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December 2005

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If you want to get involved with an international radio club, here's a list of a few you make like to try.



Looking to the Future

As this issue goes to press it marks the beginning of a new era. The editorial team would like to remind all advertisers, readers and contributors that **radiouser** goes on sale on 22 December, bringing you the **best** of both **SWM** and **Radio Active** in **one great magazine**.

Featuring your favourite columns, as well as exciting new features, **radiouser** will offer something for all active listeners, short wave and scanning enthusiasts - in fact something for 'radio users' everywhere. As we look forward to the future, pictured here a few memories of **SWM** - a heritage that will not be forgotten but that will continue to grow within the pages of **radiouser**.

The editorial team invite you to join us in this exciting venture. See you next month.



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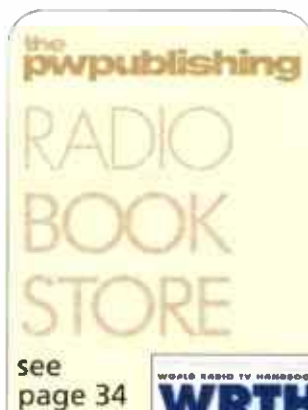
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cover subject: *The Radioscape RS500 module has been launched as an affordable, integrated multi-standard, digital radio receiver in these times of DRM growth. Lawrie Hallett updates us on the latest news.*



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ED'S

comments



SWM Services

Components For SWM Projects

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

Photocopies & Back Issues

We have a selection of back issues, covering the past three years of SWM. If you are looking for an article or review that you missed first time around, we can help. If we don't have the whole issue we can always supply a photocopy of the article. Back issues for SWM are £5.00 inc P&P each and photocopies are £3.00 per article inc P&P.

Binders are also available (each binder takes one volume) for £5.50 plus £1.50 P&P for one binder, £2.75 P&P for two or more. UK or overseas. Prices include VAT where appropriate.

A complete review listing for SWM/PW is also available from the Editorial Offices for £2 inc P&P.

Placing An Order

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Technical Help

We regret that due to Editorial time scales, replies to technical queries cannot be given over the telephone. Any technical queries by E-mail are very unlikely to receive immediate attention either. So, if you require help with problems relating to topics covered by SWM, then please write to the Editorial Offices, we will do our best to help and reply by mail.

Problem Solved

As those of you who read Lawrence Harris' monthly column 'Info In Orbit' will know, there is a major problem with APT reception from NOAA 18, the latest WXSAT launched by the USA's National Oceanic and Atmospheric Administration. The problem, that of significant interference, is caused by the unfortunate choice of down-link frequency for the APT broadcasts. The chosen frequency of 137.825MHz places the weak (on earth) signal very close to the UK paging band. The result of the close proximity of the weak APT transmission to the very much stronger pager base-stations is that there is the effect of cross modulation and desensitisation in all but the very best of the UK's WXSAT receive stations. At the time of launch of NOAA 18 it was unclear, which frequency would be used by NOAA for the transmission of APT as the satellite was equipped with two channel capability. Only when the spacecraft was in its final orbit did it become apparent that it was the problematic frequency that had been chosen.

Almost straight away, Lawrence set to work for the benefit of all the UK's WXSAT community to see what the extent of the problem was. On discovering that all areas of the UK were suffering from serious problems, he entered into dialogue with NOAA. As a direct result of Lawrence's efforts, recently NOAA have confirmed that NOAA 18's APT frequency will be changed to 137.100MHz (VTX-1). We all owe Lawrence Harris a huge debt of gratitude.

The Nature of Change

I have always been a firm believer that change usually happens for the best reasons. It is, as you will have noticed within the pages of this and other PWP magazines, time for a change. My employers, PW Publishing Ltd. are taking the positive step of merging both *Short Wave Magazine* and *Radio Active* and re-branding the titles into a bigger, better magazine, *radiouser*.

I'm sure those who are involved will make it a popular and appealing read. I am personally taking this opportunity to move on to new and exciting challenges in a hobby radio related area, that for me represents a change of direction.

It really doesn't seem as though it's nearly 12 years since I joined PW

Publishing Ltd., the publishers

of *Short Wave Magazine*

since 1988. The previous

Editor, **Dick Ganderton**,

introduced me to the

readers back in the June

1994 issue. I had been a

reader of *Short Wave*

Magazine for a

considerable number of

years at that time and

I'd never imagined that

I'd end up working on

the magazine, let alone

becoming Editor! I'm compelled to

say that every day since has

continued to be a learning process

and I'm pleased to say I'll be taking

much with me from my time at

the keyboard here in the SWM

offices in Broadstone. I'm pleased

beyond belief to have had the

opportunity to have been on the

staff of this well loved radio

journal that's read in some very

important (from a radio

perspective) places. So it's

time to say my farewells to

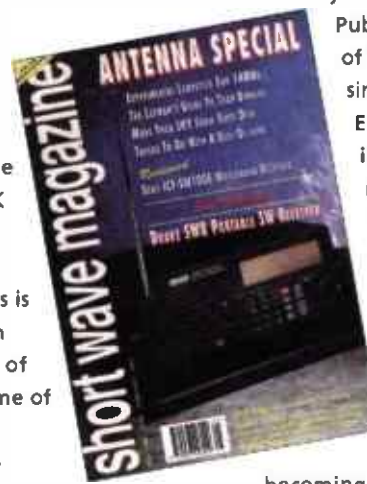
everyone here at PW Publishing

Ltd. and move on. Thanks to all the readers of

SWM for their loyalty and interest over the years.

So it's a change - but for for the better - just look out for the new *radiouser* front cover at your newsagent from 22nd December, or if you are a current subscriber to either *Short Wave Magazine* and/or *Radio Active*, it will drop through your letterbox a couple of days earlier, as usual.

20/12/05 Kevin



SHORT WAVE MAGAZINE is CHANGING!

From the January 2006 issue onwards, Short Wave Magazine and its sister title Radio Active are merging to bring you an

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The UK's authoritative magazine dedicated to all types of radio spectrum monitoring.



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With all the best features, articles, news and reviews from two superb magazines together in one place, radiouser will not only be a terrific read but also marvellous value for money.

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White Stick Log

Don Ward G0MDO, after updating his *Easilog* program from DOS to Windows, was surprised to find it in use with members of the **St. Dunstan's Amateur Radio Society**. They had previously been using the DOS version but found that newer versions of screen readers, such as *HAL*, *JAWS* and *WIN-EYES*, were no longer compatible with DOS programs. They contacted Don with suggestions for changes to the new Windows *Easilog* to make it easier for them to use, which led to Don, writing a new logging program specifically for their use and so *White Stick Log* (WSLog) evolved.

Don says: "It's not easy for a sighted user to appreciate the needs of the visually impaired but with the use of all the screen readers mentioned and the advice of the St. Dunstan's members I think I have been able to produce a program that should satisfy their needs. I



have sent copies to the **Radio Amateur Invalid and Blind Club (RAIBC)** who have evaluated it and have written a review for their magazine *Radial*". The *WSLog* is available free to all visually impaired Amateurs from Don's website at <http://come.to/g0mdo>. A Morse Tutor program version for the visually impaired, *WSMorse*, also available free. Don't forget that all users of any version of *Easilog* are entitled to free copies and updates of *Easilog* for Windows.

In The Public Eye

Over the last few months members of **Norfolk Amateur Radio Club (NARC)** have been busy demonstrating amateur radio at public events across Norfolk.

In July NARC took to the air with **GB6NAS** from Seething Observatory as part of **Norwich Astronomical Society's (NAS)** 60th anniversary celebrations. Over the course of one weekend 332 QSOs were made with amateurs around the world, with one of the notable contacts being with **GM4DLG**, the Chairman of the Ayrshire Astronomical Society, who exchanged greetings messages with the Norwich Astronomical Society Chairman.

In August 20 NARC members braved some of the best wintery summer winds the Norfolk coast could muster as they ran their second special event station of the year, activating Happisburgh Lighthouse for International Lighthouses Weekend. Three stations took to the air from the distinctive red and white lighthouses making over 350 contacts on all bands using voice, c.w. and datamodes.

By September NARC were out and about once again, this time at Norfolk



Police's Gala day. This annual event attracts over 20,000 visitors and this year coincided with SSB field day, so not only did club members provide an extensive display of amateur radio past and present, but also participated in SSB field day enabling the club's newer licensees to experience contest operating for the first time.

After a busy 2005 NARC are already preparing for 2006 when they hope to activate a number of special event stations at public events around Norfolk. Norfolk Amateur Radio Club is a thriving organisation with over 80 members and anyone interested in radio, communications or electronics is welcome to join. The club meets weekly on Wednesday evenings from 1900 at the Norwich Aviation Centre, Norwich Airport.

For more information about Norfolk Amateur Radio Club E-mail: pr@norfolkamateurradio.org

Annual BWFB Station



The **Braintree Amateur Radio Club** ran its annual station for the British Wireless for the Blind Event over the weekend of 24/25th September. The society has a link with this event as their club callsign - **GX3XG/P** - was 'donated' by **Alan Robinson G3XG**, a long time member of the society, who has sadly lost his sight.

This year the Braintree club operated from a new location, the old USAF airfield at Gosfield in Essex, with kind permission from the landowner. The station was set-up in the club tent on the Friday afternoon and very soon the contacts were being made.

Over the weekend 28 club members visited and operated the station making a total of 109 contacts on h.f. and 144MHz. Members always enjoy these events as they make for good social occasions and at the same time are able to help, in some small way, others less fortunate.

Find out more about the Braintree Club at www.badars.org.uk

Air Tattoo - Full Speed Ahead

Organisers of the Royal International Air Tattoo have revealed that 'Speed' will be at the heart of the 2006 Airshow. The Air Tattoo, which will take place at RAF Fairford in Gloucestershire on Saturday 15 July and Sunday 16 July, will focus on the ability of Armed Forces to react quickly and decisively to events around the globe. These range from natural disasters like the 2004 Asian tsunami and the recent earthquake in Pakistan, to unfolding dramas such as the freeing of trapped Russian submariners by a British-led rescue team who were delivered to the scene by the RAF.

Called *Rapid Global Effect*, the operational theme will show how some of the world's largest and most flexible aircraft, such as the USAF's C-5 Galaxy and the RAF's C-17 Globemaster III, combine with smaller aircraft, often helicopters, to get people and resources where they need to be, fast. Tattoo Director Tim Prince said: "Nowadays, when we see humanitarian disasters unfolding on our TV screens, we sometimes take for granted the fact the Armed Forces are often capable of mobilising quickly and reaching far flung places with the personnel and equipment needed to bring relief. But to achieve this takes skill, preparation, teamwork and some of the most sophisticated aircraft and technology available. We would like to demonstrate to the public just what these brave people and awesome aircraft are capable of and look at the different ways in which they are able to reach around the world quickly and effectively in order to achieve the best result."

A number of exciting speed-related set pieces – both on the ground and in the air – are already being planned for the 2006 Air Tattoo and invitations have gone out to air forces across the world to take part.

For a limited period, a special Earlybird ticket has already gone on sale, priced £25.95, representing a saving of more than £9 on the on-the-gate price. Earlybird tickets are available until the 28th February 2006. Accompanied children aged 15 and under go free.

For more details as they become available take a look at www.rafcte.com

Get Kitted Out!

The Chelmsford Amateur Radio Society (CARS) have recently produced a range of CARS branded clothes for members, was the idea of Martyn G1EFL who, as well as being Secretary, has taken on the role of CARS clothing sales Manager.

The clothing range has proven extremely popular with members and the club frequently has to re-order new stock to meet the demand from the 149 CARS members. The clothing also produces a consistent club image when demonstrations are given to the general public. The photograph here shows Martyn G1EFL wearing the CARS baseball cap, fleece and sweatshirt.

The Chelmsford Amateur Radio Society meets on the 1st Tuesday in each month at the Marconi Social Club, Beehive Lane, Great Baddow. Doors open at 1915 and visitors are most welcome. Car parking is free and a bar is available for refreshments.

For further information contact the Secretary Martyn G1EFL, Tel: (01245) 469008, E-mail: info2005@g0mwat.org.uk, Website: www.g0mwat.org.uk



rallies

November 26 The Reddish Rally takes place today at St. Mary's Parish Hall, Reddish Road/Broadstone Hall Road South, Reddish, Stockport. Doors open 1000. Admission £1 There will be refreshments available and a talk-in. Contact John G4LLA on 0161-477 6702 or E-mail john@mkcaie.freeserve.co.uk

November 27. The West Manchester Radio Club is holding its RED ROSE WINTER RALLY, at Lorton Civic Centre, just off the A580 East Lancs. Road, this is a superb venue all on one level, with disabled facilities and free parking. There will be a low cost Bring & Buy, RSGB bookstall, usual trade stands, component and special interest groups, licensed bar, excellent catering and large social area in which to mingle with fellow amateurs. Talk-in on S22. Opening at 10:00 am. Info on the club's website www.wmrc.org.uk Further details from the rally manager, Steve on (01942) 895198

December 4 The Bishop Auckland Radio Amateurs Club (BARAC) 2005 Rally will take place at the Spennymoor Leisure Centre. This venue is ideally suited for both trader and disabled visitors as it boasts good parking and access to a large ground floor hall. There will be the usual radio, computer, electronics and Bring & Buy stalls, as well as catering and bar facilities. Morse tests will be available on demand. As you can imagine, there is a lot to do for all the family within the confines of the leisure centre for those of the family not interested in radio. Doors open at 1000 (1000 for disabled visitors) and admission is £1.50, under 14s free or charge with an adult. Talk-in on S22. More information from Rally Organiser Mark G0GFG on (01388) 745353 or from Deputy Rally Organiser Brian G7OCK on (01388) 762678.

radiouser publishes on 22 December 2005 - to get your special event mentioned please keep those press releases coming to donna@pwpublishing.ltd.uk

New Book

Practical Recording Techniques
The Step-by-Step Approach to Professional Audio Recording

4th edition by Bruce and Jenny Bartlett

This is a hands-on practical guide for all aspects of recording, ideal for beginning and intermediate recording engineers, producers, musicians and audio enthusiasts. It covers the latest digital techniques for professional and home studios, as well as recording on location. The book also includes essential information on computer recording, an accompanying audio CD, and a detailed instrument frequency range chart. The book has 632 pages and is priced £24.99 ISBN: 0-240-80685-9.

Christmas Hog Roast & Boot Fair

The ML&S Christmas Hog Roast & Boot Fair takes place on Saturday 3 December. With over 500 people attending last year, the success of Lynch's Open Days just seems to get stronger. Once again, the Big Three (Yaesu, Icom & Kenwood) are sponsoring the Hog Roast and promoting the new FT-DX9000, IC-7000 and the rest of their product range. Special prices and extra savings across all of the ML&S product range will be on offer.

Also on site is the Boot Fair (with Talk-In on S22) managed by the Wharton Amateur Radio Club. Admission is FREE - just turn up and set your own tables up. The ML&S Christmas Hog Roast & Boot runs from 0900 through to 1600 hours. Check out www.hamradio.co.uk for more details.

Ringin' in Morse

Andy Booth is a ringtone programmer for one of the largest wholesalers of ringtones in the UK, as well as being a musician and composer with 20 years experience. In his spare time, he is also to be found surfing the h.f. band using the oldest of digital communication systems - Morse Code.

Although, mobile 'phones have had Morse alerts programmed into them since the early days, there has never been an easy (or free) way to get personalised ringtones in Morse Code until now. Andy turned his attention and his love of the medium to the problem and has created a completely free web resource (www.planetofnoise.com) that generates Morse Code ringtones playable on most mobile 'phones from whatever the user types in.

Andy says "The site is less than a month old but it's already been getting more than 5000 hits a day on average and the feedback and thanks I've had is fantastic, which shows the broad love affair people still have with Morse. Whether it's a genuinely useful tool to them, something that has a 'romantic appeal' from the first half of the last century or just something that's cool or just a novelty - people love it!".

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Amateur Radio Enrichment Lessons

Peter Treadwell G7PCT who works as a classroom supervisor at King Edward VII Secondary School and Technology College in Melton Mowbray, which is a combined High School and Upper School with 2000 pupils in the age range 11-18, has managed to get Amateur Radio on the curriculum.

Peter takes up the story: "I use Amateur Radio where possible in lessons to capture the pupils' imaginations, always carrying a hand-held with me. In one particular instance the school network was down for an ICT lesson, so I concentrated on the 'C' for communication and used my local repeater GB3LE for some contacts. On another occasion I spoke with a contact in Australia via a local Internet gateway to ask pupils questions in an art lesson (the work was on Australia)".

Peter continues: "To promote an interest in radio, the school radio club was started with the callsign MOMKE, meeting once a week and getting a regular attendance of over 15 pupils. Following a successful Foundation course held during the last week of the summer term, run by Geoff Griffiths G3STG, a Melton Mowbray Amateur Radio Society colleague. I was able to make the suggestion that radio would make a good subject for the 'enrichment' lessons that were going to be introduced for the new intake of 14 to 15 year olds. The purpose of these lessons is to give the pupils additional skills and interests that will help them when choosing a career, and of course from the Radio Amateur point of view, to make it fun, and hopefully give them a hobby that they will take up! These lessons are in addition to the national curriculum.

Making the case for radio, with the subject of Amateur Radio in particular, I stressed its curriculum links, particularly in Physics, Maths and Electronics. In



Peter G7PCT with some of his Amateur Radio pupils.

addition it would have an impact on Humanities and Modern Foreign Languages. This was agreed and I was asked to take two classes twice a week for the academic year. Each class has over 20 pupils. To validate the work I registered with the RSGB as a Foundation Licence instructor.

The first term's work is based on the Foundation syllabus, the second term will look at broadcast radio, looking at what the job prospects will be and building links with Melton's new community radio station. We will script a programme and intend to produce it as a downloadable podcast. The third term we will re-visit the Foundation work in preparation for the exam. In addition I will be taking material from the Intermediate syllabus and will look at model engineering. I am trying to make the course as practical as possible and we have now started building Slinky Hula antennas, as featured in *PW*.

