M
3.240	TWR	Swaziland	1757	M
3.255	BBC via Maseru	Lesotho	0310	G,M,X
3.270	SWABC 1, Namibia	S.W.Africa	0352	M,O
3.280	R.Beira	Mozambique	1806	M
3.285	R.Sentinela, Obidos	Brazil	0355	O
3.295	Reykjavik	Iceland	2140	O
3.300	R.Cultural	Guatemala	0330	O,X
3.320	R.Orion	S.Africa	2150	H,M,O
3.325	FRCN Lagos	Nigeria	2114	M,O,P
3.338	R.Maputo	Mozambique	1750	D
3.355	R.Botswana	Gaborone	2112	G,I,M,P,W
3.355	AIR Kurseong	India	1655	W
3.365	R.Rebelde, La Julia	Cuba	0310	H,L,O,X
3.365	GBC Radio 2	Ghana	2100	C,D,L,M,N,O,P,Q,W
3.380	R.Malawi	Malawi	2200	G,M
3.395	RRI Tanjungkarang	Indonesia	2215	X
3.905	AIR Delhi	India	1555	I
3.915	BBC Kranji	Singapore	2150	F
3.925	AIR Khampur	India	1540	W
3.945	AIR Gorakhpur	India	1530	W
3.950	PBS Qinghai Xining	China	2225	O
3.955	BBC Skelton	England	2304	H,J,L
3.965	RFI Paris	France	2155	B,F,H,K,L,N,U
3.970	R.Buca	Cameroon	2220	X
3.975	BBC Skelton	England	0535	L
3.980	VOA Munich	W.Germany	1930	D,F,H,L,N,U
3.985	R.Beijing, China	via SRI Berne	2030	D,L,N,S
3.985	SRI Berne	Switzerland	1735	D,L,N,U
3.995	Tuvan R.	CIS	0030	D
3.995	DW Cologne (Julich)	W.Germany	2005	B,D,F,H,L,N,R
4.000	Bofoussam	Cameroon	2120	O,P
4.010	Kyrgyz R.	CIS	2310	L,M,O
4.055	R.Moskva 1 (Kalinin)	Russia	2118	D,L,P
4.220	PBS Xinjiang	China	2305	X
4.400	Kazakh R.	CIS	2235	D
4.500	Xinjiang	China	2215	F,L,M
4.545	Kazakh R.	CIS	2330	M
4.635	R.Dushanbe	Tadzhikistan	0035	O,L,X
4.650	R.Santa Ana	Bolivia	2357	O
4.735	Xinjiang	China	2315	A,F,G,L,M
4.750	R.Bertoura	Cameroon	2145	L
4.750	PBS Xizang, Lhasa	China	2335	M
4.750	R.Ulan Bator, Olgij	Mongolia	2335	X
4.755	R.Maranhao	Brazil	0030	E
4.760	Yunnan Kumming	China	2255	O
4.765	RTV Congolaise	Brazzaville	2206	W
4.765	R.Integracao	Brazil	2233	F
4.765	Brazzaville	PR.Congo	2000	C,E,F,H,L,N,O,P,Q,X
4.770	FRCN Kaduna	Nigeria	2002	C,D,E,G,L,N,P,W
4.775	R.Gabon, Libreville	Gabon	2145	M
4.783	RTM Bamako	Mali	0058	B
4.785	R.Baku	Azerbaijan	2343	L
4.790	AIR Shillong	India	0119	W
4.790	Azad Kashmir R.	Pakistan	0100	T
4.790	R.Atlantida	Peru	0001	M
4.790	TWR Manzini	Swaziland	1815	O,H,P,X
4.795	R.Douala	Cameroon	2042	D,E,H,L,N,P,W
4.795	La Voz de los Caras	Ecuador	2359	O
4.800	LNBS Lesotho	Maseru	2240	O,O
4.800	Kazakh R, Yakutsk	CIS	2330	L,M
4.805	R.Nac.Amazonas	Brazil	2345	O,X
4.810	R.Yerevan	CIS	2030	D,M
4.815	R.diff TV Burkina	Ouagadougou	2149	L,O
4.820	La Voz Evangelica	Honduras	0403	H,O
4.825	R.Cancao Nova	Brazil	0020	E,O
4.825	V of Selva	Peru	0348	O
4.825	R.Moscow (Yakutsk)	Siberia	0024	L
4.830	R.Grigota, Santa Cruz	Bolivia	0519	H
4.830	Gaborone	Botswana	1818	D,I,P
4.830	R.Tachira	Venezuela	0005	E,G,M,N,O,W
4.832	R.Reloj	Costa Rica	0600	E,H,M,W