Peter concludes "I was in the right place at the right time, being licensed and working with pupils but not being a teacher as such; it was easier for me to take on the responsibility of the enrichment lessons. I would like to thank the Head, Deputy Head and the Assistant Head who set-up the enrichment programme for their support, as well as the Melton Mowbray Amateur Radio Society, who have supplied me with some equipment, as well as advice".

The pupils seem to enjoy the practical element of Peter G7PCT's teaching.

'Fessenden' Special Event Station

A group of local radio enthusiasts have been given the go-ahead by licensing authority Ofcom, to re-activate the original Fessenden 1905/06 radio site at Machrihanish. Moves were made to broadcast from the site after approaches were initially received from a group across the Atlantic in Brant Rock, Massachusetts, the other end of this historic, 100 year old radio link.

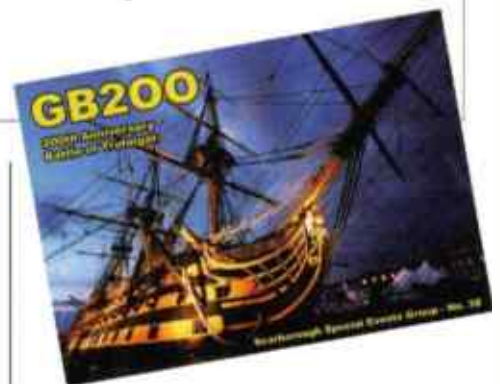
The local group, led by Duncan McArthur and friends, have organised a number of events to mark the centenary of the transmission. The site at Machrihanish was built by Reginald Fessenden in 1905 and from there the first voice transmissions were sent across the Atlantic. Until then the site had only been using Morse code when, by accident, a voice transmission, which was only intended to go between Brant Rock and Cobb Island nearby was received at Machrihanish. At this station it was the first time c.w. contacts were repeatedly

received both ways across the Atlantic as opposed to Marconi's claimed one way.

The station will be reactivated at the beginning of January 2006 for two to three days. This time around the group will be using the Icom IC-756PROIII h.f./50MHz all-mode transceiver provided by Icom UK Ltd.

Fessenden was way ahead of Marconi in many ways but, sadly, has become the forgotten man, Marconi having had a group of large financial backers whilst Fessenden, brilliant in many areas, was seen as an 'also ran' and remembered only by a few. Fessenden was credited as having given the first ever broadcast programme when, in 1906, he alerted his then Morse code stations to listen out at a particular time. The operators, expecting an important message were astounded to hear Fessenden reciting from the Bible and playing "Silent Night, Holy Night" on his Violin.

To commemorate the centenary of the station, Laggan Community Council is hoping to erect a permanent memorial on the site, while a link is also planned between Scotland's Argyll FM and WATD, the radio station for the Brant Rock Area of the USA.



Scarborough Special Events

The Scarborough Special Events Group have ended their 2005 series of special event stations with GB200 to commemorate the 200th Anniversary of the Battle of Trafalgar. The QSL card for the event shows Nelson's flagship HMS Victory at dusk.

Members of the Scarborough Special Events Group are looking forward to taking part in more events during 2006. Keep an eye on their website www.sseg.co.uk for news as the events are announced.

Jamboree On The Air Report

By Mike Richards

If you've not been involved in Scouting you could be forgiven for not knowing about JOTA or Jamboree On The Air to give it its full title. JOTA is a world-wide event that's organised by the Scouting Movement to promote international communications between scouts. The event has a very long history and this year's event was the 48th JOTA. All JOTA events rely heavily on volunteers from the Amateur radio and electronics enthusiast communities to bring the event to life. In essence, the Scouts use amateur radio to communicate to other scouts across the World. Although they are not allowed to operate the rigs directly, they are allowed to use the microphone and speak on-air to pass greeting messages and exchange ideas about scouting experiences.

The JOTA event takes place on the third weekend in October every year and this year was held over 15/16th October, JOTA lasts two full days from 0000h on Saturday through to 2359 on Sunday evening. Few stations actually operate for the entire period and most of the activity is concentrated on the daylight hours of Saturday and Sunday. In addition to passing messages to other Scouts, JOTA is an ideal occasion for some badge work and most Scout Groups will combine JOTA with electronic project work.

Our Station

This year was my first attempt at a JOTA station as I've only recently joined the scouting movement. Our local scout group, 3rd Ringwood, like so many, was struggling for help and I volunteered to join in. This has proved to be very enjoyable and the JOTA station was the first major event I had attempted to pull together.

Fortunately, I was able to use my trade contacts to help pull a station together very quickly. The team at Yaesu UK were brilliant and came up with a Yaesu FT-897 transceiver complete with automatic a.t.u. and full coverage of all the h.f. bands plus 50, 144 and 432MHz! Graham from bhi also helped-out with the last minute supply of a data lead for the FT-897 and I'm also grateful to the Shortwave Shop in Christchurch for helping out with cable and connectors.

As I intended to operate using data modes, as well as s.s.b., I needed some suitable software that I could load on my daughter's laptop. After checking around the usual online sources I settled on an old favourite, *WinWarbler*. In addition to the transmitting station, I thought it would be useful to set up a listening post, so arranged to use my HF-350 along with the excellent and very compact AOR loop antenna that I reviewed in last month's *SWM*.



Other than making sure we had some Scouts available, I needed to get a special event call sign, GB0RWS, from the RSGB and pull together a suitably impressive QSL card. The RSGB were very helpful, especially considering we put our application in far too late!

Organising the Day

As the Scout hall was only going to be available for the Sunday we decided we would run the station from 1100 hours through to around 1830 hours. The late afternoon finish was to make sure we were around to try and catch some grey-line DX at the end of the day.

As well as running the JOTA station, I wanted to start the Scouts working towards their Radio Communicator Badge. A number of the main activities for that badge linked well with JOTA, i.e. they had to log 25 amateur radio stations, show they could tune a simple communications receiver plus recognise call signs from the UK and near continent.

On The Day

Our day started at 10am on the Sunday with a hectic set-up. We had hoped to be able to prepare on the Friday, but that didn't go to plan, so all the work had to be done on the Sunday. Fortunately, we had lots of help and the station

was set-up and ready to go by about 1100 as planned.

However, I paid the price for poor preparation

almost immediately when I attempted to tune-up the rig and antenna. I had used the wrong combination of antenna and a.t.u! The automatic a.t.u. that was supplied with the FT-897 was brilliant and extremely convenient, but it's not designed for use with a tuned feeder as per my G5RV. If I'd tested it properly on the Friday I would have spotted this in time to change over to a trapped dipole or similar. 'Be Prepared' was starting to sound like a slogan I was going to have to take to heart very quickly!

The scouts all arrived as expected and we had a really good turn-out. When things got going, I spotted my second mistake. Trying to run two stations in a largely empty hall with hard floors and lots of echo was not such a

good idea. Although the Lowe receiver and Yaesu rig were at opposite ends of the hall, the sound was echoing around making it very difficult to resolve much at all.

The other point I hadn't fully appreciated was just how difficult it is to understand s.s.b. if you're not used to it. Because I've been listening for years, it all sounded fine to me, but I could see from the look on the Scouts' faces that the combination of 'donald duck' s.s.b. voices and extensive use of the phonetic alphabet was very difficult to cope with!

Another point that made life difficult was the amateur contests that seemed to dominate most bands. There was an RTTY contest all over the lower end of the band and a German s.s.b. contest all over the s.s.b. section. The RTTY contest was handy for checking the station, as it was relatively easy to answer CQ calls and get a quick response. However, this was of little interest to the Scouts, as all the contest station wanted was to get a call sign and serial number and disappear off to the next contact!

The Communicator badge work was very well received by the Scouts with about 12 Scouts wanting to take part. As I mentioned earlier the hall was not the best place to run JOTA but it at least got them started.

Learning

As this was my first JOTA it was intended as an experiment, so I was expecting to learn lots! First rule for next year is Be Prepared! Not only do I need to make sure I have the right kit and check that it all works together ok, but there are lots of other aspects to consider.

It would be good to have more skilled help available and I will have a word with one of the local radio clubs to get a few willing volunteers along next time. I'd also avoid setting-up two stations in the Scout Hall - much better to have smaller units located in side rooms.



Finally, I will be on air for a few weeks prior to JOTA setting-up a few Skeds with JOTA stations or other willing amateurs to make sure we can find someone for the Scouts to exchange greetings with. Despite the problems with our first JOTA, it was great fun and I will certainly be having another go next year. So listen out for us next year!

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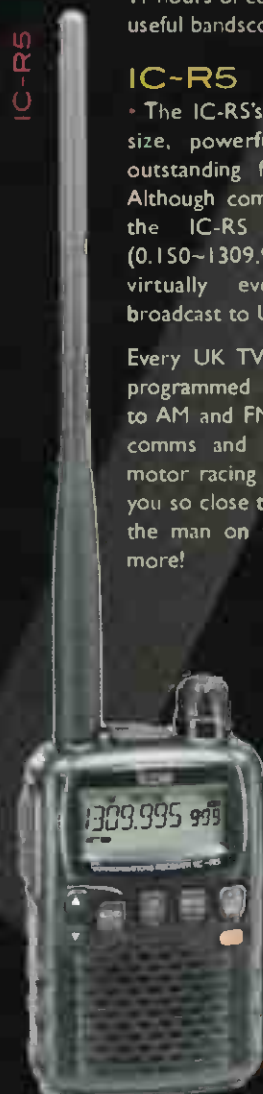
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Scanning Scene

● **Dave Roberts** *via SWM Editorial Offices, Broadstone*
● **E-mail** scanning@pmpublishing.ltd.uk

The World Rally Championship's (WRC) Welsh stages were rendered inconsequential by the death of Michael Park in a crash on a special stage. The WRC is a heavy radio user as has been reported before, with the Welsh stages always providing interesting monitoring.

Once again regular listener and correspondent Chris has sent me a log of his findings. Piecing this information together with that gleaned from other sources has given a fairly comprehensive view of the frequencies in use on the 17 September. (All are f.m.)

traffic on 29.790 f.m. and posted details on an Internet discussion list.

An American accented voice called another station and then asked the second station to go 'Green'. This is a term indicating encrypted transmissions. They did and their conversation continued digitally for a while. At the conclusion one station said "WQCA370 Clear" Apparently that call pertains to someone in Virginia USA who read the posting but gave no indication as to why he'd be using encrypted voice and military terminology. Certainly an interesting capture!

hit the news when they settled down to watch a film called *Crash* as their vessel chugged out of harbour to the fishing grounds. It seems that they left their v.h.f. marine band set on transmit as they viewed the movie. The subject matter is not one that would appeal to most. It seems that the yarn centres on people who find car crashes erotic - I mean it takes all sorts doesn't it?

Anyway, the crew of the *Oceania* managed somehow to get a clock radio jammed up against the transmit switch on their radio thus jamming channel 16 (156.800) for some hours. The lifeboat eventually caught up with them in calm seas and informed them of their broadcast. George Mair, the skipper, apologised for the error. The film was broadcast on Channel Four and was weird more than mucky. I mean car crashes? Erotic? I've had loads, and they didn't do anything for me.

Uniden News

Recently Melv, from Midland Scanner has made enquiries of Uniden to see whether they would consider manufacturing a scanner that handles the MPT1327 standard. The MPT1327 is the standard trunking radio standard in use in nearly all UK trunked radio systems, as well as those in New Zealand and Australia and some other far away places.

Uniden stated that they'd consider it if enough people were interested. Well, I'm interested and I guess many others are. At the moment MPT1327 is only trackable using a computer with a program like FTRUNK running and, of course, a computer controlled scanner.

If you want to register an interest in such a receiver if Uniden decide to put one together, then (if you have E-mail) send a message to info@ukmidlandscanner.co.uk should Uniden decide to go ahead with the project then it would be a popular decision in many parts of the world.

Uniden are very serious about their commitment to radio enthusiasts and professionals who need scanning receivers. The news is that they have released details of their latest scanning radio. It's the BCD996T and apart from having practically every feature ever devised including 'Close Call' (it's like reaction tuning) and almost every trunking system used in the US including the APCO25 digital system, it has the facility to be connected to a GPS receiver. The idea being that although you may be able to monitor a radio system you may not need to.

If for instance you were driving to Port Angeles in Washington State, you would probably be able to hear transmissions from the police on 453.400, 460.100, 155.475 and 154.770 but you may not want to hear them until you were in the area covered by the town police. You can program the GPS and the scanner to automatically start scanning those frequencies (or trunked systems - or anything) only when you are within the town limits. When you leave the area those frequencies will no longer automatically be scanned. This can be programmed for any number of coordinates.

Frequency (MHz)	Heard
162.475	Voices in English.
162.725	French voices. Another listener established that this was the Peugeot team with an input frequency of 159.875.
163.250	Voices in English. The input was identified as being on 158.300.
163.275	French speakers - again another monitor reported this as being the Citroen team with input on 159.325.
163.375	Chris identified this as being a control station that issued information regarding road and weather conditions to the teams who would then relay them to their drivers. This was a busy frequency and many languages were heard. 157.600 was the input.
163.4875	Monitored by several people but no one has positively identified the users.
163.5125	This frequency was used to report movements on the various stages.
163.625	Input was 158.975 Chris didn't know who the user was but another monitor seems sure that it was in use by Subaru.
163.6375	Again the user was not positively determined. Input frequency 159.0125
163.8875	with the input of 157.700 it seems that this maybe was in use by Skoda.
164.1625	English speakers - thought to be a Ford Channel. Input on 159.1625.

Some low-band frequencies were also heard by other monitors with 82.675 and 82.6875 being in use. Marshalls were heard on 173.0625, 172.175, 160.2625, 164.0625 and 173.0875. Chris heard 461.2375 and 463.02 in use, as well with a rebroadcast frequency of 455.550 running. As for air band he heard Swansea Tower using 119.700 a.m. while another monitor heard the helicopters associated with the event using 122.950 a.m.

I feel exhausted just reporting this stuff. Chris and others must have had an interesting day or two. On the 18th he says that the Swansea end of things had really quietened down with everyone shoving off to Port Talbot and Cardiff. At least he could get a rest!

Low v.h.f. skip was floating around on the 24 September. Someone in the UK heard

Encrypted Traffic

I recently heard encrypted traffic on marine channel 77 (156.875) I had a go at cracking it with the *Invert* program but no luck. In the past *Invert* has come up trumps but it wasn't happening on this occasion.

The last time that I spent hours trying to decipher encrypted transmissions I fought with the computer, only to eventually hear a couple of Irish fishermen whingeing on about a lack of fish - not exactly a great reward for all that hard work! I'm told that the users were fisheries protection vessels so that explains why my freebie program was no match for their encryption. However, this doesn't mean that I'll give up!

The crew of an east coast fishing boat also

It's very clever stuff indeed. Imagine that facility combined with MPT1327 scanning. Receiver coverage is from 25MHz to 1.3GHz with cellular frequencies and u.h.f. TV frequencies excluded. It boasts 6000, yes six thousand frequencies and computer control (well it would have to wouldn't it). The receiver, a BCD996T, is the size of that designed for mobile use and seems to be another impressive offering from Uniden. The BCD996T will be on sale in the spring of 2006 in the USA. The cost to Americans will be around \$850 and if it's ever imported into Britain you can bet that the pound price will have the same numbers.

Miner's Path

Mike from Coventry writes that he recently hiked up the Miner's Path on Mount Snowdon. On arriving at the summit he noticed that the Rangers were using u.h.f. hand-held radios that looked like Motorola sets. A quick scan around on his Icom R2 scanner revealed that they seemed to be using p.m.r. channel 2 (446.01875).

Mike says that the radios looked like professional p.m.r. gear rather than the PMR 446 radios that mostly seem to look pretty much the same. (Alinco and others manufacture 'pro' type 446 stuff and the cost is correspondingly high).

After diving into a pile of papers I think that the radios that he spotted could be the Motorola XTN446 (Mike's not so sure). It's interesting to find just what serious use 446 is being put to.

Toyota Cars

Toyota cars enjoy a well-deserved reputation for reliability and the company is at the forefront of automotive innovation. It looks as though they are now using a frequency near 2440MHz as part of a remote controlled vehicle security/keyless entry system.

Reports are coming in that when Toyotas are parked and unattended they emit a signal on or near that frequency in the 13cm band. Signals are reported to be very strong. One



item posted on the Internet even refers to the signal sometimes causing overwhelming interference to an amateur television repeater. That's pretty strong! Does anyone have a late model Toyota and a receiver that covers the frequency?

Tracker System

Tracker is the system that is activated if a car is stolen. It transmits a code that identifies the vehicle and the idea is that it can be monitored by suitably equipped police vehicles using a Doppler Direction Finding set which. In theory this leads to tracing the location of the vehicle and capture of the baddies so that they can be immediately bailed and eventually be sentenced to probation or community service. The police cars so equipped are usually identified by four small vertical antennas mounted on the roof in a diamond pattern.

It may well be worthwhile entering the tracker frequencies in the scanner as, who knows, you may hear a Tracker activation yourself. The channels are 164.175 and 163.1625.

UK Scanning Directory

I believe the *UK Scanning Directory* is well worth the money. It's the only reliable UK frequency guide and is compiled from

information supplied to Paul Wey's Internet list by scanning monitors who actually listen to traffic on a daily basis and then submit frequency and other information on-line. It's a useful guide when you don't have a computer handy to look-up specific frequencies.

American Radio Community

Back in the USA the radio amateur community consists of about 675000 licensees. Following the constant threat of terrorist attack and increasingly extreme weather conditions including Hurricane Katrina, that pretty much wiped New Orleans, Biloxi and other coastal towns off the map, an American radio amateur, Eric Knight KB1EHE, has proposed a National SOS Radio Network.