Freq MHz	Station	Country	UTC	DXer
4.835	R.Tezulutlan, Coban	Guatemala	0340	D,G,M,O,W,X
4.835	RTM Bamako	Mali	2000	A,D,H,L,N,O,P,Q,W
4.845	R.Fides, La Paz	Bolivia	0328	O
4.845	ORTM Nouakchott	Mauritania	2000	B,C,E,H,L,N,O,P,W
4.850	R.Yaounde	Cameroon	1951	H,L,N,P,W
4.850	R.Tashkent 2	Uzbekistan	0027	L
4.860	AIR New Delhi	India	1915	H,M,W
4.860	R.Maracaibo	Venezuela	2225	M
4.865	PBS Lanzhou	China	2240	D,L,M,X
4.865	V of Cinaruco	Colombia	0020	M
4.865	R.Mozambique	Mozambique	1845	M
4.870	R.Cotonou	Benin	1950	H,L,N,P,W
4.875	R.Tbilisi	CIS	1830	M
4.885	Em.Reg.Zaire	Angola	2100	M
4.885	R.Clube do Para	Brazil	2315	E,G,M,O
4.885	Voice of Kenya	Kenya	1950	D,M,P
4.890	RFI Paris	via Gabon	0455	H,L,W
4.890	ORTS Dakar	Senegal	2040	N
4.895	Voz del Rio Arauca	Colombia	0045	E
4.895	R.Moscow (Kalinin)	Russia	2347	L
4.900	V. of the Strait 2	China	2155	M,X
4.900	RTG Conakry	Guinea	1815	D
4.900	SLBC Colombo	Sri Lanka	0025	M
4.905	R.Nat.N'djamena	Chad	2000	E,H,L,M,N,P
4.910	R.Zambia, Lusaka	Zambia	2157	E,L
4.915	R.Anhanguera	Brazil	2205	E,M
4.915	Armonias del Caqueta	Colombia	0050	E
4.915	GBC-1, Accra	Ghana	2045	A,L,M,N,P,O,X
4.915	Voice of Kenya	Kenya	1952	E,M,P
4.915	R.Cora, Lima	Peru	0426	O
4.918	R.Relogio Federal	Brazil	0030	E
4.920	ABC Brisbane	Australia	2045	M,P
4.920	R.Quito	Ecuador	0035	E,M,O
4.920	AIR Madras	India	1556	I
4.930	R.Moscow	Russia	2348	L,W
4.935	Voice of Kenya	Kenya	1935	H,I,L,N,P
4.940	R.Kiev 2	Ukraine	2030	B,L,N,W
4.950	R.Nac.Luanda	Angola	1920	X
4.955	R.Marajoara, Belem	Brazil	0045	M
4.958	Baku	Azerbaijan	0305	W
4.960	AIR New Delhi	India	0045	D,M,T,W
4.970	R.Rumbos, Caracas	Venezuela	0050	G,M
4.975	R.Uganda, Kampala	Uganda	1949	C,D,M,N,P
4.975	R.Dushanbe	CIS	2310	B,L,M
4.980	Ecos del Torbes	Venezuela	2233	E,G,M,O,W
4.990	AIR via Madras	India	0030	B,T
4.990	FRCN Lagos	Nigeria	1955	C,H,L,M,N,P,W
4.990	R.Moscow (Yerevan)	CIS	1900	M
5.004	R.Nacional, Bata	Eq.Guinea	2040	L,N,W
5.005	R.Nepal	Khumaltar	1610	W
5.010	R.Garoua	Cameroon	1956	L,N,P
5.010	Guangxi 2, Nanning	China	2333	L
5.010	SBC Singapore	Singapore	2320	O
5.015	R.Moskva 2 Arkhangelsk	CIS	0023	L
5.020	ORTN Niamey	Niger	0518	L,W
5.020	SLBC Tamil Home Sce.	Sri-Lanka	1550	I
5.025	ORTB Parakou	Benin	2154	W
5.025	R.Rebelde, Habana	Cuba	0110	M
5.025	R.Uganda, Kampala	Uganda	1755	M
5.035	R.Aparecida	Brazil	2215	F
5.035	R.Bangui	C.Africa	1954	C,W
5.035	R.Alma Ata	Kazakshtan	2000	L,V
5.040	Voz del Upano, Macas	Ecuador	2230	E,F,M
5.040	R.Tbilisi 1	CIS	2015	B,D,N
5.045	R.Cultura do Para	Brazil	0135	E,W
5.047	R.Togo, Lome	Togo	1957	A,H,L,M,P,W
5.050	Voice of the Strait	China	2053	M
5.050	Voz de Yopal, Yopal	Colombia	0120	M
5.050	Em.Jesus Gran Poder	Ecuador	0016	O
5.050	R.Tanzania	Tanzania	1910	I,M,N
5.052	SBC R-1	Singapore	2230	X
5.055	R.Difusora, Caceres	Brazil	0503	H
5.055	Faro del Caribe	Costa Rica	0345	O,W
5.055	RFO Cayenne(Matoury)	Fr. Guiana	0506	H
5.060	PBS Xinjiang	China	2310	O,L
5.075	Caracol Bogata	Colombia	2310	A,D,E,G,H,K,L,M,W
5.085	Croatian R	?	2355	L,M
5.097	R.Eco, Iquitos	Peru	0305	O,X
5.260	R.Alma Ata 2	CIS	2015	L,X
5.290	R.Moskva 1 Krasnoyarsk	Siberia	2228	F

DXers:
A: Leo Barr, Sunderland.
B: Charles Beanland, Gibraltar.
C: Jim Cash, Swanwick.
D: Robert Connolly, Kilkeel.
E: Antonio De Abreu-Teixeira, Evesham.
F: John Eaton, Woking.
G: David Edwardson, Wallsend.
H: Ron Galliers, N.London.
I: P.R. Guruprasad, Swartruggens, S.Africa.
J: Robin Harvey, Bourne.
K: Rhoderick Illman, Oxted.
L: Eddie McKeown, Newry.
M: Roy Merrall, Dunstable.
N: Sid Morris, Rowley Regis.
O: John Nash, Brighton.
P: Fred Pallant, Storrington.
Q: Roy Patrick, Derby.
R: Peter Pollard, Rugby.
S: Chris Shorten, Norwich.
T: Tony Singh, Hitchin.
U: Phil Townsend, E.London.
V: Edward Turnbull, Gosforth.
W: Vladimir Vassilev, Bratislava, Cz.
X: Jim Willett, Grimsby.

long medium & short

1505-1600) 33333 at 1520 in Morden; BBC via Woofferton, UK 15.070 (Eng to N/C.Africa 0700-2315) 44333 at 1550 in Swartruggens; BBC via Masirah Is, 15.310 (Eng to M.East, India 0900-1830) SIO333 at 1612 by **Ted Walden-Vincent** in Gt.Yarmouth; KTBN Salt Lake City 15.590 (Eng to E.USA 1600-0200) SIO322 at 1810 in Rotherham; Africa No.1, Gabon 15.475 (Fr, Eng to W.Africa 1600-2000) 44433 at 1858 in Swanwick; R.Moscow Int 15.375 (Eng to Africa?) 53324 at 1908 by **Martin Dale** in Stockport; DW via Julich 15.350 (Eng to W.Africa 1900-1950) SIO323 at 1935 in Elgin; BBC via Ascension Is 15.400 (Eng to W/C.Africa 1500-2315) 55444 at 1945 by **Robin Harvey** in Bourne, 34434 at 2315 in E.Bristol; R.Iraq Int, Baghdad 15.210 (Eng to M.East, E.Europe 2200-?) 23333 at 2200 by **Tony Singh** in Hitchin; R.Sofia, Bulgaria 15.330 (Eng to USA 2145-2315) 45333 at 2223 in Woking.

Some of the broadcasts to Europe in this band originate from UAE R.Dubai 15.435 (Eng 1330-1350), 43433 at 1330 in St.Andrews; WCSN, Maine 15.665 (Eng 1400-1800?) SIO455 at 1405 in Edinburgh; RNB Brasilia, Brazil 15.265 (Port, Eng, Ger 1630-2050) 33443 at 1800 in Brighton; RCI via Sackville 15.325 (Eng 1930-1959) 33333 at 1937 in Oxted; R.Damascus, Syria 15.095 (Eng 2005-2105) 43333 at 2030 in Kilkeel; RAE Buenos Aires, Argentina 15.345 (Ar, Eng, It, Fr, Ger, Sp 1700-0100) SIO433 at 2100 in Sheffield; WWCR Nashville 15.690 (Eng 1000-0000) 32222 at 2105 in Rugby.

Good reception from many areas has been evident in the **13MHz (22m)** band. During the daytime SRI via Sottens 13.685 (Eng to Australia 0900-0930) rated 43243 at 0917 in Newry; R.Australia via Carnarvon 13.605 (Eng, Chin to SE./N.Asia 0900-1200) SIO244 at 1000 in Edinburgh; SRI via Sottens 13.635 (Eng to Australia 1100-1130) 55533 at 1110 in Gosforth; WWCR Nashville, USA 13.815 (Eng to USA 1000-0000) SIO444 at 1137 in Macclesfield; Croatian R, Zargreb 13.830 (Ident 1330, Cr) 34543 at 1331 in Brighton; KHBI, N.Mariana Is 13.625 (Eng to SE.Asia, India) SIO444 at 1425 in Winchester; R.Australia via Carnarvon 13.775 (Eng to S.Asia 1430-1900) 55444 at 1500 in Barton-on-Humber; R.Austria Int via Moosbrunn 13.730 (Ger, Fr, Eng, Sp to Europe 0400-1700) SIO333 at 1540 in Gt.Yarmouth; R.Pakistan, Islamabad 13.665 (Eng to M.East, N/W.Africa 1600-1630) 53343 at 1600 in Norwich; UAE R. Dubai 13.675 (Ar, Eng to Europe 0615-2100) 34323 at 1633 by **Leo Barr** in Sunderland.

After dark, R.Kuwait 13.620 (Eng to Europe, USA 1800-2100) was 55555 at 1800 in Brenchley: AWR (KSDA) Agat, Guam 13.720 (Eng to S/SE.Asia 1700-1900 Sat/Sun only) 34222 at 1825 in Bridgwater; R.Austria Int via Moosbrunn 13.730 (Ger, Eng, Fr, Sp to Africa 1700-2100) 55444 at 1830 in Swartruggens; ISBS Reykjavik, Iceland (Ic to Europe 1855-1930) 45554 at 1855 in Wallsend; RCI via Sackville 13.650 (Eng, Fr to Canadian Forces in Europe 1900-1930?) 33443 at 1908 in St.Andrews; DW via Julich 13.790 (Eng to W.Africa, M.East 1900-1950) 44343 at 1911 in Swanwick; WHRI Red Lion, USA 13.760 (Eng to Europe, Canada 1700-0000) 33333 at 2057 in N.London; VOA via Selebi-Phikwe, Botswana 13.710 (Eng to Africa 1600-?) 33433 at 2135 in Bourne; RCI via Sackville 13.670 (Eng to USA 2200-2229) 33333 at 2205 in Rugby; UAE R, Abu Dhabi 13.605 (Eng to USA 2200-0000) SIO333 at 2216 in Elgin.

The broadcasters using the **11MHz (25m)** band to reach listeners in Europe include WCSN Scotts Corner 11.705 (Eng 0800-1000) rated SIO444 at 0855 in Macclesfield; R.Tunis via Sfax 11.550 (Ar 0430-2300) 55444 at 0950 in Bridgwater; R.Sofia, Bulgaria 11.630 (Eng 1100-1330?) 44333 at 1130 in Morden; RFI via Allouis 11.670 (Fr, Eng, Russ, Ser, Ro 0600-1600) 55555 at 1132 in Woking; R.Romania Int, Bucharest 11.940 (Eng 1300-1355) SIO323 at 1300 in Co.Fermanagh; R.Cairo via Abis, Egypt 12.050 (Ar 0700-0000) SIO444 at 1720 in Gt.Yarmouth; R.Finland via Pori 11.755 (Eng 1830-1900, also to M.East, Africa) 54555 at 1830 in Gosforth; R.Bangladesh, Dacca 12.040 (Eng, Ben 1900?-2000?) 33333 at 1900 in Hitchin; ISBS Reykjavik, Iceland 11.402 (Ic 1855-1930) SIO434 at 1905 in Winchester; R.Algiers via Bouchaoui 11.715 (Ar, Eng, also to M.East) 32232 at 2000 in Woodhall Spa; R.Beijing, China 11.500 (Eng 2000-2200) 45444 at 2009 in Brenchley; AIR via Bangalore? 11.620 (Eng 2045-2230) 33333 at 2120 in Kilkeel; R.Japan via Moyabi 11.925 (Eng 2100-2200) SIO444 at 2120 in Hereford; R.Budapest, Hungary 11.910 (Eng 2100-2200) 44334 at 2148 in Rugby.