Eric's idea is that in times of trouble amateurs would listen on Family Radio Service (the US equivalent of PMR 446) channel 1 - 462.5625 f.m. The public at large should be educated that if they need assistance, a call on Channel 1 would be monitored by a local radio amateur, who would then relay the call for assistance to the appropriate authority by any means possible but using amateur radio if land-lines and cell 'phones are out of action.



The proposal has gone to the American Radio Relay League (ARRL) for discussion. It's certainly an inexpensive and simple solution that would have probably saved lives following the devastation wrought by Hurricane Katrina.

Paging Frequencies

Here in the northwest, the 153MHz paging frequencies became silent this year following the decision by British Telecom to withdraw paging services. Although the 'official' termination date was the end of 2004 in fact the paging signals continued for another month with every other message containing a warning to the customers that their service was about to be discontinued.

In mid-October I had a scanner running through 500 pre-programmed channels when the squelch was broken by the unmistakable din of paging transmissions. Two channels are audible here, one on 153.025 is sending FLEX and good old POCSAG is rattling in on 153.350, a channel definitely in use by Page One who have started to use some of the old BT equipment and have resumed the service.

Apart from me it seems that the UK rail network is a BT customer and I suppose the business was too good to ignore. Even if a channel goes temporarily quiet it's not a good idea to terminate it prematurely, is it?

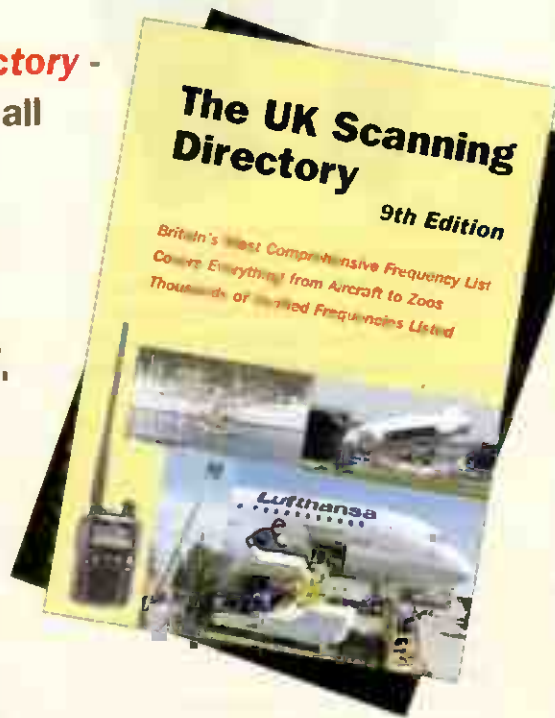


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COMPUTERS & RADIO PART 5B

The benefits of the marriage!

The possible applications for the combination of radio receiver and computer running various programs are limited mainly by imagination. This month Jack Weber continues his investigation into the many benefits of the marriage.

Picking up from where I left off last month, once you've enabled computer control of one or more of your radios, then it's a short step to allowing that control to be extended to another, remote location.

Remote Monitoring

One very useful feature in any receiver control program is the ability to operate and hear the radio over a network. As we've seen, *Shortwave Log* features this in a big way, but several others, including *HRD* and *Ergo*, also include servers that can share a receiver over your home network or the Internet. There are all sorts of ways you could use this.

For example, if you have a decent size garden, you could put the receiver plus a cheap PC or laptop into a shed that's well away from all the electrical noise of the house, and then listen from the comfort of your armchair via a wireless network. Extending this idea to broadband Internet, you

might be able to install the gear at a friend's house in some electrically quiet rural location and listen in peace from the middle of the city. I'll stop short of suggesting that you operate your home receiver over the Internet while away on holiday. But you could.

This sort of remote monitoring is a big thing in professional circles and receiver control software makes it available to everyone now. Any type of computer-controlled radio would do but, for a permanent set up, it would be particularly well suited to one of the black-box receivers, such as the Icom PCR1000 or Ten-Tec RX-320D.

Suppose you've looked at the available software and decided that none of it is quite right for you. What then? Well, the obvious solution is to write your own. I won't pretend that this is entirely easy, but neither is it as difficult as it might appear. If you've never done any programming before, there'll be a bit of a steep learning curve to begin with. After that, the actual coding is not difficult and the benefits are that you will have something tailored to your own needs and your own ideas of what constitutes a comfortable interface.

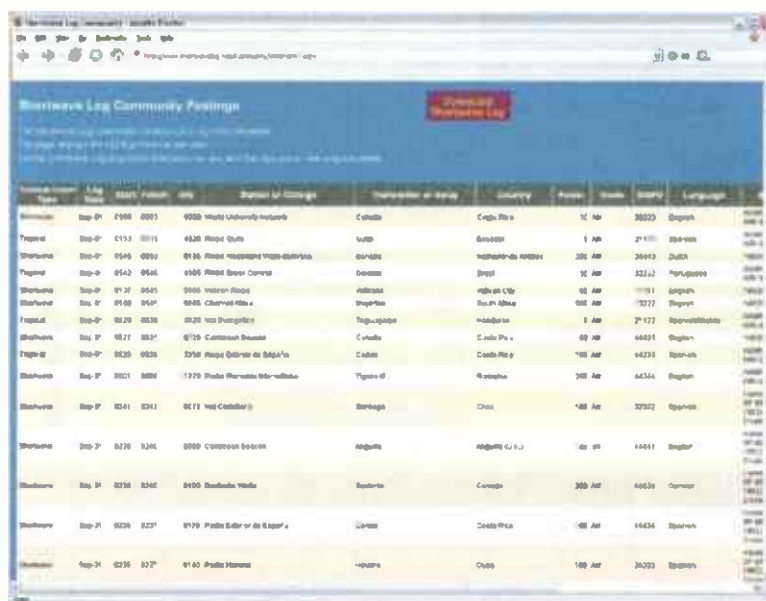
Roll Your Own

If you're already familiar with a traditional language such as C++ or BASIC, then you'll know just what to do. If not, then I'd suggest going down a different route altogether. These days, there are various scripting tools, also sometimes known as Rapid Application Development (RAD) tools, which are significantly easier to learn and have a lot of built-in facilities to help you create an effective and attractive interface with much less effort than if you were having to program it from scratch. If you want to try this approach, have a look at *Runtime Revolution*, which works on both Macs and Windows PCs.

Another option is to use a programmable database application. One of my ongoing projects at the moment is to create a flexible control interface that will allow several different receivers to be operated from a database of frequency listings. This means I can click an entry in the list and immediately tune to it with the correct mode and other settings or, conversely, create an entry in the database from the radio's current settings. You can see my work in progress in Fig. 6. The system is nowhere near finished yet and the interface is still very much under construction, but most of the basic receiver control took less than a day to write and works very well.

There are various database applications that you could use, including among others *Microsoft Access*, *4D* and *FileMaker Pro*. My own choice was *FileMaker Pro* (available for both Windows and Macs) because its scripting is powerful enough to do what I need, but very easy to learn. The only thing it can't manage directly is sending and receiving data through the RS-232 interface, but there's a handy plug-in available (Troj Serial Plug-in from Troj

● Fig.4: The *Shortwave Log* program encourages users to share their loggings on-line, allowing you to download details of what others have heard so you can pursue them yourself.



Automatising in Holland) that does this very effectively.

Any receiver that's capable of being controlled by computer will have its own command list which can generally be found in the operating manual. One crucial thing to check is whether the commands need to be sent in ASCII, hexadecimal or some unique code of their own. ASCII is the code that computers use to represent standard text and punctuation characters. If your radio supports ASCII commands - as, for example, many JRC and AOR receivers do - then you can communicate with it simply by typing the actual code sequence of letters and numbers that's presented in the manual and sending that to the RS-232 port.

Hexadecimal is a base-16 number system (we normally count in the base-10 or decimal system) where the numbers 0-9 have their normal meaning, but the values 10-15 are represented by the letters A-F. Some receivers - for example, many of those made by Icom - use hexadecimal codes. If you look in the manual and see a command like "FEFE4AE0060501FD" (which to an Icom receiver means "Set the mode to c.w.") you can't simply send that string of characters to the radio because it isn't actually a string of characters at all, it's a sequence of hexadecimal numbers, which need to be translated into ASCII first. Fortunately, some programming environments have hex-ASCII translation built in, but not all do.

Idiosyncratic System

A few radios use their own unique codes - some of the older Yaesu receivers for example, as well as the AOR AR7030, which has an idiosyncratic system that's so far defeated my attempts at programming. If you have a choice, try to start with a radio that accepts ASCII commands. Once you have that working, moving to hexadecimal codes will be a fairly straightforward step.

Creating an application that will rival *HRD* or *MacLoggerDX* would demand really serious programming skills, but even something very much simpler can be extremely useful if it's designed to serve your own specific needs. My home-brew control program doesn't do anything that couldn't be done by most of the free or commercial programs. But it does it the way I want and fits in with a database that's made the way I want it to be, without any extraneous features that I don't want. Admittedly, it also lacks various features that I do want but haven't yet worked out how to create, but I'll get them sorted out in time and it's worth it for the satisfaction of having made it myself.

Having dwelt on the advantages of computer control, what about the disadvantages? One obvious limitation is that you don't get the tactile response that you do with a real tuning knob and real switches and buttons. Learning to operate a receiver well is like learning to play an instrument - you need to get the skill into your fingers so that it can happen without thinking. And that's much easier to do with real rather than virtual controls.

Things are looking up though, because you can now buy a standalone computerised tuning knob that helps to bring back some of the authentic tuning experience. It's called the Griffin PowerMate (see Fig. 7) and it's basically a solid aluminium knob mounted on a circular base that links to your computer via a USB port. Inside is a digital encoder that can be set to emulate any



● Fig. 5: Dog Park Software produces a number of very polished amateur radio applications for the Mac. Among them is MacLoggerDX, which can control receivers or transceivers, and do much more besides.

repeated key press as you rotate it. This won't work with all control programs because some don't support keyboard tuning, but for those that do, it's ideal. For example, when I'm using my WiNRADiO G313 or RFSpace SDR-14 software-defined radios, the PowerMate is set to emulate the Right and Left Arrow keys on the keyboard. These are recognised by the receivers' control software as commands to change frequency up or down by the current tuning step, so turning the PowerMate is just like turning a real tuning knob. It costs about £35 and is available from many computer dealers.

Traditional Front Panel

For now, that's as close as you'll get to re-creating a traditional front panel, but there's no reason why entirely software-based receivers can't have physical hardware controls. A good precedent already exists in the world of audio, where professional sound editors and recording engineers quickly saw the benefits of computer-based non-linear editing systems and digital mixing desks, but needed something far more efficient than a mouse and keyboard for driving the software. Manufacturers responded by creating so-called 'control surfaces', which are traditional control



● Fig. 6: Still very much under development, this is a receiver control application scripted within a FileMaker Pro database. In this view the database is part of the HFCC list of short wave broadcasters. Clicking the small round dot beside any line automatically tunes the receiver to that station's frequency.



- **Fig. 7: The Griffin PowerMate provides a decent tuning knob that will work with many computer-controlled radios.**

panels with real knobs, switches, faders and so on. However, instead of controlling the audio signals directly, the control surface simply sends out digital commands. These go to a computer which does all of the actual audio processing.

The communications receiver market may not be as large or as wealthy as the professional recording market and so may not support the necessary investment, but I do hope that some enterprising radio manufacturer will follow the example of the recording industry. A control surface designed for radio, with a high-quality tuning knob and a range of programmable and reassignable rotary, sliding and switched controls would be an immense benefit to anyone using the new generation of computer-based or computer-controlled receivers. And it would leave the screen clear for doing its main job of



displaying the frequency readout, spectrum analyser plots, filter profiles etc. without excessive control clutter.

Having started out by advocating computer control in preference to the radio's own front panel, I'm now arguing for fitting a physical panel to the computer. Inconsistent? I don't think so. Computer control frees us from the limitations of a fixed panel which, these days, invariably has to handle many more functions than it has space to accommodate.

Computer control also opens up your receiver to integration with databases, maps, etc., and to local and global networking. What it can't yet do is give every user the freedom to decide how they want to interact with it all. Some people are happy tuning with a scroll-wheel mouse, some prefer traditional controls, others would like to use a keyboard. It's only by combining computer control with flexible and programmable hardware that I believe we'll make the most of what is now on offer. Then, finally, we'll be able to move fully to the next generation of radio receivers. And move we must!

Changed Forever

The days of big receivers with bakelite knobs and switches that go 'clunk' will never come back. Even the modern desktop communications receiver is rapidly heading towards extinction. The number of models available has been falling for some years and, just in the last few months, two more classic radios - the Drake R8B and the Icom IC-R8500 - have been discontinued. Meanwhile, the new receivers that have appeared in the past year or so are all black box models for connection to a computer, or software-defined radios to fit inside or alongside a computer.

Like it or not, the face of receiver design has changed forever. Personally, I think this is a very exciting time in radio with recent introductions like the AOR SR2000, the RFSpace SDR-14 and the WinRADIO G313 really showing the potential of the new technology and pointing to amazing possibilities for the future. I intend to make the most of those possibilities, however I have no intention of giving up my traditional receivers. Classic radios, whether ancient, like the BRT400D, or modern, like the AR7030, have a timeless appeal. I look forward to the day when the first classic of the digital age comes along to join them.

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Useful Sources

Ham Radio Deluxe can be downloaded from <http://hrd.ham-radio.ch/>

Shortwave Log can be downloaded from www.shortwavelog.com/default-english.html

Details of the *Ergo 4* receiver control application are at <http://swldx.com/>

The *RxWings* program is available from <http://home.wxs.nl/~jarkest/swl/swl.html>

MacLoggerDX by Dog Park Software is available from www.dogparksoftware.com/MacLoggerDX.html

MacR-1000 can be downloaded from <http://manoverboard.org/>

Information about *Runtime Revolution* is at www.runrev.com/

Details of *FileMaker Pro* are at www.filemaker.co.uk/ and the Serial Plug-in for *FileMaker Pro* is available from Troi Automatisering at www.troi.com/software/serialplugin.html

You can get more details of the Griffin PowerMate from www.griffintechnology.com/products/powermate/

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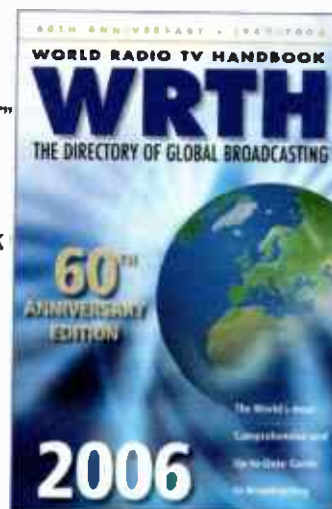
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DRM Makes Good Progress



Lawrie Hallett takes a critical look at the progress made over the past two years by Digital Radio Mondiale in the world of broadcasting.

Digital Radio Mondiale (DRM) has come a long way over the past couple of years, the number of stations using this new digital broadcasting technology, and the number of hours broadcast have both increased steadily since the system was officially launched in June 2003.

Success has been particularly apparent on those short wave frequencies used for international broadcasting. Major international broadcasters such as the BBC, Deutsche Welle and RTL have all invested heavily in a technology, which they clearly recognize will dramatically improve the delivery of their various services over long and often interference prone signal paths.

How Effective

In domestic broadcasting things have not moved so far forward. Test transmissions are currently being carried out in the UK and

various other countries, both on the traditional domestic a.m. broadcasting bands (long wave and medium wave), as well as on short wave frequencies in the 26MHz band. Here the idea is to use such frequencies for local services rather than for long distance reception. The idea is to employ near vertical Incident (NVIS) techniques to broadcast to local listeners. By using about 100W of radiated power into an antenna system, which fires the signal straight up into the ionosphere results in signals being 'bounced' straight back down to provide a service area of several kilometres radius around the transmitter site. Tests are ongoing to examine how effective this method of domestic broadcasting is likely to be, and to evaluate the effect of the sun-spot cycle on the delivery of signals via such techniques.

Whatever frequencies are being used to carry DRM signals, in effect this is at present a kind of 'phony broadcasting'. The signals are there alright, but the number of receivers available to receive and decode them is still

infinitesimally small. It is this fact, which above all explains the different pace of development between international and domestic broadcasters as far as the use of this new 'second generation' digital broadcasting standard is concerned.

International Arena

In the international arena, many state broadcasters are running DRM services as a sort of 'carrot' to encourage receiver manufacturers to commit to marketing suitable receivers. International commercial broadcasters see room for new development of their services, or, as in the case of RTL, the chance to re-create famous old brands such as '20B Radio Luxembourg The 'Station of the Stars' is scheduled for re-launch, probably later this year, on its old medium-wave frequency, broadcasting in English to the UK, but using DRM as the modulation scheme and thus avoiding the famous 'luxy-fade'!

For domestic broadcasters, the situation is somewhat different. First and foremost, these broadcasters (public and private) are only interested in technologies that deliver large numbers of listeners. (This is why they have invested heavily in the satellite and terrestrial digital TV platforms and so often stream their output over the Internet). In addition, particularly in the UK, these broadcasters are already investing heavily in the first-generation digital radio standard, DAB (Eureka 147 T-DAB). DRM is something that many of these organisations have recently begun to take an interest in, but it remains a technology that they will only begin to put serious money into once receivers begin to become available in much larger numbers.

For several years, the backers of the older DAB standard were, to a large extent, hostile towards DRM, perceiving it to be some kind of threat that might slow the uptake of their preferred technology. However, over time, this view has gradually changed, and there is now considerable co-operation and collaboration between the two camps. This turn-around has undoubtedly been, helped by the fact that numerous broadcasters, not to mention some regulators, clearly consider the two technologies to be mutually beneficial for each other and for the development of radio broadcasting as a whole.