Amongst those noted to other areas were R.Nederlands via Bonaire 11.895 (Eng to Pacific areas 0730-1030) SIO444 at 0730 in N.Bristol; BBC via Kranji 11.955 (Eng 0600-1300) 44444 at 1009 in Guildford; BBC via Woofferton & Skelton 12.095 (Eng 0400-2315 to Africa) 24433 at 1415 in E.Bristol; Voice of the Mediterranean, Malta 11.925 (Eng, Ar to N.Africa 1400-1600) 23422 at 1459 in Sunderland; R.Australia via Shepparton 11.880 (Eng to Asia 1300-1530) 32332 at 1513 in St.Andrews; VOA via Tinang 11.920 (Eng to Africa 1600-2000) 32222 at 1613 in N.London; R.Pakistan, Islamabad 11.570 (Eng to M.East 1600-1630) 55555 at 1615 in Norwich; R.Austria Int via Moosbrunn 12.010 (Ger, Eng, Fr to M.East 1700-2000) 43333 at 1830 in Swartruggens, S.Africa; DW via Trincomalee 11.785 (Eng to W.Africa, M.East 1900-1950) 23332 at 1940 in Oxted; Voice of Israel, Jerusalem 11.587 (Eng to C/E/N.America, W.Europe 2000-2030) 44554 at 2015 in Wallsend; Wings of Hope, Lebanon 11.530 (Ar, Russ, Eng to M.East, N.Africa ?-0000) 32232 at 1532 in Swanwick and 35233 at 2105 in Brighton; Voice of Greece, Athens 11.640 (Gr, Eng to Australia 2100-2250) SIO344 at 2140 in Edinburgh; R.Damascus, Syria 12.085 (Eng to USA 2110-2210) SIO434 at 2200 in Sheffield; R.Tirana, Albania 11.825 (Eng to USA? 2200-2230) SIO444 at 2204 in Rotherham; R.Sofia, Bulgaria 11.725 (Eng to USA 2145-2315) 33323 at 2250 in Newry.

The **9MHz (31m)** logs included R.Nederlands via Bonaire 9.630 (Eng to Pacific areas 0730-0830) rated 33333 at 0750 in Morden; REE Spain 9.675 (Eng, Fr to Africa 1900-2100) 43333 at 1900 in Brenchley; AIR via Aligarh 9.950 (Hin, Eng to Europe 1745-2230) 44444 at 2000 in Hitchin; R.Jordan, Al Karanah 9.560 (Ar, Eng, Fr 1420-0030) 32222 at 2015 in Woodhall Spa; R.Cairo via Abis 9.900 (Eng to Europe 2115-2245) SIO222 at 2115 in Co.Fermanagh; R.Ukraine, CIS 9.665 (Eng 2100-2200) 33333 at 2123 in Sunderland; BBC via Skelton, UK 9.410 (Eng to Europe, N.Africa 1630-2315) 23322 at 2255 in Bourne; R.Australia via Shepparton 9.540 (Eng to New Guinea 2130-2330) SIO333 at 2315 in N.Bristol; RCI via Sackville 9.755 (Eng to USA 2330-0029) 44444 at 2320 in Gibraltar.

The religious broadcasters in the **7MHz (41m)** band have been joined by WJCR in Upton, Kentucky on 7.490 (Eng to ? 0640-1200), rated 34333 at 0515 in Morden.

In the **6MHz (49m)** band R.Caracol, Bogota, Colombia 6.150 (Sp 24 Hrs) was rated 34543 at 2305 in Brighton.

Equipment Used

Ted Bardy, N.London: Drake R8 + loop or half size 5RV or V Beam 18m long.
Leo Barr, Sunderland: Roberts RC-818 + r.w. in loft.
Charles Beanland, Gibraltar: Sangean ATS-803 + a.t.u. + 6m wire or AA2.
Darren Beasley, Bridgwater: Philips D2935 + hexagon loop or 15m wire.
Vera Brindley, Woodhall Spa: Sangean ATS-803A + whip or r.w.
Kenneth Buck, Edinburgh: Lowe HF-225 + screened loop or s.w. loop.
Jim Cash, Swanwick: Kenwood R-5000 + trap dipole.
Bill Clark, Rotherham: Sony ICF-2001D + built-in whip or r.w.
Neil Clarke, Bury: Fidelity RAD 29.
Robert Connolly, Kilkeel: Sangean ATS-803A + 30m wire in loft or AN-1.
John Coulter, Winchester: Yaesu FRG-7 + r.w.
Martin Dale, Stockport: Codar CR-70A + 75m wire.
Antonio De Abreu-Teixeira, Evesham: Sony ICF-2001D + 12.5m wire.
John Eaton, Woking: Lowe HF-225 + Datong A270 in loft.
David Edwardson, Wallsend: Trio R600 + inverted V trap dipole.
Ron Galliers, London: Philips D-2935 + a.t.u. + 30m wire.
P.R.Guruprasad, Swartruggens, S.Africa: Sony ICF-7600DA + built-in whip.
Robin Harvey, Bourne: Matsui MR-4099 + built-in whip.
Francis Hearne, N.Bristol: Sharp WQT370 + r.w.
David Hertl, Lenesice: Sangean ATS-803A + 5m wire.
Simon Hockenhull, E.Bristol: HMV 1124 + 2m wire or Philips D2345 + built-in whip.
Sheila Hughes, Morden: Sony ICF-7600DS + loop; Panasonic OR48 + 15m wire.
Rhoderick Illman, Oxted: Kenwood R-5000 + magnetic balun + 19m wire.
Cyril Kellam, Sheffield: Sony ICF-7600DS + AN-1 or 25m wire.
Bryan Kimber, Hereford: Zenith R7000 or Realistic SX190 + 25m wire.
Eddie McKeown, Co.Down: Tatung TMR 7602.
Roy Merrall, Dunstable: Kenwood R-5000 + 40m wire.
George Millmore, Wootton, IOW: Sangean ATS-803A or Racal RA17L + loop.
Ken Milne, Basingstoke: Matsui MR-4099 + built-in whip or 6m wire in loft.
Sid Morris, Rowley Regis: Kenwood R-5000 + 31m wire or Sangean ATS-803A.
John Nash, Brighton: Kenwood R-5000 + Datong AD370 or magnetic balun + r.w.
Fred Pallant, Storrington: Trio R-2000 + r.w. in loft.
Roy Patrick, Derby: Lowe HF-125 + 22m wire.
Peter Pollard, Rugby: Sony ICF-2001D + AN-1.
Peter Polson, St.Andrews: Lowe HF-225 + loop or Indoor Joystick.
Richard Radford-Reynolds, Guildford: Sangean ATS-803A + 10m wire.
Philip Rambaut, Macclesfield: Int.Marine Radio R.700M + r.w.
Harry Richards, Barton-on-Humber: Grundig Yacht Boy or Matsui MR-4099.
Chris Shorten, Norwich: Matsui MR-4099 + 10m wire.
Tony Singh, Hitchin: Zenith 7000 or Grundig Satellit 3400 + built-in whip.
Tom Smyth, Co.Fermanagh: Sangean ATS-803A or Morphy Richards R191.
John Stevens, Largs: Hammarlund HQ 180 or Icom R-70 + loop or r.w.
Darran Taplin, Brenchley: Yaesu FRG-7700 + FRT-7700 + 35m wire.
Phil Townsend, London: Lowe HF-225 + loop or a.t.u. + r.w.
Edward Turnbull, Gosforth: Philips D-8734 or Realistic DX-2000 + 15m indoor wire.
Vladimir Vassilev, Bratislava, Cz: JRC NRD-535 or ATS-803A + 20m dipole.
Ted Walden-Vincent, Gt.Yarmouth: Grundig Satellit 3400 + r.w.
John Wells, E.Grinstead: RCA AR88D + loop.
Jim Willett, Grimsby: RCA AR77 + 4m loop or Trio 9R-59DS + a.t.u. + X dipole.
Michael Williams, Redhill: Lowe HF-225 + 10m wire.
Julian Wood, Elgin: Kenwood R-2000 + Yaesu FRT-7700 a.t.u. + 6m wire.

Station Addresses

ILR Great North Radio,
74 Dovecot Street, Stockton-on-Tees,
Cleveland TS18 1HB.

Sunshine Radio (Engineering Dept),
Sunshine House,
Waterside, Ludlow,
Shropshire SY8 1PE.

AWR-Asia, PO Box 7500,
Agat, Guam 96928, USA.

Polski Radio 1 Telewizja,
PO Box 00-950, Warszawa, Poland.
Radio CKOC, Box 1150, Hamilton,
ON LN8 3P5, Canada.

Radio CKPC, 571
West Street, Brantford,
ON N3T 5P8, Canada.

Long Wave Maritime Beacon Listening

Brian Oddy G3FEX
Three Corners, Merryfield Way, Storrington, West Sussex RH20 4NS

The l.w. maritime radiobeacons around our shores and those of several other countries have been attracting the attention of DXers during the last three months. Although quite extensive logs were compiled by **Robert Connolly** (Kilkeel), **Viv Doidge** (Gunnislake), **Chris Edwards** (Inverurie), **Kelvin Sutherland** (Anglesey) and **Steven Verhaegen** (Brussels), a general decline in propagation conditions was noted by several DXers.

As a pointer to the conditions, **John Wells** (E.Grinstead) used the beacon signal (GY) from Castle Breakwater, Guernsey on 304.5kHz. At best it is weak, but it was unreadable or absent on several occasions during September and October. This technique is certainly one which other DXers may wish to adopt. Although he logged a few new beacons, several that were included in his previous report were inaudible. A similar situation was noted by **Bill Eyre** (Stockport).

Down in Torpoint, **Pat Manning** found the conditions favoured north/south paths, logging Butt of Lewis Lt (BL) on 289 and Cabo Finisterre Lt (FI) 288.5 in NW Spain, but he was surprised by the general lack of signals from Spain, which have been evident during September in previous years.

Writing from Bridgwater, **Darren Beasley** says, "I am finally getting used to hearing more than one Morse signal at a time, which does take some practice. I have heard some beacons not previously heard before under this new system". Using a Philips D2935 receiver with a hexagonal loop, Darren compiled his list for the chart during daylight.

Since the introduction of the 500Hz beacon channels **Kenneth Buck** (Edinburgh) has found it essential to use the 200Hz audio filter in his Lowe HF-225 receiver to separate the signals. To improve things further, he has now made an even narrower twin T filter, which has a centre frequency of 800Hz and measured bandwidth (-6dB) of less than 30Hz. The results are excellent, but the tuning is very sharp! If your receiver lacks selectivity, then the addition of an audio filter may well be worthwhile.