Practical Benefit

One practical benefit of increased co-operation with supporters of DAB is the imminent arrival of multi-standard digital radios. Module designer and manufacturer,

ogress

RadioScape, announced its first such module earlier this year, and confidently expects finished products to be available from well known radio receiver manufacturers in time for the Christmas rush this year. The RadioScape RS500 module uses the company's "soft-ware radio" approach and allows manufacturers to produce designs that can resolve not only DRM and DAB digital signals, but also AM and FM (stereo & RDS) analogue transmissions. Although no receiver manufacturer was quite ready to talk about additions to their product line at the time this article was written in mid 2005, the general expectation is that it will be high-end consumer models that make it into the shops first. These are likely to feature general coverage (DRM and AM, LW, MW & SW) up to 30MHz, FM Band II (87.5 to 108MHz) and DAB (Band III and L-Band blocks). Advanced features such as Pause, Rewind and Record to MMC card, as well as the ability to display and use Electronic Programme Guide (EPG) data are also included on the module and can be implemented or not as the receiver manufacturers decides on a product by product basis. RadioScape are predicting that end-user prices for products based on their latest module should begin at around the £150 mark.

Although the DRM standard is now finalised for frequencies up to 30MHz, the system itself is still evolving in other areas. In March of this year, the DRM consortium publicly announced plans to introduce a new version of their standard for use on frequencies up to 120MHz. Full details of this new implementation of DRM are not yet fully developed, but, plainly, the idea is to make the extended frequency version of the standard the natural 'plug in replacement' technology for analogue FM transmissions on Band II. The DRM consortium expects to be demonstrating its new v.h.f. system within the next couple of years with the intention to begin its proper introduction around 2008/2010.

Not Quite So Rosy

Of course everything in the DRM garden is not quite as rosy as broadcasters might like! Although the threat of Power Line Transmission (PLT) systems being used to deliver Internet services over power supply cables has not yet materialised to any great extent, those behind this technology have certainly not given up yet! For broadcasters and listeners, the fundamental problem with such systems is that the power cable

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RadioScape, one of the world leaders in Software Defined Digital Radio solutions, presented multi-standard digital radios based on its recently launched RadioScape RS500 module at IFA 2005 Berlin held back in September. RadioScape has worked with several leading manufacturers who also launching their digital radios at the show. These sets can receive Digital Radio Mondiale (DRM) as well as Digital Audio Broadcast (DAB), f.m. with RDS, l.w., m.w. and s.w.

DRM featured at two IFA locations this year, where the new DRM/DAB radios were displayed. The DRM receivers booth was organised by RTL Group, Deutsche Welle, Radio Netherlands, BBC, Deutschlandradio, Voice of Russia, Truckradio, DRF, Radio de la Mer and Littoral AM, these participants promoting their plans for DRM services across Europe. The other location with a DRM theme was the DRM Consortium stand, which focused on DRM products and technology.

At the show **Dave Hawkins**, Vice President of RadioScape's Receivers Business explained that, "IFA is one of the most important consumer electronics events and was the perfect showcase for the first, consumer-priced DRM/DAB radios. The event will help DRM take off with the general public. Our unique software architecture has enabled us to create cost-effective, multi-standard, multi-application modules by using software stacks running on a powerful Texas Instruments DSP engine. DRM is a complex technology, but our expertise in developing with many other radio standards has enabled us to create and verify a complete, multi-standard radio solution in record time. DRM broadcasters have been waiting for the launch of consumer-priced receivers and, through our close cooperation with a number of leading radio manufacturers and broadcasters, we will enable this to happen right on schedule for the run up to the 2005 Christmas market. DRM will be the hot technology at IFA this year with many broadcasters and manufacturers making DRM announcements. As a result, 2006 will be the year that DRM becomes mainstream!".

RadioScape

The RadioScape RS500 module supports capabilities such as the highly popular Pause, Rewind and Record to MMC card features as well as the ability to display and use Electronic Programme Guide (EPG) data. Sample modules are now available to select customers and will be generally available after IFA. RadioScape forecasts that multi-standard, multi-band receivers based on the RS500 could have end user prices below £130, almost a quarter the price of existing DRM receivers.

RadioScape is the world's only developer of end-to-end digital audio broadcasting solutions giving RadioScape unmatched systems knowledge and enabling it to ensure that customers receive the highest levels of quality, robustness and reception at all stages. Its Digital Radio broadcast suite is used extensively throughout the world including the largest DAB installation to date - the UK's commercial DAB network.

The company was founded in 1996, RadioScape's investors include Atlas Venture, Royal Bank Ventures, Scottish Equity Partners, JAFCO, Texas Instruments, Yasuda Enterprise Development, iGlobe Partners, Psion and NTL. RadioScape is headquartered in London, England with offices in Singapore and Hong Kong. For more information visit www.radioscape.com

DRM Consortium

DRM is the world's only, non-proprietary global standard for the digital transmission of s.w., m.w. and l.w. broadcasting. Additionally, the DRM consortium recently voted to begin the process of extending the DRM system into the broadcasting bands up to 120MHz. Able to cover great distances and provide near "FM quality" audio using lower transmission powers and compatible channel allocations, DRM is currently being adopted in markets worldwide to provide new and higher quality broadcasts for local, national and international audiences. Over 20 Broadcasters are already broadcasting using DRM across the globe and include the BBC (World Service), Deutsche Welle, RTL Group, Radio Netherlands, and TDF. More information can be found at www.drm.org

infrastructure was simply not designed to carry such signals. The result is that when they are introduced, they tend to leak out of the cables and appear as interference on nearby radio receivers! Although developments in DSL technology in terms of speed/data carrying capacity have made this technology look increasingly less interesting in countries such as the UK, elsewhere, interest is still strong. In the US for example, the Internet Company, Google, recently invested in a PLT company looking to roll out such services in the USA and elsewhere.

Another problem for DRM lies in its public profile. For many, the three initials have nothing to do with broadcasting and a great deal to do with computers and the fast evolving area of Digital Restrictions

Management, or Digital Rights Management as its proponents prefer to call it! There is no doubt that the existing DRM standard, not to mention the emerging v.h.f. version, really do have the potential to significantly enhance and in some ways revolutionise, the future reception of broadcast radio signals. However, in a world of ever more choice and variety, with its increased competition for consumer spending, it may well be that the DRM consortium, perhaps in conjunction with supporters of DAB and the wider broadcast radio industry as a whole, will need to come up with a somewhat snappier title for its system if it is to succeed in establishing sufficient profile to spark the imagination of the general public in the near future.

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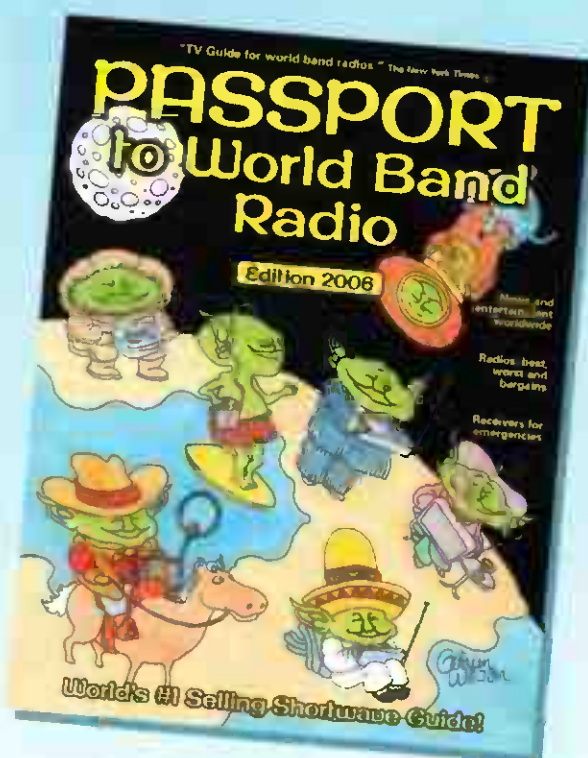
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The later part of September onwards saw a selection of interesting visitors to the UK from 'across the pond'. One of the rarer US visitors to our shores were four F/A-18As from VMFA-112 of the US Marine Corps based at NAS Fort Worth, Texas. These arrived at Boscombe Down on 20 September as RETRO 1 - 4, they were supported by KC-10A, callsign BLUE 51, which positioned into Mildenhall. Further support at Boscombe came from two USMC KC-130s, RANGER 87 from VMGR-234 and YANKEE 93 from VMGR-252. The F/A-18s were here for Exercise 'Urgent Quest' which took place, primarily over Salisbury Plain from 26 September until 6 October. Sadly, for photographers they were all in a fairly low visibility two-tone grey colour scheme.

On Sunday 23rd, I was sent an E-mail reporting that two of the F/A-18s were on their first mission using the callsigns PHANTOM 11/12 but this proved to be two Danish Air Force F-16s also operating from Boscombe Down. The first F-18 mission was on Monday 24th as COWBOY 11/12. There was a bit of a bonus for any enthusiasts sitting at 'Line-A-Ham', (their pronunciation) at around 1015 as the two aircraft requested an approach and overshoot, (Lyneham of course). Missions continued during the next 10 days with COWBOY 11/12 and 21/22 being the only callsigns that I have seen reported.

Common Frequency

Whilst over Salisbury Plain it was interesting to note that on several occasions the F-18s used the Army Air Corp common frequency of 252.9MHz as their primary air-to-air channel. I've not seen any other air-to-air frequencies reported. The return RETRO flight to the USA was postponed and so the aircraft re-positioned to Mildenhall on 6 October with two of them eventually departing for the USA on the 8th as RETRO 01-02.

Two remained at Mildenhall with technical problems. Their arrival rather upset a friend of mine who lives close to Mildenhall though, as six days earlier he had travelled all the way to Boscombe to see the F-18s!

Another very rare visitor to the UK was

a NASA WB-57F, (a sort of Canberra GTi). Using the callsign NASA 928, the aircraft arrived at Mildenhall on the 11th. I thought this was the second visit to the UK by this aircraft, the first being in the late 1960s but the press release said it was the first visit. The NASA research aircraft will be flying high-altitude missions over the United Kingdom collecting cosmic dust for study by the space agency's scientists.

The dust, which is smaller than the human eye can see comes from asteroids and comets. The WB-57 is scheduled to fly four, five-hour missions from Mildenhall at altitudes up to 55,000 feet, it is capable of operating up to height of 65,000 feet if required. The microscopic particles are gathered by two small receptors mounted beneath the aircraft's 122-foot wings. It was due to depart back to the USA on 22 October.

Fairford was already fairly busy with the Brize Norton aircraft having moved in between 10 and 15 September. This is due to runway re-surfacing work which is scheduled to be completed by 28 February 2006. Adding to the Brize aircraft on the 23rd were two B-52s from the 2nd BW which arrived as SKULL 21/22 and two B-1s from the 7th BW which arrived as DARK 48/49, (having already hit the ranges at Donna Nook and Holbeach). Support was provided by two KC-135s from the USAF Reserve Command, 434 ARW using the callsigns INDY 51/52, (52 has not been confirmed).

The tankers departed on 25 September as INDY 51 and MASH 52. The B-52s used the SKULL callsign throughout their stay and have been reported using 300.125 as an operational frequency, (BOMBER OPS). This is a new Ops-frequency for Fairford according to my records, I only have it listed as a Flamborough air refuelling frequency. DARK 41/42 hit the ranges again on the 26th changing their callsigns to DARK 43/44 for part of the mission. All of the B-1s and B-52s had left Fairford by the first of October.

Unidentified!

It is not often that I hear an aircraft call on the airbands that I cannot identify by one means or another but on 28 September this happened! Whilst scanning the usual

London/Swanwick military frequencies the radio stopped on 233.8, (Swanwick Southeast). The aircrafts callsign was CHALLIS FOXTROT and initially I thought it was a US accent but I later became confident that he was an Australian. Unfortunately, he was heading north away from me and the signal started to deteriorate and so I couldn't monitor him for long.

The aircraft requested to go to a discrete frequency "... if possible like we did on the way to Egypt" for the next part of his mission. He was passed to Boulmer on 282.975 (Stud 148) and then proceeded to call QUID 80 presumably for refuelling off of Flamborough. He also asked if a message could be passed to his home base at what sounded like TIKA? Unfortunately, I then lost an audible signal. There was a New Zealand Air Force Boeing 757 in Fairford a couple of days earlier but that is the closest, rather tenuous link that I can make. Having checked in a couple of books I can find no military airfields in Australia or New Zealand with a name anything like 'TIKA'. I could also find no other reports on the Internet news groups and so it remains unidentified. Anyone got any ideas?

A Request

I have had a request from Martin P to ask if I know of a current list of the transmitter sites and their frequency allocations for London and Scottish Military. I don't have a recent listing myself so I had a word with Photavia Press who produce the frequency directory *Airwaves*, which contains such a list. Unfortunately, they have not been able to obtain a more recent listing than February 2003. This listing is not particularly confidential and I understand that it is available in a couple of Military documents but recent copies seem to be rather hard to come by. Can any of the 'Skyhigh' readers help out with a more recent transmitter site/frequency listing? If you can, I will include it in this column in the future.

Good News - Bad News

The good news, that the Typhoon squadrons forming this year at Coningsby, was somewhat balanced by the bad news of further squadrons, bases and aircraft types disappearing. The USAF's biggest aviation hub in Europe, Frankfurt Rhein-Main ceased USA military operations on 26 September with the departure of the last scheduled

One of the recent residents at RAF Fairford was this U-2S, 80-1077 of the 9th RW from Beale Air Force Base.



movement, a USAF C-17 03-3116 . Although military flights will continue to operate whilst the withdrawal of equipment takes place the formal closure ceremony was actually on 10 October.

The massive pull-out of equipment will now leave the way free for the future expansion of the primarily civilian Frankfurt Airport. Rhein-Mains strategic airlift capability is being moved to the bases at Ramstein and Spangdahlem, sadly not to Mildenhall as some had hoped, (although Mildenhall may still hopefully get some extra traffic).

On 19 September last, a ceremony took place at the Naval Base at Rota on the west coast of Spain to mark the end of VQ-2s stay at this airfield. This base has been the home to US Navy's P-3s and EP-3s for many years. Both of these aircraft were occasional visitors to the UK. On 21 September the last VQ-2 Orion left Rota on its way to their new home at Naval Air Station Whidbey Island, Washington.

Just over 40 years since the first visit, another era ended when C-141C 40637 departed Mildenhall on 24 September. In theory, this was the last C-141 ever to visit the UK as it was announced by the 445th Airlift Wing on the first of October that all future Starlifter operations would be internal US flights only. And then only until their retirement in the spring of next year. The very final C-141 flight from Europe began when 60177, homeward bound to Wright Patterson, departed from Frankfurt on 11 October. Yet another aircraft type passes into UK history!

Sadly, yet another change was the disbanding of RAF 10 Squadron on 14 October 2005. Another government

rationalisation meant that their VC-10s would pass onto 101 Squadron leaving them as the sole operator of the long serving aircraft with the Royal Air Force, (VC-10 tankers first flew in 1962). Unfortunately for them, they were not even at their home airfield at Brize Norton but were deployed to Fairford whilst the runway is being re-surfaced.

More SBS-1

The arrival of the SBS-1, (reviewed in the October 2005 issue of *SWM*), seems to have almost taken the aviation world by storm. Reports are appearing in all sort of newsgroups and the level of interest is obviously high. Aviation and Airband enthusiasts have always been keen on collating information that is relevant to the various elements of the hobby. Consequently, lists of serials, callsigns, frequencies, registrations, etc have been with us for many years.

The introduction of the SBS-1 has opened another source of information to collect. The new collectable data, is the Hex Code to Registration/Serial tie-ups. When I wrote the review I commented that databases of information would soon start appearing and this now appears to be the case. I have had an E-mail from a reader who just signed himself as 'AJ'.

Reader AJ writes: 'Having been in the aviation industry for almost 20 years I have been fortunate to have access to quite a lot of aircraft data. When I heard on the grapevine about the SBS-1 back in April, I realised, as an aircraft enthusiast, that there would soon be a need for a Hex Code/Serial database and consequently using various sources of information I

started to compile a listing in May. By mid October it consisted of well over a quarter of a million entries and is increasing rapidly, the final database will probably have in excess of 500,000 records.

"My plan is to produce a cut-down version for enthusiasts that will primarily include airliners, biz-jets and military aircraft that can be seen throughout the UK and Europe, (including overflights). It will not only contain the Hex Code and Registration but also the Type, Operator and Construction Number and possibly other information. This smaller database will probably contain around 15,000 to 20,000 entries and I hope to have it completed by the spring of 2006, I will let you know when it nears completion".

I sent another two E-mails to AJ, asking exactly what the status of this database would be? Would it be downloadable from the web? Was it on CDROM or in book form? Was it free? Or will you need to purchase it? Unfortunately the reply just said that no further information was available at present. I have no doubt that such a listing would be of great help to the SBS-1 user by tying up Hex Codes to Registrations/Serials. But with some countries already placing information in the public domain and others working on similar projects, I suspect that this sort of information this will be appearing from all sorts of sources before next Spring!

Lastly, a *SWM* reader is attempting to compile a similar listing of RAF/USAF and other Military Hex Codes, (not such an easy task as it is with Civil craft). If anyone has made any Hex/Serial tie-ups if you E-mail them to me I will pass them on.