The regular contributors to this column have been joined by several newcomers this time. A first list of 11 beacons, which included several along the coastline of Norway, Sweden and Denmark, was compiled by **Leslie Biss** (Knaresborough) during one evening between 2200 and 2330UTC. He used a Trio R600 receiver with a s.w. trap dipole, which can be switched to form a Marconi 'T' antenna. Encouraged by these results he now intends to spend more time checking the band.

Having purchased a new Lowe HF-225 receiver, **Michael Williams** (Redhill) put it to the test on all bands. Whilst checking this band for the first time he identified 14 of the beacons around our shores and along the channel coast of France and Belgium. He also picked up a series of dots and dashes on 319kHz from the long range Consul beacon (LEC) in Stavanger, Norway. During WW2 this beacon and one in Germany enabled German U Boat commanders to ascertain their position in the N.Atlantic fairly accurately.

A visit to Gwynedd, N.Wales enabled **Sid Morris** to search the band from Cwm Nantcol, a vantage point near Barmouth. Using a Sangean ATS-803A portable attached to his car radio antenna he logged some of the beacons along the coastline of N.Ireland and Eire during daylight. After dark, the beacon signals from the Lizard Lt, S.Cornwall (LZ) on 284.5; St.Catherines Point Lt, I.O.W. (CP) on 293 and La Corbiere Lt, Jersey (CB) on 295.5 became audible.

Several listeners have informed me that they would like to try maritime radiobeacon Dxing but they are prevented by their inability to read Morse code. In fact, this need not be a barrier because each letter of the ident is sent very slowly and each complete callsign (usually two letters) is repeated. It is therefore possible to jot down the dots and dashes as they are received and decode them later by referring a copy of the Morse code. After only a few hours most people find they are able to recognise certain letters without reference to the code!

Owners of an Amstrad PCW8526 or PCW8512 computer may be interested in a Morse Code Tutorial which has been written by DXer Ken Milne. The program will not teach the basic code, but it may help you to recognise sounds attached to both words and characters. To make the sounds as authentic as possible, the dot and dash lengths are approximate theoretical values. A mixture of up to 256 letters and numbers can be manually input to the program, including query, stop, hyphen and oblique by using the Amstrad keyboard markings. After selecting a speed in the range 1 to 25wpm and pressing ENTER, they are reproduced as sound, keyed in Morse code. The random generation of words of any reasonable length at a chosen speed is also possible - ideal for Morse practice. Ken is willing to supply copies of his program on a 3in disk suitable for drive 'A' for just £5 - all profits will go to a Registered Charity. Send a Cheque or PO to K.Milne, 125 Pack lane, Kempshott, Basingstoke RG22 5HL.

DXers:-

(A) Darren Beasley, Bridgwater.
(B) Leslie Biss, Knaresborough.
(C) Kenneth Buck, Edinburgh.
(D) Robert Connolly, Kilkeel.
(E) John Coulter, Winchester.
(F) Viv Doidge, Gunnislake.
(G) Chris Edwards, Inverurie.
(H) Bill Eyre, Stockport.
(I) Rhoderick Illman, Oxted.
(J) Pat Manning, Torpoint.
(K) George Millmore, Wootton, I.O.W.
(L) Sid Morris, while near Barmouth.
(M) John Stevens, Largs.
(N) Kelvin Sutherland, Anglesey.
(O) Darran Taplin, Brenchley.
(P) Steven Verhaegen, Brussels.
(Q) John Wells, E.Grinstead.
(R) Michael Williams, Redhill.