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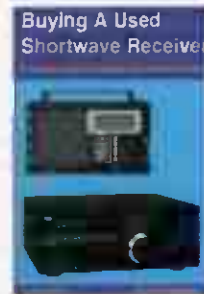
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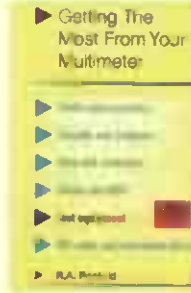
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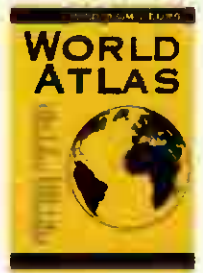


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Short Wave Table

MHz	UTC	Service	Country	Lang	SWL
5.920	0616	Radio España Int.	ESP	Eng	SH
5.955	0614	Radio Neoradio	ARG	U.A	DS
5.985	0610	Radio Mundial	MEX	U.A	SH
5.975	0621	3BC Voice of Sarajevo	CRO	Eng	SH
5.997	0011	Radio Neoradio - 2da	CRO	Eng	SH
6.002	0605	Vozes of Russia	RUS	U.S.	SH
6.020	0605	Radio Europa	ESP	Eng	SH
6.040	0106	Radio Romania B1	ROU	Eng	SH
6.055	0410	Radio Sweden	S	Eng	SH
6.075	0251	Deutsche Welle	D	Eng	SH
6.10	0634	Radio Europa	CAN	Eng	SH
6.115	0201	Radio Europa	AUT	Eng	SH
6.140	0635	Deutsche Welle	D	Eng	SH
6.141	0611	Radio Japan	J	Eng	SH
6.145	0304	Radio Europa	CAN	Eng	SH
6.150	0105	Radio Europa	CAN	Eng	SH
6.165	0610	Radio Europa	CAN	Eng	SH
6.200	0108	Radio Europa	CAN	Eng	SH
6.219	0728	Radio Europa	CAN	Eng	SH
7.105	0728	Radio Europa	CAN	Eng	SH
7.135	0633	Radio Europa	CAN	Eng	SH
7.180	0102	Radio Europa	CAN	Eng	SH
7.180	0102	Radio Europa	CAN	Eng	SH
7.190	0730	Vozes of Russia	RUS	U.S.	SH
7.235	0104	Vozes of Russia	RUS	U.S.	SH
7.250	0642	Vozes of Russia	RUS	U.S.	SH
7.335	0304	Vozes of Russia	RUS	U.S.	SH
7.440	0643	Radio Europa	CAN	Eng	SH
7.500	0119	Radio Europa Int.	AUT	Eng	SH
7.665	0715	Radio Europa	CAN	Eng	SH
7.750	0715	Radio Europa	CAN	Eng	SH
7.800	0650	Radio Europa	CAN	Eng	SH
8.450	0024	Vozes of Russia	RUS	U.S.	SH
8.490	0044	Vozes of Russia	RUS	U.S.	SH
8.565	0645	Vozes of Russia	RUS	U.S.	SH
8.980	0645	Vozes of Russia	RUS	U.S.	SH
9.070	0017	Radio Europa	CAN	Eng	SH
9.530	0023	Radio Europa	CAN	Eng	SH
9.520	0102	Radio Europa	CAN	Eng	SH
9.575	0646	Radio Europa	CAN	Eng	SH
9.710	0646	Radio Europa	CAN	Eng	SH
9.710	0646	Radio Europa	CAN	Eng	SH
9.755	0649	Radio Europa	CAN	Eng	SH
9.830	0628	Radio Europa	CAN	Eng	SH
9.885	0625	Radio Europa	CAN	Eng	SH
13.650	0630	Radio Europa	CAN	Eng	SH
13.980	0750	Radio Europa	CAN	Eng	SH
13.990	0753	Radio Europa	CAN	Eng	SH
13.995	0254	Radio Europa	CAN	Eng	SH
13.720	0900	Radio Europa	CAN	Eng	SH
13.670	0630	Radio Europa	CAN	Eng	SH
13.840	0616	Radio Europa	CAN	Eng	SH
15.065	0625	Radio Europa	CAN	Eng	SH
15.100	0627	Radio Europa	CAN	Eng	SH
16.115	0624	Radio Europa	CAN	Eng	SH
16.290	0640	Radio Europa	CAN	Eng	SH
17.000	0746	Radio Europa	CAN	Eng	SH
19.010	0652	Radio Europa	CAN	Eng	SH
19.010	0652	Radio Europa	CAN	Eng	SH
6.140	327	Radio Europa	CAN	Eng	SH
6.175	127	Radio Europa	CAN	Eng	SH
6.225	130	Radio Europa	CAN	Eng	SH
6.240	130	Radio Europa	CAN	Eng	SH
6.240	1235	Radio Europa	CAN	Eng	SH
7.375	1227	Radio Europa	CAN	Eng	SH
9.250	1306	Radio Europa	CAN	Eng	SH
9.250	1323	Radio Europa	CAN	Eng	SH
9.525	1229	Radio Europa	CAN	Eng	SH
9.545	1203	Radio Europa	CAN	Eng	SH
9.775	1202	Radio Europa	CAN	Eng	SH
9.650	1200	Radio Europa	CAN	Eng	SH
9.600	1201	Radio Europa	CAN	Eng	SH
9.680	1037	Radio Europa	CAN	Eng	SH
9.855	104	Radio Europa	CAN	Eng	SH
9.970	104	Radio Europa	CAN	Eng	SH
11.615	1038	Radio Europa	CAN	Eng	SH
11.675	1410	Radio Europa	CAN	Eng	SH
11.700	1418	Radio Europa	CAN	Eng	SH
11.720	1149	Radio Europa	CAN	Eng	SH
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11.740	1208	Radio Europa	CAN	Eng	SH
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11.985	1219	Radio Europa	CAN	Eng	SH
11.985	350	Radio Europa	CAN	Eng	SH
12.000	1218	Radio Europa	CAN	Eng	SH
12.000	1400	Radio Europa	CAN	Eng	SH
13.520	1402	Radio Europa	CAN	Eng	SH
13.575	1430	Radio Europa	CAN	Eng	SH
13.610	1322	Radio Europa	CAN	Eng	SH
13.636	1434	Radio Europa	CAN	Eng	SH
13.660	1222	Radio Europa	CAN	Eng	SH
13.660	1156	Radio Europa	CAN	Eng	SH
13.655	1222	Radio Europa	CAN	Eng	SH
13.665	1331	Radio Europa	CAN	Eng	SH

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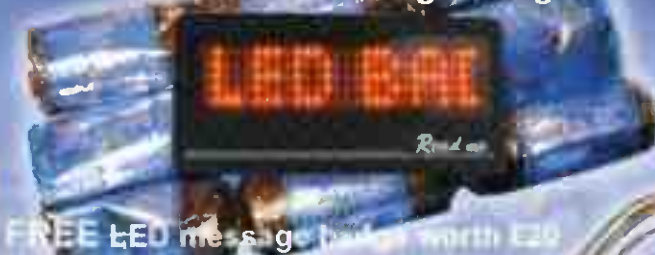
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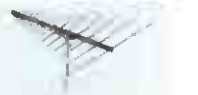
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Television

● **Keith Hamer & Garry Smith** 17 Collingham Gardens Derby DE22 4JS
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This year's Sporadic-E season finale was a traditional one, something that has not been experienced for many years. Activity diminished during the first few days of September after an amazingly productive previous month. There was an upsurge in activity by the middle of the month with a Band I opening affecting central and southern Europe.

Mixed Conditions

The season has received a mixed response from DXers. Many having complained that it's been the worst season in living memory. Others have praised it! **John Faulkner** (Sutton-in-Ashfield), and others in the Midlands, ourselves included, feel that activity fell short of expectations in our particular area for some strange reason. Perhaps we'll have better luck next year!

Shorter skip distances have been evident this summer with some of the closer

Netherlands) has forwarded us details of a mystery caption sighted on Channel R3 during the summer. The centre symbol resembles a figure '3' as shown but with a figure '1' present in the lower-left of the screen (Fig. 2).

Tropospheric DX

By 2 September, the high-pressure system poised to the east of the United Kingdom created ideal tropospheric reception conditions. Peter Barclay logged Denmark DR-1 on E7 (Soenderjylland) and TV2 on E27 (Åbenrå); German stations that were present include ARD E10 (unknown) and ZDF E24 (Bremerhaven/Cuxhaven) and E34 (Niebüll); NDR E29 (Flensburg) and E60 (Niebüll). There was also a string of Dutch (NED-1, NED-2 and NED-3) Band III and u.h.f. signals from Wieringermeer and Smilde plus the local stations of RTV Drenthe E25, Omroep Fryslan E28 and TV Noord E36.

By the 4th, Norway had joined the queue

indicate that it was an important event.

By 2038, with antennas directed towards Norway, **George Garden** (Edinburgh) was watching a steady TV2 signal on E44, from the Bokn 270kW e.r.p. transmitter. Black Hill E37 (Channel Five) was heavily co-channelled with strong Norwegian images, while on BBC-2 on E46, Norwegian subtitles were floating in the background. After TV2 closed down at 0125 with their analogue clock and pop music accompaniment, TV Norge emerged on E51 and later on E45. Throughout the day, Norwegian FM stations on 91.8, 93.3, 97.0 and 97.6MHz were heard.

On the 9th, **Tom Crane** (Hawkeley) captured Dutch locals RTV Oost E22, E36, TV Drenthe E25, TV Flevoland E26, Omroep Zeeland E54; RTV Gelderland E58, RTV NH E55 displaying a box logo in the top-right containing the abbreviation 'RTV' with 'N-H' below.

Further tropospheric enhancement on the 22nd produced strong miscellaneous French signals in Hawkeley, Essex on System L Channels L21, L24, L27 (all Lille), L29, L37 (both Boulogne), L39, L42 (both Dunkerque) and L48 (possibly Hirson). Stephen Michie logged NEI-2 E27 with a Parliamentary programme at 1006 and RTV Oost E22 showing programme trailers.

Inverted Video

Tom Crane and **Paul Foley** (Newhaven) have both noticed a strange effect with strong Ukrainian signals on Channel R2. The SECAM colour sub-carrier resembles a System L (French) picture, which can be confusing.



Fig. 1: The new Ukrainian TV logo.

transmitters in Switzerland, Germany and Denmark becoming regular visitors, while Iceland and Russia have been noticeably rare.

Reception Reports

Peter Barber (Coventry) logged Portugal on the first of September between 1340 and 1348. Activity from the Iberian Peninsula re-emerged at 1359 with TVE-1 from the Madrid Channel E2 transmitter showing 'El Tiempo' (the Spanish weather forecast) until 1402. This was observed by **Peter Barclay** (Sunderland). Peter reports further signals from Spain on the 3rd with programmes and commercials between 0951 and 1007 on E2 and E3.

A Sporadic-E (SP-E) revival on the 15th from central and south-eastern Europe brought in strong signals from RTL KLUB (Hungary) on R2 with programmes between 0926 and 0934. During the same period, Slovenia (SLO-1) E3 and Croatia (HRT-1) E4 were present.

Gösta van der Linden (Rotterdam, The



Fig. 2: A sketch, from Gösta van der Linden, showing just the unidentified logo/caption that he received on Channel R3.



Fig. 3: Simple but effective: the BBC identification symbol, first transmitted in 1961, but perhaps too simple, as it only lasted for about a year!

of stations with NRK-1 E6 (Bjerkreim), NRK-2 E41, TV2 E37 and E44 (all unknown sources); TV Norge E51; Swedish outlets included SVT-1 E8, SVT-2 E23, E26 and E29, TV4 E46 and E49. More Danish transmitters were added to the log including DR-1 E5, E6, E7, E10 and E57, TV2 E22, E27, E28, E30, E32, E33, E35, E37, E40, E56 and E58. Conditions were also affecting the south of England.

Stephen Michie (Bristol) noted NED-1 E27 from Lopik overriding BBC-2 broadcasts from Sandy Heath; NED-3 E30 (also Lopik) was airing text followed by the Zeppelin opening clock at 0555. In Coventry, from 0800, Peter Barber noticed NED-1 E4 (Lopik) and VRT TV1 (Wavre, Belgium) E10 simulcasting the same religious service, which seems to

Service Information

Spain: Analogue TV is expected to close completely by 3 April 2012. The switch-off date for the Madrid E2 transmitter was originally planned for 30 September 2005 but the outlet remained on-air. With some luck, the authorities will have had a change of heart and the signal will still be with us next season. The TVE-2 Santiago E2 outlet took 19 years to finally close! According to **Roger Bunney** (Romsey), Class B licence holders with over four years of operating experience are being allowed access to 50-51MHz at 100W.

Hungary: Amateurs were allowed access to 50.05 - 50.5MHz at 5W for 30 days in August for assessing interference to TV broadcasts on Channel R1. Currently there are two MTV-1 transmitters using R1: Budapest (150 kW) and Nagykizsa (50 kW). The 6-metre band could be opened up within the next few years on a secondary-user basis.

Ukraine: A new logo is reported to be in use by YT-1, which resembles the old Russian ORT sloping '1' logo, just to add confusion (see Fig. 1).

Our DX-TV and Archive TV website can be found on the Internet at www.test.cards.fsnet.co.uk

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If you are interested in finding out more about weather satellites (WXSATs), do read this column. This month I reveal some of the background to the proposed frequency change for NOAA-18, and have a brief look at the October solar eclipse, as well as reviewing current WXSAT reception.

NOAA-18 a.p.t. - A Late Intervention!

So near, yet so far! We were within a few days of having NOAA-18s a.p.t. frequency switched from 137.9125MHz to the alternative 137.10MHz, a change that would benefit many monitors in Britain that suffer badly from pager interference. Darrell Robertson - the NOAA representative who monitors the WXSAT forums, and responds to our queries had even advised us of the forthcoming change, when everything ground to a halt. There had been an objection to the change of frequency.

The situation up to mid-October can be summarised: METOP-1 EUMETSATs first polar satellite in the new Initial Joint Polar Orbiting Operational Satellite (IJOS) system is scheduled to transmit the new image formats including Low Resolution Picture Telemetry (LRPT) requiring new reception equipment, on 137.10MHz, a frequency unlikely to be significantly affected by interference. NOAA-18 was allocated and currently transmits a.p.t., on 137.9125MHz, a frequency known for years to be badly affected by pager interference (due to very bad frequency planning by the then UK authorities) in Britain.



Fig. 1: Simulated a.p.t. from 1242UTC 9 October h.r.p.t. image.

The problem is that EUMETSAT conditioned their concurrence on NOAA vacating their frequency when METOP launches. NOAA does not recall giving the environmental frequency away so this must be evaluated. Essentially, EUMETSAT had apparently stopped it happening. I contacted EUMETSAT to enquire further about the problem as they saw it. The Operations staff (the Help Desk)* appeared to have no knowledge of the event, so they suggested that I should contact the delegate office from the UK Meteorological Office to present a formal request to EUMETSATs Director General, Dr Lars Prahm. Although my initial reaction was to suggest that this course of action was somewhat beyond my scope, I decided to do so anyway. The Operations staff told me that they were not actually aware of EUMETSAT having made any objections to the proposal.

I contacted the Met Office and was referred to Stewart Turner, who kindly invited me to summarise the situation for him to present at the EUMETSAT Scientific and Technical Group (STG) meeting on 11 October. The group represents the interests of the UK in the EUMETSAT partnership, rather than just



Fig. 2: Solar eclipse weather over Britain from METEOSAT-8 at 0945UTC 3 October EUMETSAT 2005.



Fig. 3: Solar eclipse on 3 October from webcam courtesy Carsten Arnholm in Norway.

representing the Met Office. I quickly provided him with a summary of the situation regarding the interference to NOAA-18 a.p.t. suffered by large numbers of UK amateur WXSAT monitors, and also provided him with the EUMETSAT contacts.

Following the meeting, a preliminary report sent to me implied that EUMETSAT were not aware of any such concerns having been raised. Finally, in mid-October the situation was clarified: NOAA users had requested a delay in the frequency switching until after the hurricane season, apparently due to some of the a.p.t. receivers only catering for the upper frequency. The switch option will therefore be reviewed in December. I remain optimistic.

Meanwhile, Fig. 1 shows a simulated a.p.t. image produced using David Taylors HRPT reader because I cannot receive clear images on 137.9125MHz.

Solar Eclipse Under Cloud

Much of Britain was clouded over during the whole of the solar eclipse (annular in places in Europe, elsewhere partial) that occurred during the morning of 3 October. Although I had two telescopes available for solar work, neither can see through clouds!

Most of the country was covered in cloud or thick mist, see Fig. 2, although the extreme south-east had gloriously clear skies. The cloud front was moving slowly westwards along the south coast, but the METEOSAT animation showed that it would not clear Southampton until near noon, shortly after the end! Fortunately, other observatories had better conditions. Fig. 3 shows the eclipse seen over Norway using a hydrogen-alpha filtered telescope.

Scotland fared better, as seen in Fig. 4 from Les Hamilton in Aberdeen. In Fig. 5 you can see the Moons shadow during the annular eclipse, imaged by METEOSAT-8 as it travelled across north Africa. The view from there must have been spectacular - the outer ring (annulus) of the sun showing around the dark moon.

EUMETCast (METEOSAT imagery) to expand coverage

Increasing numbers of European WXSAT monitors are setting up DVB reception systems for EUMETCast data. METOP data (the new European polar WXSAT to be launched next year) should also become available within the EUMETCast data stream. METOP is most unlikely to be monitored directly in the same way as the NOAA WXSATs due to the considerable costs of setting up new systems for its reception and decoding during the early years, so EUMETCasts plan is highly encouraging.

EUMETSAT also intends to broadcast high resolution AVHRR data over EUMETCast. Closed-user tests are taking place now with GEO members. As an example of the anticipated coverage, see Fig. 6 from David Taylor.

David explains that this data comes from two EUMETSAT h.r.p.t. receiving stations. The data is at full h.r.p.t. resolution (1.1km) and 10-bit digital quality; the screen-shot just shows the coverage area. My understanding is that

this data will be free to amateurs and educational establishments. David suggests that it is possible that we might see h.r.p.t. data via EUMETCast by the end of year.

Current WXSATS

I admit to being a little puzzled about one announcement made by NOAA (National Oceanic and Atmospheric Administration) in late August. It concerned a change of the frequency allocation for NOAA-16 from right-hand circular polarisation to left! This apparently minor change immediately prevented an estimated 95% of all h.r.p.t. users from receiving good data!

Historically, NOAA h.r.p.t. has used right-hand circularly polarised telemetry (r.h.c.p.), with the exception of a short period following



Fig. 4: Solar eclipse from Aberdeen courtesy Les Hamilton.

NOAA-14 continues to provide high resolution (h.r.p.t.) data though it has been showing variable quality see Fig. 8. The effect of the fault varies rapidly with time. Sometimes the image is as shown, with interference of various shapes seemingly randomly crossing the image; other times there is just one narrow stripe along a side, and just occasionally we get a clear pass as reported by Mike Jupp on 16 October.

Getting into NOAA WXSATS

Setting up a system to receive and decode NOAA a.p.t. (low resolution automatic picture telemetry) has never been cheaper or easier. It was my first entry into WXSAT decoding and, for the cost, is a very economical yet satisfying project. The signals are received directly from the orbiting satellite so are subject to varying degrees of interference due to physical obstructions such as trees or buildings and to possible radio interference.

Reception requires a suitable antenna (designed for WXSAT signals), a suitable receiver (again, one designed for WXSAT signal processing), and suitable decoding hardware and software. A laptop computer is ideal for receiving and decoding WXSAT a.p.t. data; much software is free in its basic form and can provide live images. It is ideally suited to educational applications for schools. Typical costs are £35 to £40 for an antenna, £25 or so for cabling, £100 for a receiver kit (for those



Fig. 5: Moons shadow over the Sahara during annular eclipse 3 October EUMETSAT 2005.

launch. Normally the switch to r.h.c.p. would be made within a few days, enabling users all over the world to start receiving good quality data. A polarisation change is not the easiest operation to perform on the huge majority of tracking satellite dishes so such a change was not anticipated by most users.

My own checks on NOAA-16 h.r.p.t. confirm that the signal is weaker and subject to drop-outs, but can be decoded for various periods during each pass see Fig. 7. Close examination shows that images still have the wavy section fault to some extent.



Fig. 7: NOAA-16 h.r.p.t. 1441UTC 13 October (left circularly polarised data received using right-circularly polarised antenna)



Fig. 8: NOAA-14 h.r.p.t. 0949UTC 9 October from Southampton.

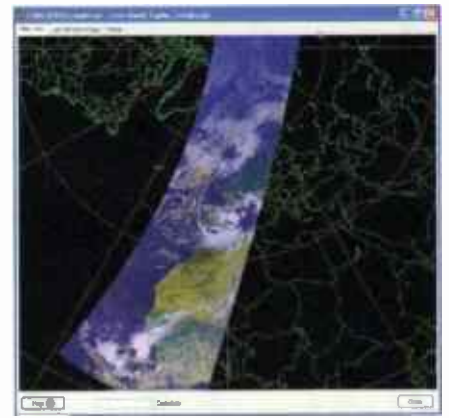


Fig. 6: Possible METOP coverage via EUMETCast courtesy David Taylor.

suitably equipped for construction projects), or £250 (or so) for a ready-built receiver. Future editions will explain the options in full.

The View From America

Chuck Vaughn sent Fig. 9, a superb image he received from the Chinese WXSAT FENGYUN-1D. He comments: As soon as Southern California gets a Santa Ana condition, the fires start. This was received on 29 September and shows the dramatic smoke plume. A few days earlier, Patrick Prokop produced this thermally calibrated image of hurricane Rita, showing how low the temperature reached near its centre.

Satellites for Disaster Management

Leading national space agencies have decided to build a unified system to deliver real-time satellite pictures to monitor the impact of natural calamities world-wide. The eight-member International Charter on Space and Major Disasters, that includes NASA, the European Space Agency, Japanese Aerospace Exploration Agency, and the Indian Space Research Organisation, has announced the decision in the Indian capital Bangalore. "We have proven the relevance of space in alleviating human suffering caused by such calamities," charter board member Jean-Luc Bessis said at a fifth anniversary meeting. The charter was formed in November 2000 and has been activated several times to assist with information on emergencies such as floods, volcanic eruptions, oil spills, hurricanes and earthquakes world-wide.



Fig. 9: Smoke plume from California imaged on 29 September by FENGYUN-1D from Chuck Vaughn.

Earth observation satellites provide comprehensive, synoptic and multi-temporal coverage of large areas in real time and at frequent intervals, revealing the nature and impact of disasters, said Bessis. The charter was at the forefront in providing space information during Hurricane *Katrina* after floodwaters submerged parts of New Orleans on 29 August. When the tsunami struck 14 countries across South Asia and Southeast Asia on 26 December 2004, member countries swung into action to release about 200 images from their satellites.

News from the WXSAT Groups

Francis Bell of GEO (the Group for Earth Observation) tells me that they have been particularly active over recent months because of changes in the reception of weather satellites, and the anticipation of new ones. With the WEFAX service from EUMETSAT's METEOSAT series ending in early 2006, GEO is offering a new service to members to supply the receiving hardware and software plus help with licensing for METEOSAT-8 (MSG-1). Their advice is Prepare now rather than wait until the WEFAX service is turned off. GEO will be attending the EUMETSAT conference in Helsinki in 2006 where we have been invited to submit a paper. NOAA's next conference will be in mid-2007, and again GEO will be there. GEO's own conference will be held on 29 April 2006 at the UK's National Space Centre in Leicester.

Regular contacts between GEO and NOAA help keep the membership up-to-date with existing satellites, data formats and future plans. GEO has members in the USA and south America using these satellites so we do keep up to date with these changes.

John Tellick tells me that David Taylor and another GEO member have been involved with EUMETSAT in initial tests of AVHRR data (including high-resolution NOAA-18 images) disseminated over EUMETCast. This allows evaluation of the system and software requirements for this extension of the EARS service, which was described at the GEO Symposium in April this year.

A member of GEO's management team listened to NOAA-18 reception during his recent travels across Europe, and confirmed little background interference. It is unfortunate that pager frequencies in the UK are so close to the downlink from NOAA 18. GEO's website is geo-web.org.uk

The HRPT System Finally Working Again

The long saga of my h.r.p.t. (high resolution) tracking system was finally cracked in mid-September. The hardware (cabling, pre-amp, receiver and ancillary units had been checked out by the supplier (Dave Cawley of Timestep) and found to be working well. I had re-installed the returned modules and tested some passes but the fault remained very noisy passes throughout.

I left it alone for a few days to ponder. I had a walk around the tracking dish and looked at it carefully. Hmm! Shouldn't that feed be absolutely vertical?

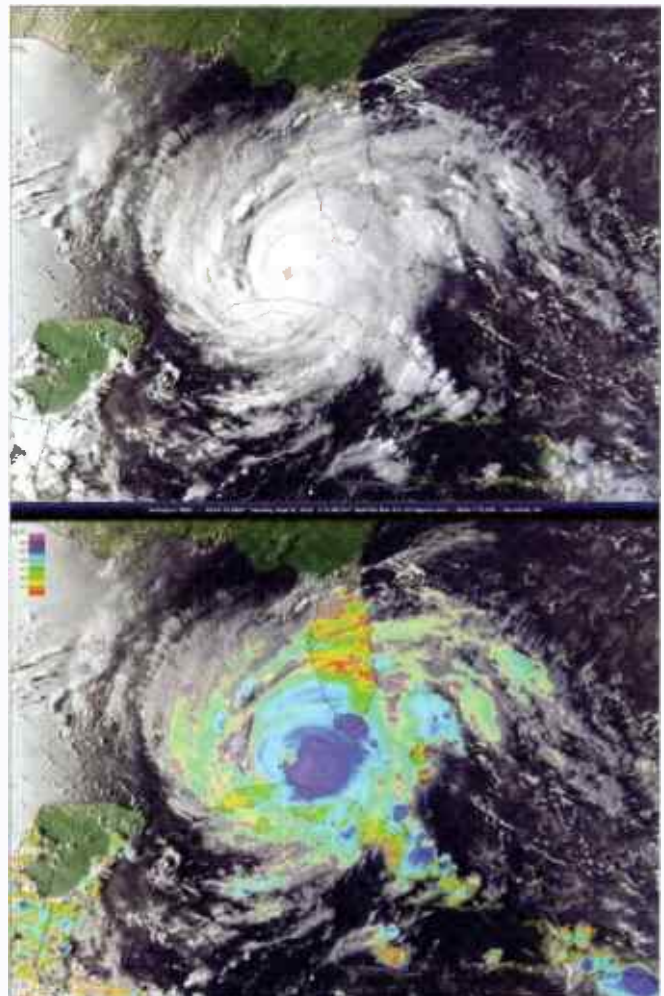
Fig. 10: Hurricane Rita 20 September from Patrick Prokop.

I examined the helical feed at the centre of the dish. Nothing obvious was wrong, but it seemed very slightly off-centre. I removed the entire feed system and gave it a clean meaning that I removed a spider from the central tube to which the feed is attached. This (the spider) itself would not have any effect.

Then I very carefully replaced the feed, taking care to align the central tube pointing towards the central hole rather than leaving it off-centre. I also lightly oiled the supporting bolts.

There was no pass for a few hours, but NOAA-15 was imminent so I set it up for that. NOAA-15 does not provide a good test due to the current configuration on the WXSAT it is using an omni-directional antenna instead of the RCHP antenna. (Omni-directional - no preferred direction.) To my great relief and surprise, I received good data for much of the pass leaving me very optimistic about the forthcoming good NOAA-14 pass.

As hoped for, it was excellent with minimal noise except near the start and end where I have trees seemingly reaching the clouds! This



was a very satisfactory end to a long check-out history that had seen virtually every component tested. Subsequently satellite passes have been received with excellent strength.

This edition marks the end of a very eventful year in the WXSAT calendar. I wonder what surprises next year will bring?

Frequencies

a.p.t.

NOAA-12 and NOAA-15 transmit a.p.t. on 137.50MHz during overlap periods, NOAA-12s a.p.t. may be switched off.
NOAA-17 transmits a.p.t. on 137.62MHz
NOAA-18 transmits a.p.t. on 137.9125MHz but 137.100MHz is an option for December/January.

h.r.p.t.

NOAA-12 transmits on 1698.0MHz
NOAA-14 (often faulty) transmits on 1707MHz
NOAA-15 transmits (omni-directional) on 1702.5MHz
NOAA-16 transmits on 1702.5MHz but l.h.c.p. (see text)
NOAA-17 transmits on 1707MHz
NOAA-18 transmits on 1698MHz

FENGYUN-1C (faulty) and 1D transmit on 1700.5MHz

WEFAX: METEOSAT-7 (geostationary) transmits WEFAX on 1691 and 1694.5MHz and Primary Data on 1691.0MHz until early 2006.
METEOSAT-8 HRIT, HRIT and other formats transmitted via HotBird-6 at 13 east on transponder 117- 10853.44 MHz as EUMETCast data.

Maritime

Beacons

● **Robert Connolly** 21 Eleaston Park, Co. Linn, N. Ireland BT34 4DA
 ● **E-mail** beacons@pmpublishing.itd.co.uk

Following up on my September column, a few days after it was sent to the editorial office I began to receive further reports regarding the re-activation of the Bulgarian beacon KL (291.5kHz). It was being heard by several listeners in different parts of Europe and would seem to have become permanently active.

In these days of beacon closures it's refreshing to hear of a beacon coming back to life again. Dr Matthias, from Germany, kindly sent me a picture of the location as he had apparently visited that area last year. The photo, Fig. 1, shows the station building and the antenna. Dr. Matthias tells me that there's a meteorological station there and radar to watch the ship traffic towards the ports of Varna and Bourgas.

Official Information

A major problem for maritime beacon listeners, is the lack of official information regarding NDBs that are still currently operational. Official documents such as *Admiralty List of Radio Signals Vol. 2* and nautical almanacs stopped carrying details of NDBs a couple of years ago. Fortunately, my own database is kept up-to-date with listener reports and the regular checking of aero data regarding the aeromarine NDBs.

My beacon booklet is now probably the most definitive guide available for active marine beacons along with the tables produced in this column. The guide contains details in an easy to use format of over 3000 marine and aero NDBs covering the area from the east coast of Canada to the Red sea area and from the Arctic to almost the equator. Please contact me, enclosing a s.a.e., or visit my website

www.kilkeel7.freemove.co.uk for details.

Another useful data source for beacon listeners is www.beaconworld.org.uk The site owner runs a private reflector Group that has well over 100 members from the British Isles, North America and Europe. Being a private list it is not subject to spam but the free membership does require approval. For more details about joining this excellent friendly list please contact the webmaster@beaconworld.org.uk The list caters for beacons listeners at all levels and

not just NDBs but also amateur beacons, Navtex and DGPS stations.

The beacon list has regular fun listening events, where members listen to various sections of the band over a weekend and report their findings that are then compiled and published to list members. One such event was held the weekend I was preparing this column and involved listening to frequencies in the beacon band that ended in 0.5kHz (e.g. 292.5). This event provided me with an excellent opportunity to get a snapshot of which marine beacons were audible in various parts of Europe. The most common marine beacons received over the weekend listeners in the UK and Western Europe were BA 292.5 and FI 296.5 (Spain) along with KN 299.5 (Norway) and with BT and BK on 312.5 (Baltic). Listeners in the more northerly and the central parts of Europe managed to receive EYa, TR and SW from the 309.5 Black Sea chain.



Fig 1.

Spanish Beacons

A combination of the short summer nights and the approaching solar cycle minimum, due early next summer, probably accounts for the lower number of Spanish beacons reported this time around. By the time you read this we will be back to the dark nights and hopefully some half decent DXing.

Bo Nensén from Sweden went on an expedition to Parkalompolo in northeast Sweden to try beacon DXing from there. This location is actually north of Iceland and he was hoping to log some of the Russian Arctic beacons and managed to log a few marine beacons.

Nearer home Brian Keyte from Surrey managed to log BA 292.5 during daylight and KN 299.5 just before dusk. From his location in Lancashire Alan Gale managed to log DA 305.7 and NA 283.5 in the early hours.

Moving across to the east coast Arnie Nessbitt reports receiving AB 381.0 during daylight on his FT-817. Roelof Bakker from the Netherlands successfully logged TR, SW, EYa on 309.5 while from Sardinia Giorgio Casu also managed to log TR. Giorgio had managed to receive KL (Bulgaria) at the end of June just after I had compiled my last column. Finally, Tony Moore reported a lack of Spanish beacons at his Redcar location but managed to log DA 305.7 from Iceland.

LW Maritime Beacon Chart

KHz	C/S	Location	Country	DXer
283.5	NA	La Entallada	Canaries	A* B* C* E* F* G*
284.5	MA	Cabo Machichaco	Spain	A*
289.5	MY	Cabo Mayor	Spain	A*
292.5	BA	Pt. Estaca Bares	Spain	A B C* D* E* F* G* H*
293.5	MH	Mahon	Balearic Isles	A*
294.0	FI	Cala Figuera	Majorca	A*
294.5	VG	Dstrov Zhizhgin'skiy	Arctic Russia	H*
296.5	FI	Cabo Finistare	Spain	A* B* C* D* E* G*
299.5	KN	Skrova Lt.	Norway	A* B* D* G* H*
300.0	GA	Malaga	Spain	A*
300.5	KS	Mys Kanin Nos	Arctic Russia	H*
300.5	TB	Mys Terberskiy	Arctic Russia	H*
305.0	KA	Klaipede	Lithuania	A*
305.7	DA	Dalatangi	Iceland	A* B* D* E* F* G* H*
306.5	MV	Morzhovskiy	Arctic Russia	H*
306.5	SC	Sosnovetskiy	Arctic Russia	H*
308	GR	Grimsey	Iceland	H*
309.5	Eya	Mys Yevpatoriyskiy	Ukraine	B*
309.5	TR	Mys Tarkhankut'skiy	Ukraine	A* B* C*
309.5	SW	Mys Khersonneskiy	Ukraine	B*
312.5	BT	Mys Taran	Baltic Russia	A* H*
312.5	BK	Baltijsk	Latvia	A* H*
314.0	SN	San Sebastian	Spain	A*
337.0	MY	Myggenes	Faeroes	A B D* E*
372.0	DZN	Prins Christian Sund	Greenland	A* B*
381.0	AB	Akraberg	Faeroes	A B D E*
404.0	NL	Noslo	Faeroes	A* B* D* E*

Items marked * received during darkness.
 All others at dusk/dawn or during daylight

- A) Robert Connolly, Kilkeel, N. Ireland
- B) Roelof Bakker, Zealand, Netherlands
- C) Giorgio Casu, San Gavino Monreale, Sardinia
- D) Arnie Nessbitt, near Whitby, England
- E) Tony Moore, Redcar, England
- F) Alan Gale, Rochdale, England
- G) Brian Keyte, Surrey, England
- H) Bo Nensén, Parkalompolo, Sweden

Satellite

TV News

- **Roger Bunney** 35 Grayling Mead, Fishlake, Romsey, Hants SO51 7RU
- **E-mail** rogerbunney@papubitswing.td.uk

What price for a blessing from God? Had readers been watching the religious 'event' transmitted from Charlotte, NC, USA during the evening of 9 October then they would know the answer to that question.

A quite remarkable programme feed over *Atlantic Bird-1*, 12.5° West for 'The Inspiration Networks' championed the need for three Atonement Offerings at £67 per month, the offering would be placed on the altar and you'll receive God's blessing in a 'double portion'. "No man shall stand before me empty handed" was liberally quoted from the book of Deuteronomy as the OK to ring up the 'Prayer Ministers' to give them your credit card details, if the line is busy then ring again, this shows that we are all talking to God! A remarkable commercialisation of religion and absolutely no indication of where your 'Atonement Offering' cash was going (in their pockets!!) Carried in the Channel 3 Globecast bouquet, 11.106GHz-H (SR 20145 + FEC 3/4).