Freq (kHz)	Callsign	Station Name	Location	DXer
284.5	LZ	Lizard Lt	S.Cornwall	A,C,D,F,H,J*,K,L*,M,N,Q,R
286.0	TR	Tuskar Rock Lt	S.Ireland	A,C,D,F,H,J*,K,L,M,N,Q
286.5	AL	Almagrundet Lt	Sweden	G*
286.5	BY	#Baily Lt	S.Ireland	D,M
286.5	FE	Cap Frehel Lt	France	Q
286.5	FT	Cap Ferret Lt	W.France	D*,F,G*,N
286.5	NK	Inchkeith Lt	F of Firth	C
287.5	DO	Rosedo Lt	France	F*,Q
287.5	FR	Faerder Lt	Norway	B*,D*,F,G,H,N*,P*,Q
288.0	HH	Hoek van Holland	Holland	C,Q
288.0	KL	Sklinna Lt	Norway	G
288.0	OH	Old Hd of Kinsale	S.Ireland	A,F,H,J*,M,N
288.5	FI	Cabo Finisterre Lt.	N.W.Spain	D*,J*
288.5	YM	IJmuiden Front Lt	Holland	C,D*,H,Q
289.0	BL	Butt of Lewis Lt	Is of Lewis	C,G*,J*
289.0	BY	Baily Lt	S.Ireland	A,B*,C,D,F,H,J*,L,N,Q
289.5	LD	Landsort S Lt	Sweden	C,G*,P*
289.5	MN	Hammerodde Lt	Denmark	C,D*,G,H,N*
289.5	SN	Ile de Sein NW Lt	France	F
290.0	BS	Port en Bessin Lt	France	Q
290.0	FD	Fidra Lt	F of Forth	C,M
290.5	DY	Duncansby Hd Lt	N.E.Scotland	C,G,P
290.5	SB	S.Bishop Lt	Pembroke	A,C,D,F,H,J*,K,L,M,N,P*,Q,R*
290.5	VI	Cabo Villano Lt	N.Spain	J*
291.0	TG	Torsvag Lt	Norway	G*
291.5	OR	Orskar Lt	Sweden	F*,G
291.5	SU	South Rock LV	Co.Down	A,C,D,F*,G*,H,L,M,N,P*,Q
292.0	MH	Mahon, Minorca	Baleario Is	F*,G*
292.0	SJ	Souter Lt	Sunderland	B*,C,G,H,M,N,Q
292.0	TO	Torungen Lt	Norway	G*
292.5	SM	Pt St.Mathieu Lt	France	A,D*,F,G*,H,J*,K,N,Q
293.0	CP	St.Catherine's Lt	I.O.W.	A,E,F,J*,K,L*,Q,Q,R
293.0	RN	Rhinns of Islay Lt	Is of Islay	C,D,F,G*,H,M,N,P*
293.0	SY	Svinoy Lt	Norway	G
294.0	KUL	Kullen High Lt	Sweden	C
294.0	PH	Cap d'Alprech	France	A,C,D*,E,F,H,K,N,Q,R
294.5	BA	#Black Hd Lt	?	D*
294.5	FP	#Lynmouth Fland Lt	N.Devon	A
294.5	KC	#Old Hd of Kinsale	S.Ireland	F*,Q
294.5	NG	Pikasaare Ots	Estonia	D
294.5	PS	#Pt.Lynas Lt	Anglesey	F*,N
294.5	PT	#Souter Lt	Durham	C,G*
294.5	UK	Sunk Lt V	Off Essex	F*,Q
295.5	CB	La Corbiere Lt	Jersey C.I.	A,F,J*,K,L*,Q
296.0	BH	Blavandshuk Lt	Denmark	B*,C,D*,G,H,N,Q
296.0	GR	Georee Lt	Holland	Q
296.0	KN	Skrova Lt	Norway	G*
297.0	FG	Pt de Barfleur Lt	France	A,C,F*,G*,H,J*,K,N,Q,R
298.0	GX	Ille de Groix	France	D*,F*,J*,N,P*,Q
298.5	RR	Round Is Lt	Is of Scilly.	C,D,F,H,J*,K,M,N,Q
298.5	SW	Skagen	Denmark	G*
299.0	AD	Ameland Lt	Holland	C,G,H,N,Q
299.0	HB	Hals Barre Lt	Denmark	G
299.5	NP	Nash Pt Lt	S.Wales	A,D,E,F,H,J*,K,L,N,Q,R*
299.5	SK	Skomvaer	Norway	G
299.5	VR	Utvaer Lt	Norway	C,D*,G,P
300.0	MZ	Mizen Head	S.Ireland	A,D*,F,J*,L,M,Q
300.0	TI	Cap d'Antifer Lt	N.France	F,I,K,Q
300.5	DU	Dungeness Lt	Kent	A,F,H,I,K,D,Q,R*
300.5	LA	Lista	Norway	B*,C,D*,G
301.0	CA	Pt de Creach	France	A,C,D*,F,H,J*,N,Q
301.0	ER	Eferland Lt	Holland	C,G
301.1	WK	Wicklow Hd Lt	S.Ireland	L
301.5	KD	Kinnards Hd Lt	N.E.Scotland	C,D*,G,H,Q
301.5	OB	Hoburg	Sweden	B*,D*,F* P*
302.0	RB	Cherbourg Pt W Lt	France	A,D*,E,F,H,I,J*,K,N,Q,R
302.5	FB	Flamborough Hd Lt	Yorkshire	A,B*,C,D*,E,F,G,H,I,M,N,Q,Q,R*
303.0	FV	Falsterborev Lt	Sweden	C,D*,F*,G,Q
303.0	YE	Ile d'Yeu Main Lt	France	C,D*,F,J*,N,P,Q
303.5	BJ	Bjornsund Lt	Norway	C,D*,F*,G*
303.5	FN	Feistein Lt	Norway	C,G
303.5	IA	Llanes Lt	N.Spain	D*,F,P*
303.5	VL	Vlieland Lt	Holland	H,Q
304.0	PS	Pt Lynas Lt	Anglesey	A,C,D,F,H,L,M,N,P*,Q
304.0	SB	Sumburgh Hd Lt	Shetland Is	C,G
304.5	GY	Castle Breakwater	Guernsey	C,I,F
305.0	FP	Fife Ness Lt	S.E.Scotland	C,G,H,M,P*
305.5	AL	Pt d'Ailly Lt	France	A,C,D*,E,F,G,H,J*,K,N,D,Q,R
306.0	EC	Elizabeth Castle	Jersey C.I.	F,Q
306.0	FN	Walney Is Lt	Off Lancs	B*,C,D,H,L,M,N,Q
306.0	TN	Thyboron	Denmark	G,P*
306.5	GJ	Le Grand Jardin Lt.	France	F*,Q
306.5	MV	Morzhovskiy	Arctic	Q
306.5	NA	Nakkehoved	Denmark	G*
306.5	UT	Utsira	Norway	C,G,H
307.0	GL	Eagle Is Lt	Ireland	C,D*,F,G*,H,L,M,N
308.0	DB	Deutsch Bucht Lt	N.Germany	G
308.0	RD	Roches Douvres Lt	France	A,C,D*,E,F,H,I,J*,K,N,Q,R
308.5	NZ	St Nazaire	France	F*,Q
309.0	WW	Ventspils Lt	Latvia	D*,G*
309.5	BA	Punta Estaca Bares	N.Spain	D*,J*
309.5	MA	Marstein Lt	Norway	C,D*,F*,G,H,P*
310.0	ER	Pt de Ver Lt	N.France	A,H,J*,K,N,Q
310.5	SG	Sjaellands N Lt	Denmark	C,D*,F*,G
311.0	GD	Girdle Ness Lt	N.E.Scotland	B*,C,G,M,N*
311.0	NF	N.Foreland Lt	Kent	E,F*,H,I,P,Q,R*
311.5	LP	Loop Hd Lt	S.Ireland	A,D*,F,L,M,N
312.0	OE	Oostende	Belgium	C,H,K,Q,R*
312.5	CS	Calais Main Lt	France	C,F*,G,H,I,N,P,Q
312.5	LB	Liepaja	Latvia	D*,G*
312.5	VS	Cabo Estay Lt	N.Spain	G*
313.0	HA	Halten	Norway	G
313.0	PB	Portland Bill Lt	Dorset	A,F,J*,K,N,Q
313.0	TY	Tory Is Lt	N.Ireland	C,D*,G*,H,L,M
313.5	CM	Cromer Lt	Norfolk	B*,C,F,H,N,Q
313.5	OG	Dlands Sodra Grund	Sweden	G,P
314.0	HK	Hekkingen	Norway	G*
314.0	PQ	Porquerolles Lt	S.France	D*,F,G*
314.0	VG	Ile Vierge Lt	France	C,D*,F,H,J*,K,M*,N,O,Q,R*
315.0	SL	Stetterhage	Denmark	D*
319.0	LEC	Stavanger	Norway	A,B*,C,D,E,F,G,H,K,M,N,O,Q,R*