Curiously the following night another religious event 'Be the Best' but with 'KICC Lagos', Nigeria linking with Dallas, Texas and offices in Hemel Hempstead, UK, a true international production, which appeared to be another cash collection, asking viewers to ring the prayer line +44 020 8525 0000, the KICC and Dallas transmissions carrying a recorded 'Atonement Offering' item from the same presenter as the previous night - for a minimum £50 offering you received an 'Ark of the Covenant' and bonus DVD'.

It was pretty evident that the 'Atonement' cash would not be going to the victims of the Bali bombings early October, the first dramatic pictures of which were carried over the W1, 10° East downlink of the APTN European distributor - 10.972GHz-V (4167+5/6). Pictures originated from the Metro News Bali' agency showing the bombed aftermath seconds after the explosions, followed 30 minutes later with casualties being carried into hospitals and treated on-site.

Later a live feed, ex-Bali, appeared over W1 with 'BALI 05 PATH 1' - 10.967GHz-V, though this is likely a relay of the original via C Band (4GHz) capacity, it didn't appear on any Ku band satellite though an extensive search was made anticipating that PAS-12 @ 45° East might be carrying Bali bombing content.

Whilst I was checking over PAS-12, I tracked my dish onto the 55° East Russian AM-22 sat to establish any changes in the numerous channels available at good strengths into Europe. Activity can be found at 11.046GHz (29812+3/4); 11.083GHz (3750+3/4); 11.099GHz (10492+ 3/4) and 11.186GHz (11109+3/4/-formally 8882+3/4) - all are vertically polarised. The latter 11.186 slot is used by the 2 educational channels SGU TV1 and TV2, all the others carry entertainment other than 11.083, which is identified as 'FEED' and several times a day carries live news broadcast (with rehearsals!) as distribution to terrestrial networks around the Black and Caspian Sea region.

Early evening of 30 September and a poor soul had a gall bladder operation 'somewhere' in the UK, the procedure was televised and transmitted via Eutelsat W2, 16° East courtesy of the 'BT TES 28' sat truck. The downlink - 11.144GHz-H. Whilst TES-28 was at the hospital, the sister truck 'SSN BT TES-43' was outside the Manchester United ground awaiting the latest happenings in the football world. Sky Sports News (11.137GHz-H). Once the report had been transmitted the truck went quiet and disappeared into the night.

Over to the West at 341/2° West you'll find Intelsat

903 and carried regularly carrying 'hook-ups' between London and Dublin for the Irish national broadcaster 'Radio Telefis Eireann'. 'RTE SMU2 LBR' appears at 11.153GHz-V (4699+3/4) using MPEG 4:2:2, and 'RTE LDN HBR' is at 11.137GHz-V (5632+3/4) running MPEG-2. The latter slot carries pictures of a busy news room, reporters and editors checking out copy, watching monitors, the other carried normal TV programming, which may be a reverse cueing video circuit into their London presentation studio and for carrying the Dublin based interviewer when transmitting a '2-way' live with London.

Of great interest to all satellite enthusiasts is the 'DR DISH @ TV' show transmitted via Intelsat 10-02, 1° West, 11.538GHz-V (5632+3/4). 'The unique world-wide TV show to promote communication' airs the last Monday of each month from about 1800 hours GMT in English and German, then is repeated immediately. The show itself runs for 80 minutes and is produced and uplinked from the TV5 teleport in Bonn. Content of the programme is newsy and there's a live Q&A where your phoned/E-mailed questions on satellite are answered.

A strong signal received on a 900mm dish and upwards across Europe. Intelsat 10-02 carries a considerable loading of Scandinavian cable channels, check for infrequent news and programme feeds over the 11.550-11.750GHz-V spectrum - a 24/7 news circuit can be found at 11.676GHz-V (5632+3/4), which is the NTSC feed of 'ABC SCOPUS' out of Baghdad, a few news reports are carried back into the NY studios, at other times a locked-off camera shot out of the rear window shows a live day or night picture of nearby Baghdad rear gardens and palm trees!

"Nice one from Prague" writes Alan Richards (Skegness) with the Czech Republic v Netherlands FIFA World Cup 2006 qualifier match, carried over *Eutelsat W2*, 16° East in clear PAL with both French and English commentaries - GLOBECAST UK3' identification at 11.181GHz-V (6111+3/4). Another football match also over W2 but a threshold level signal was the Tunisia v Morocco event via 'DSNG TUN001' - 10.998GHz-V (6111+3/4) with both Arabic and English commentary. And still more W2 footie with 'HEADLINE Tv Ser', this time Belgium v Spain at threshold on 12.555GHz-H (5632+_) in 16:9 format with commentary in French and sound FX only. Rugby seems to be a regular feature over PAS-12, 45° East every Saturday afternoon from about 1400 hours and always on 11.525GHz-V (5632+3/4), courtesy 'GLOBECAST AFRICA'. Transmission usually ends around 1700 hours. From 45° East to 45° West and a disorganised sports transmission was carried over PAS-1R from both ORTM, Mali - 11.656GHz-V (5632+3/4).

Roy Carman (Dorking) monitored the recovery operations from the Katrina and Rita hurricanes that struck the Southern States in September. 'DAD-1' was a news feed over *Telstar-12*, 15° West, which produced remarkable pictures of a Blackhawk helicopter involved in rescue attempts. What was unusual for this American sourced news feed were the transmission parameters - 11.525GHz-H (the SR a very low 1499+FEC 7/8). These parameters were even lower than a 'SIC.PORTUGAL' sports feed over *Hispasat*, 30° West noted mid-September with an SR 1520 + FEC3/4.

A new BLIND SEARCH 'free to air' receiver, the Manhattan ST-100, is recommended by Edmund Spicer (Littlehampton) as a satellite DXing tuner. Just enter the required Ku bandwidth to be searched and the tuner finds all transmissions, stores and advises all the digital parameters.

ITV London KRS 979
REVERSE
from SOUTHAM to BUCKINGH
ITV Network Operations
0800 281 280

A reverse feed back to Rumania from ITV London at Kings Reach (W7).

West Los Angeles
Helicam live pictures over LA during a major power outage (W7).

IN THE PATH OF
THE BOMBING STRIKE

Test card from the Bali bombing site (W7).

MAGNO
SOUND & VIDEO
348 90 2355

TV facility company colour bars (NTSC, AB-F).

MILITARY AIDS VICTIMS

A Blackhawk helicopter, note the air refuelling probe on the nose.

RACING FROM THE UNITED STATES

Polish cycle racing

As the Israelis withdraw from Gaza, you can almost see the jubilation on the Palestinian's faces.

Propagation

Forecasts

- Jacques D'Avignon VE3V9A
- E-mail: jacques@pnoworldising ltd uk

How to use the Propagation Charts

The charts contain three plots. The lower dashed line represents the lowest usable frequency (LUF), or ALF (Absorption Limiting Frequency). The chances of success below this frequency are very slim.

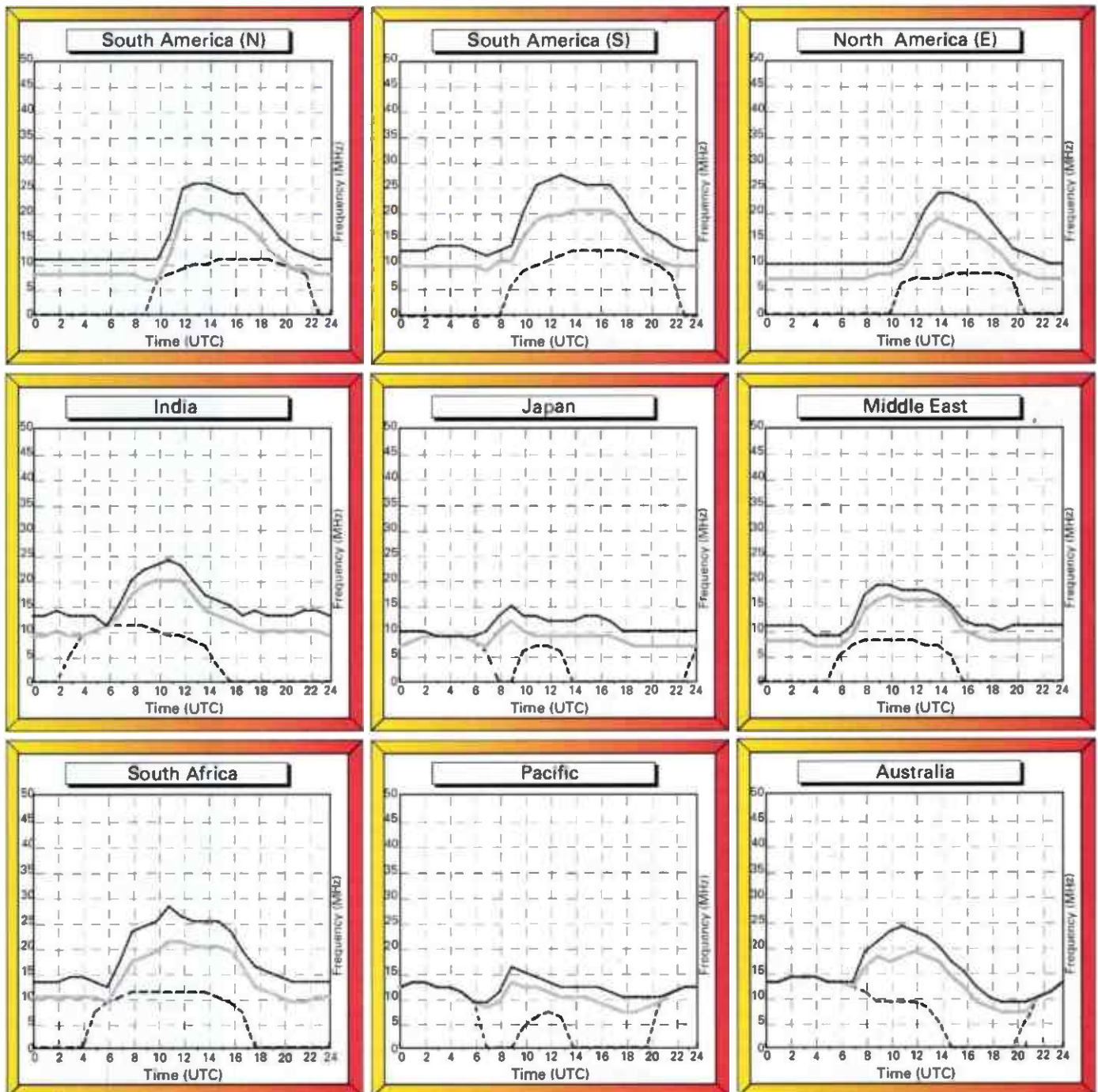
The middle line indicates the optimum working frequency (OWF) with a 90% probability of success for the particular path and time.

Lastly, the upper dashed line represents the maximum usable frequency (MUF), a 50% probability of success for the path and time.

To make use of the charts you must select the chart most closely located to the region containing the station that you wish to hear. By selecting the time chosen for listening on the horizontal axis, the best frequencies for listening can be determined by the values of the intersections of the plots against frequency.

Good luck and happy listening.

December 2005
Circuits to London



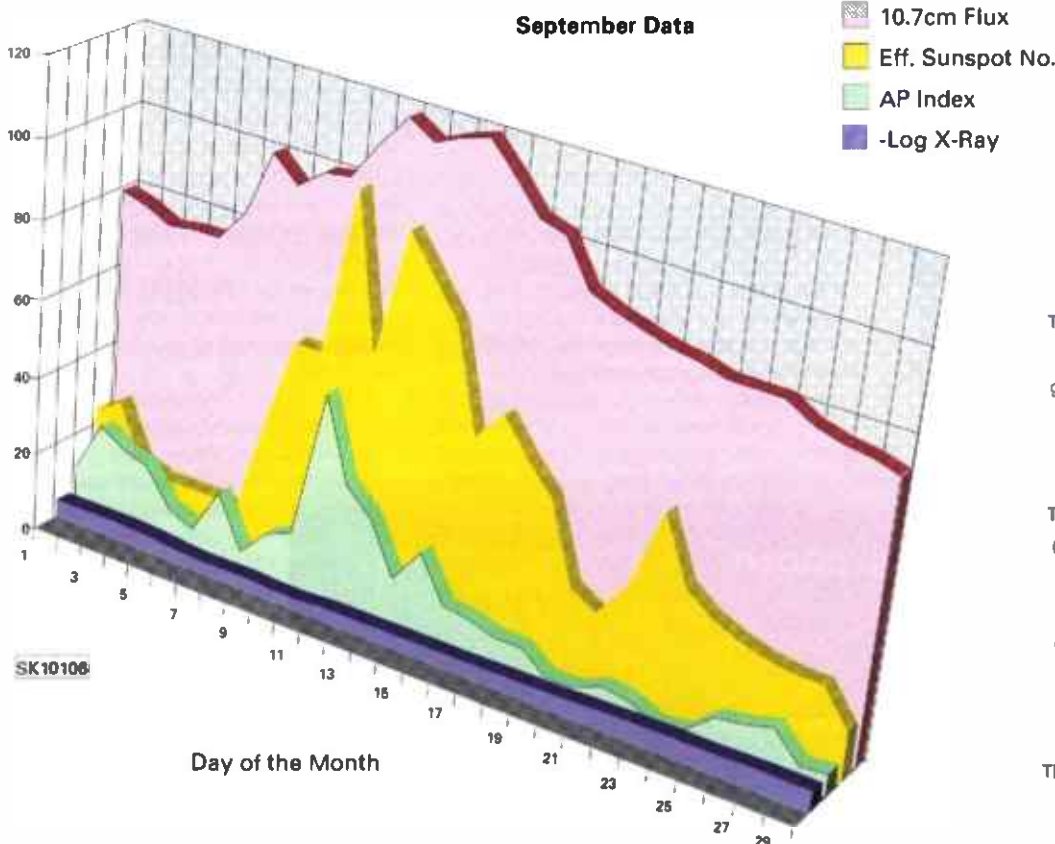
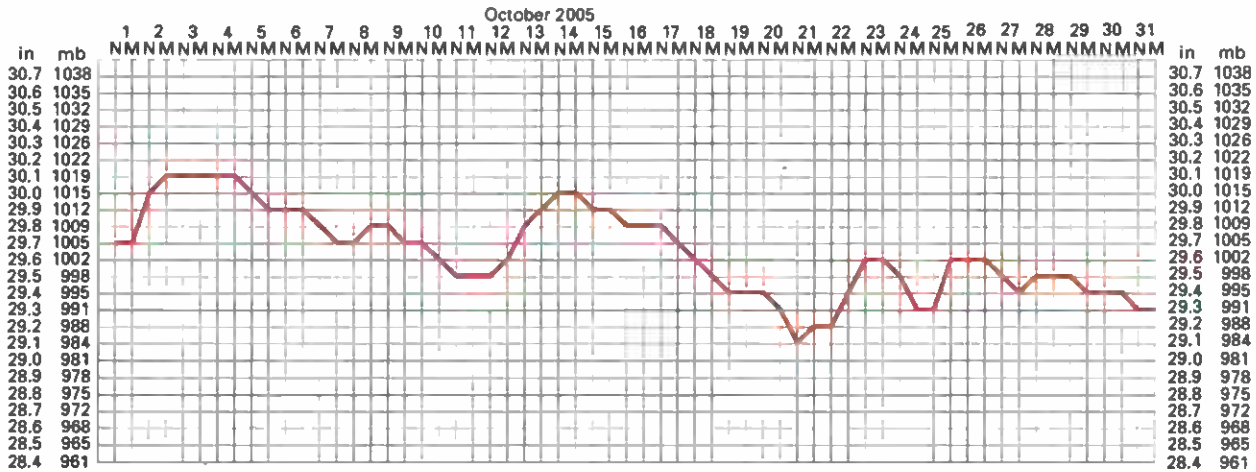
SK10106

Propagation

Extra

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Ron Ham's barometric pressure chart, taken at Storrington, W. Sussex, October 2005.



guide to the chart

The 10.7cm solar radio flux is used as an indicator of the general level of solar activity.

The K and AP indices are measures of geomagnetic activity.

The K index ranges from zero (very quiet) to nine (severely disturbed).

K values of five or greater correspond to geomagnetic storm conditions that can relate to poor propagation conditions.

The AP index ranges from 0 to 400. An AP of 30 is the threshold for geomagnetic storm conditions.

Decode

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As this year draws to a close, I thought I'd have a look back over the range of topics I've covered to see if there were any gaps. Surprisingly, I did find one area, so I'll put that right for a start!

I've spoken a lot about filtering over the years, but I've concentrated mainly on the best use of conventional receiver filtering or, more recently, getting the best out of DSP filters.

The area I've not really touched on is the i.f. shift that's fitted to many of the better communications receivers. I was reminded of this recently when I borrowed a Yaesu FT-897 transceiver for a Scout JOTA weekend. The FT-897 is an excellent rig with a top class receiver section that combines the best of analogue and digital filtering techniques. It also features the i.f. shift tuning that I wanted to cover here.

Why Filter?

You may be wondering why we need to filter digital signals at all when we use a communications receiver. Communication receiver designers have to make lots of compromises in order to produce a commercial design that will suit a wide range of different uses.

One of the compromises occurs with the bandwidth setting of the i.f. stages of the receiver. The i.f. stage normally provides most of the filtering so is crucial in determining the overall bandwidth of the receiver.

Over the years, it has become standard practice to start by designing receivers to handle s.s.b. speech signals. As a result, the receivers usually have a bandwidth of around

300Hz to 3kHz - the standard speech band. However, experience over the years has shown that the full 2.7kHz bandwidth covering 300Hz to 3kHz is not really necessary and it's common to find 2.4kHz filters in many receivers. Whilst the filtering quality has improved significantly over the years, we are still normally faced with a 2.4kHz bandwidth for our data signals.

So how much bandwidth do we really need? It all depends on the mode because there's a huge range to consider. One of the most bandwidth hungry modes is h.f. FAX and a bandwidth of 3.5 or 4kHz will help deliver fine detail when you have a strong and clean signal.

At the other end of the scale are the very narrow modes such as the amateur PSK31. This low speed text mode boasts a bandwidth requirement of just 31Hz so the 2.4kHz s.s.b. filter starts to look a bit hopeless.

If you are fortunate enough to own a top-end receiver you will probably have a selection of i.f. bandwidths to choose from. However, those with mid-range receivers will probably have a fixed i.f. but may well have i.f. shift tuning. With a modicum of skill, the i.f. shift can be used to provide an adjustable receiver bandwidth.

IF Shift Tuning

Before I talk about how to get the best from i.f. shift tuning, we need to know a little bit about how it works. Rather than get too technical, it might be better to create an analogy to explain what's going on.

Imagine you're stood in a room looking out of the window at a wonderful rolling landscape on a bright summer's day. The

scene is then spoiled by a dirty old lorry parking in the road. Although it's only on the edge of the scene, it completely spoils the view.

Now imagine you have a second window frame that you can move around in front of the main window. If you were to move the second window frame to one side you would be able to obscure the lorry whilst only losing some of the view. This is exactly how the i.f. shift works, i.e. you move the bandwidth around to cut out interfering signals that are at the edge of the pass-band.

As in the example above, when you use the shift you do lose some of the bandwidth (view), but the interference rejection compensates for the loss. For data signals we use the inverse of the intended effect, i.e. we use the shift to narrow the bandwidth rather than to get rid of an interfering signal. In other words we want to restrict the view in our earlier example. This involves a bit of repositioning or re-tuning, but you can often achieve significant bandwidth reductions. To use the technique, tune in to your data signal and then juggle between the main tuning and the i.f. shift setting to reduce the bandwidth.

Does It Work?

One quite neat way to see the effect of a filter is to tune to a section of the band that's free of signals but has lots of white noise (hiss). Connect your receiver to the computer and your decoder and start-up your decoder's spectrum analyser. You should see a fairly wide trace showing the noise. Now try adjusting the i.f. shift and see the effect on the display. You should see a dramatic drop in the high or low frequencies depending on which way you tune the i.f. shift.

I've shown a couple of examples in the photos in this column.

You will notice that the low shift is by far the most effective for reducing the bandwidth. This is because when you move the 2.4kHz bandwidth down in frequency it very soon reaches the lower limits of the audio stages. In the case of the FT-897, the low shift reduces the effective i.f. bandwidth to around 1.3kHz.

However, when you shift high, you may find that the

Lost race • The Universal stand-alone decoder.





Yaesu's excellent transceiver - ideal for data.

bandwidth doesn't reduce, as is the case with the FT-897. This is because this receiver has an extended audio high frequency range to allow the reception of f.m. broadcast signals. I would recommend that you take the time to test the results as described here so you know how to get the best results when dealing with real signals.

Not Too Much!

As with many things, moderation is the rule when it comes to using any filtering to help utility reception. If you get too ambitious you will find that the filtering will start affecting the decoder and deteriorating the error rate. Most decoders and data systems are very sensitive to phase errors and filtering too tightly is a very effective way to introduce such errors.

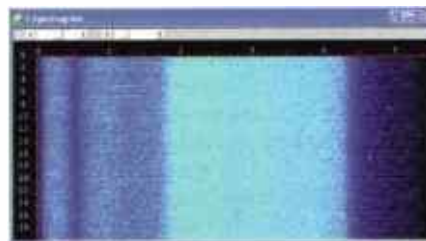
Update On HFDL

Having published Mike L's excellent HFDL frequency list last month he has pulled me up on just one point (quite rightly). I suggested that Shannon would be the best station to monitor for UK based listeners - wrong! In fact, the best signals are usually those from either Reykjavik, Al Muharraq or Las Palmas. Another tip from Mike is to head for the higher frequencies in the morning and then work down to the lower frequencies as the day progresses.

In case you missed the main list from last month, here's a repeat of the frequencies for the three stations that Mike recommends: REYKJAVIK: 17.985, 15.025, 11.184, 8.977, 6.712, 5.720, 3.900, 3.116 A MUHARRAQ, BAHRAIN: 21.982, 17.967, 3.354, 11.312, 10.075, 8.885, 5.544, 2.986 LAS PALMAS, CANARIES, 21.955, 17.928, 13.303, 11.348, 8.948, 6.529, 5.589, 2.905.

New Listener Help

This month I received a letter from a reader asking for some basic help to get started in utility listening. He was really asking how to start completely from scratch i.e. no computer or Internet, just a radio.



IF Shift High - Note the bandwidth is not reduced.



IF Shift Low - Note a useful bandwidth reduction



IF Shift Disabled - Normal s.s.b. i.f. response

A few years ago that would have been an easy question as the only way to get involved would have been to get a stand-alone decoder. I probably would have said to get a Micro-reader or maybe one of the Universal decoders that output directly to a monitor.

However, time has moved on and I tried looking around for a stand-alone decoder, but with very little joy. All the usual suspects have moved-on to PC based designs and I couldn't find a single stand-alone decoder suitable for

a newer listener. It seems there is little choice but to dive into the PC route. This is no bad thing really because a degree of computer literacy is becoming an essential ingredient for modern life. As this is such an important skill, there's lots of basic training around to help people get started and I would recommend the first step is to get enrolled for one of the free basic computing courses.

One of the fastest growing computer training schemes is the European Computer Driving Licence (ECDL). A 'phone call or visit to your local college or library should provide all the information you need to get started. Once you've broken into computing, utility decoding becomes a breeze with stacks of free or shareware for you to try and or buy. The only kit you need is an antenna, receiver and a simple cable to link the PC to your radio.

More Decode

Although this is the last Decode in *SWM*, I'm happy to say that the column is transferring to the new combined *radiouser* magazine that will grow out of the merger of *SWM* and our sister magazine *Radio Active*. Utility decoding has changed enormously over the years that I've been involved with it.

In the early days a decent Creed 7B teleprinter was like gold dust, as was finding someone who knew how to set them up properly. There wasn't a computer in sight and the only clever bit was the terminal unit, of which the infamous ST-5 was the master. Although successful decoding was far more difficult than with today's auto-tuning software, there was a huge range of material available to monitor.

When I first started there were no satellites to move the news around the world and h.f. radio was still used to broadcast press pictures from far off lands. There were lots of weather stations and RTTY stations galore. Now we are in a situation where decoding is really only possible with the aid of a computer, but the quality of the software is excellent.

Life is still tricky for the utility enthusiast because decodable signals have become more difficult to find, but computers have revolutionised the way we can enjoy the information we receive. A good example here is the excellent ACARS decoders that can deliver the photo of an aircraft on your screen just a second or two after you receive the transmission - amazing! Finally, I look forward to seeing you all next month in *radiouser*.

● Ben Hogan, cc SWM Editorial Offices
● E-mail ssbutils@awpublishing.co.uk

The 'ICE' flights to the United States Antarctic Research Program base at McMurdo have been monitored during October on the well reported frequency of 9.032MHz.

These flights leave Christchurch, New Zealand and deliver personnel and supplies to McMurdo landing on an ice runway within the base facility.

Some years ago I had a conversation with a well respected radio professional, a veteran of many expeditions to both polar regions and he reckoned that it was usually easier to work the Antarctic on h.f. than the Arctic. It's worth devoting some monitoring time to that frequency.

French Pirate

At the conclusion of my October SWM offering I asked if anyone else had heard the French pirate who transmits almost anything on 6.660MHz lower side band. It seems that I was about the only individual in the western world who hadn't heard him before! 'Big Ears' reports that he has heard him frequently interfering with traffic on the h.f. airband.

Mike from Enigma 2000 kindly contacted me, saying that this Frenchman has been there for at least 20 years, transmitting up to 18 hours every day. Mike reports that the pirate often re-

transmits loop recordings of other programmes and services including emergency traffic and h.f. air communications.

Interestingly, Mike muses that despite the rumours that he is believed to be in Southern France this may not be the case as at Mike's location in South Wales the nuisance is invariably an extremely strong signal (10db over S9). The signal remained at that strength even when an X-17 solar flare took out almost all signals in mid-September. Is this French speaking oaf in southern France or is he somewhere closer?

Bravo Two Zero

If you have read the book *Bravo Two Zero* by author Andy McNab in which SAS units are operating in Iraq during the first Gulf War, you will recall that they didn't have much luck with their h.f. radio. To be fair it was not the fault of the radio, the frequency issued to the patrol was not being monitored. The tactical radio in use was the PRC319 manufactured by MEL of Crawley, Surrey. Operating between 1.5 and 40MHz s.s.b. with 50W maximum power, the radio has an Electronic Message Unit (EMU). The EMU, that looks like a bigish hand-held calculator, is operated remotely from the 319 in order that an operator can encode a message.

The EMU is simply plugged into the transceiver and the encoded data is sent in a fast burst. The PRC319 has a built-in antenna tuner and the set can be controlled remotely from a distance of up to 50m.

The PCR319 was used by special forces in the UK and USA and possibly New Zealand.

The question now is: "What are these forces using now?" because PRC319s have been released for sale to civilians. Yes, the full set including the EMU is available from several outlets in Europe.

The cost of a PCR319 is around £900 but when these gadgets were new in the early 1990s they cost many times more than that. I know that some radio amateurs are purchasing them. It would, nevertheless, be interesting to track just where some of them will end up.

Monitoring Amateur Bands

I spend some time each day monitoring the amateur bands. You see the 'authorities' in differing countries don't pay too much attention to the amateur band plans when they feel the need to use frequencies for any official purpose. It may come as no surprise to readers that the Italian military are exponents of this practice.

In early October an Italian military net (thought to be Navy) was in full flow on 10.1155MHz u.s.b. One of the callsigns in use was 'Delphine'. This identifier has, apparently, been in use previously by the Italian Navy and this is why it is thought that they were the users. Other callsigns in use on the net, which lasted for a few days, were MND, GRT and HXP.

Monitoring 5.438MHz u.s.b. on the 11 October proved to be very interesting indeed. I was hearing numerous stations, which must have been an exercise net. Well, if it wasn't a military exercise net, then there must have been a pretty large war going on that was missed by the news media. There was a mass of talk about minefields and diversionary attacks and the like.

There was plenty of radio traffic regarding car bombs and civilian casualties. One of the 'Head Sheds' appeared to be a chap with a South African accent. I have a marvellous recording of him saying, "Do not slow the tempo, we must catch the enemy while his attention is directed towards our diversionary attack." And other stuff like that.

Has anyone ever heard similar exercise radio talk on 5.438MHz? The traffic was in what can only be described as 'extremely clear speech' meaning that there was little or no attempt to cloak any information at all.

Perhaps the participants were using radios in the clear knowing that 'for real' they would have access to encrypted sets? Or maybe it was cadet traffic from a CCF station? It's a bit of a mystery I'm afraid. With the southern African accents it quite took me back to the 'Green Leader' recordings of the Rhodesian military during Operation Galling, when terrorists were neutralised during an attack on Westlands Farm on the Zambian border.

A few days later the Irish Army were on 4.990 but it wasn't as exiting as the other net!

Hurricane Hunters

Correspondent Roy Smart from Midlothian kindly wrote in with website details for the Hurricane Hunters. He'd obviously picked up from my ramblings that I was interested in weather monitoring and suggested that I might find the Hurricane Hunters web page of interest. Well, thanks Roy, I did.

This page is on the site run by the 53rd Weather Reconnaissance Squadron of the US Air Force Reserve. These people actually fly into hurricanes and other extreme weather systems.

Without rattling on too much about the Internet in what, is after all, a radio magazine, if you possess a computer and Internet access and you have an interest in monitoring the aftermath of hurricane events, then this page is worth adding to your favourites list. Thanks very much for the tip Roy.



Did you hear the French pirate on 6.660MHz lower side band?



Is it easier to work the Antarctic on h.f.? Ben Hogan says its worth keeping an ear open.

The SAS units operational in the Gulf War were using PRC319s.



If you've read *Bravo Two Zero* you'll recall the trouble the troops had with their h.f. radio.

Amateur Bands

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I'll start this month with the news that 'Amateur Bands' is 50! - well that's not quite true. In fact, I've no idea how many years *SWM* has featured the column. What is true though, is that this is the 50th 'Amateur Band' column that I've written. Cause for celebration? Perhaps. Certainly a good excuse for reflection. So what's happened to amateur radio in the UK over the four and a bit years that I've been writing this column?

The change that has had the biggest impact was the introduction of the Foundation Licence nearly four years ago. It now seems much longer than that, which is perhaps a measure of how far it has been assimilated into the fabric of amateur radio. A sure indication that it was a good idea, and that it works.

From my position over 20 years ago, having just obtained my G4 call, of being pompously indignant over the idea that someone could be allowed onto the amateur bands without passing through the same hoops that I did, I now firmly believe that relaxing the access requirements benefits everyone involved.

When I became licenced the Radio Amateur Examination was accredited and administered by City and Guilds, and amateur radio licensing was handled by the Department of Trade and Industry. Today over 7000 people hold Foundation licences, and the number is always growing. A positive sign for the health of the hobby.

Very recent changes to the examination system have moved the accreditation and moderation under the wing of the Radio Communications Foundation. Since 2003 Ofcom, HMG's Office of Communications, which took over the DTI's Radiocommunications Agency, has, through SSL, looked after licence issues. Not quite here yet, but expected very soon, is the ending of the requirement to pay an annual fee in order to maintain the validity of an amateur radio

licence. Instead, licences, once issued, will perhaps remain valid for the life of the holder.

The route to a Full amateur licence has also changed. The Foundation licence exam must be passed first, followed by the Intermediate licence exam, both of which have practical components. No longer can just a single exam with no practical elements, be taken, which, if passed, would allow an operator to be let loose unsupervised at the controls of a 400W transmitter without necessarily having seen or touched a single piece of amateur radio gear before!

More Space to Play Radio

A plus point for the h.f. bands has been the doubling of the 7MHz band allocation, which now covers from 7.0-7.2MHz, bringing consistency to the band around the globe. Previously allocated to broadcast stations, it will still be some time before they leave and so give amateurs in this part of the world clear access to the extra 100kHz.

Also on the subject of frequency allocation, in August 2002 UK amateurs, subject to permission, were allowed to use frequencies in the 5MHz band that are generally used by military cadet units. The official reason being to allow research into Near Vertical Incidence Skywave (NVIS) propagation, the squirting of r.f. as straight upwards as possible in the hope that it will, having bounced off of the ionosphere, come back down to earth fairly close to where it was sent up. The object being to create a close-in signal footprint with no dead ground between the end of the ground-wave and the start of any Skywave.

Goodbye to Samuel's Code

Any review of licensing wouldn't be complete without mention of the end of the requirement to pass a Morse test to operate on the h.f. bands. The change in international regulations

meant the end of A and B class licences, and gave all amateurs access to most or all of the h.f. amateur bands depending on licence type.

Although no longer a legal requirement, not all countries have dropped the Morse test, and even in the UK there's still a Morse component of the Foundation licence exam, but it can hardly be called a test. It's an 'appreciation', and as such, can't really be failed.

Plenty to Interest Everyone

When I looked back over the subjects covered in amateur bands, it left me in no doubt that the hobby has something for every enthusiast. There are always plenty of people organising DXpeditions to every corner of the world.

From north to south poles, to tiny islands not used to human visitors in the midst of vast oceans. The reason for such DXpeditions to activate call signs that only apply to those locations. Special event stations on islands are certain to produce a great deal of interest and activity from amateurs world-wide.

Keeping to a nautical theme, many special event stations are set up at lighthouses across the world. 'Collecting' lighthouses, which means making contact with those amateur radio stations, is another aspect of the hobby that attracts a great deal of interest.

Something else that many amateurs 'collect' are squares on Ordnance Survey maps. In the same way as with islands and lighthouses, Worked All Britain enthusiasts want to contact stations that are in as many different locations as possible, and so collect the numbered grid squares in which the stations' locations appear on maps.

Sticking with the map theme in September I joined the competitors taking part in the Top Band (1.8 MHz) direction finding final near Winchester. Loonies hiding with transmitters being hunted by similarly mentally afflicted souls carrying receivers, maps, and compasses. It was a great day out with friendly people who made me really welcome. If you're a little bit into radio (it doesn't require an amateur licence to compete), can read a map, and enjoy running around the countryside, this activity has everything going for it. The world needs to know more, and I shall be finding out.

Thanks to everyone who's supplied me with inspiration for this column each month, and special thanks to all of you who've read my column over the past four years. I hope you've found my efforts interesting and informative.

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Danish Shortwave Club
Information from Treasurer Bent Nielsen,

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Group for Earth Observation
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The Medium Wave Circle
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■ Taking his turn in the 'Antenna Workshop' David Butler G4ASR shares some antenna designs with readers.

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■ K is for Kilve, which in Morse means 'over to you' and that's exactly what Tim Walford G3PCJ says to readers this month as he encourages you to have a go at building the Kilve - a simple direct conversion single band receiver.



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RX320D PC 'black box' dedicated short wave receiver with 12kHz I.F. socket on the rear panel for DRM use (demodulation software required). *John Wilson, SWM April 2002 ... Third order intercept point measured at a nominal 14MHz was +15dBm with a 50kHz signal spacing as used by TenTec themselves (handbook specification +10dBm). Dynamic range was 98dB against the specification of 90dB, so all better than manufacturer's figures. In conclusion, the TenTec RX-320 is an amazingly satisfying receiver to use, and despite its simple appearance when you look inside, it really does perform... £239.00 inc VAT, UK carriage £10.00*

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