Note:
Entries marked # are calibration stations. Entries marked * were logged during darkness.
All other entries were logged during daylight.

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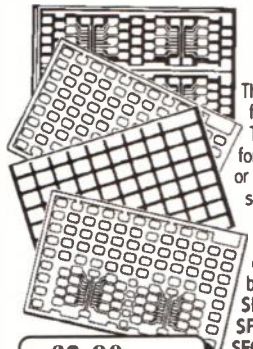

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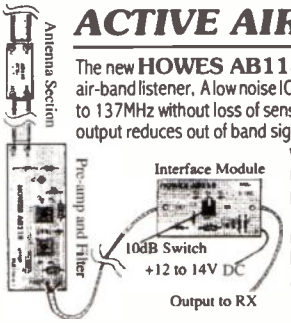

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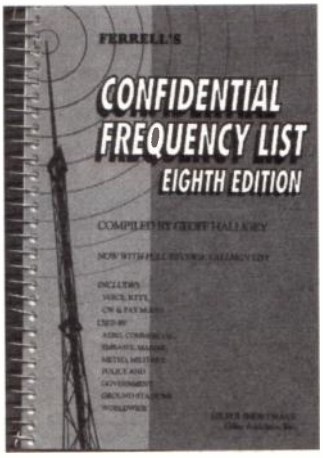

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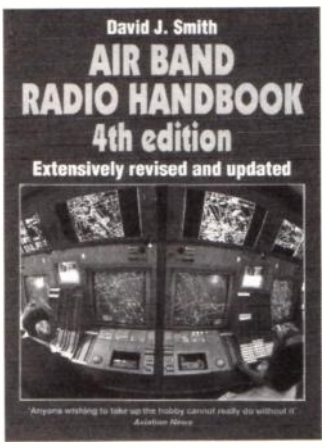

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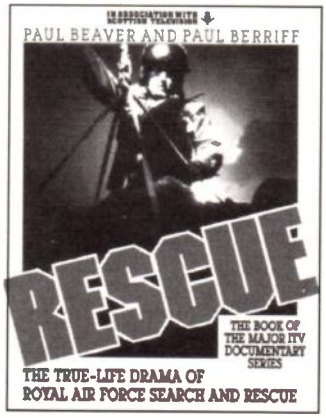

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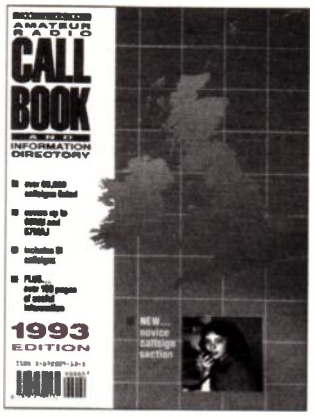

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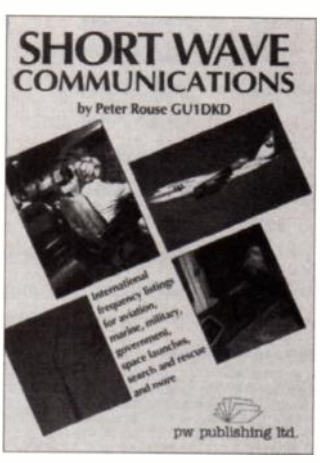

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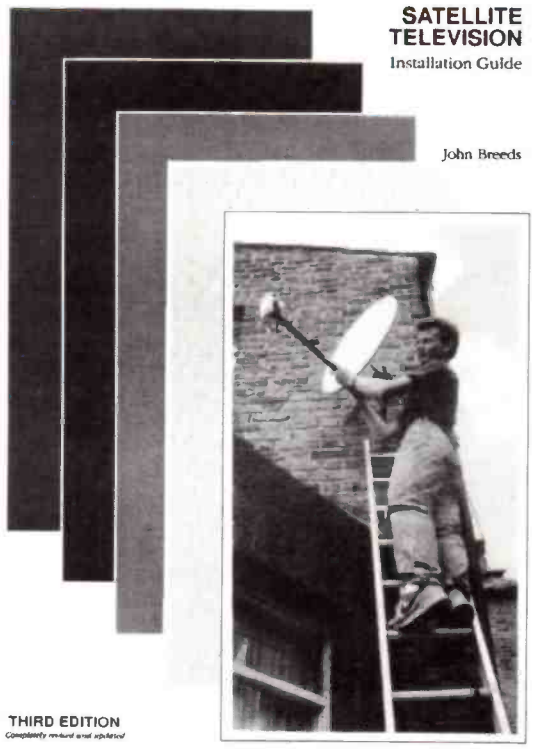

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