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# SWM

& Scanning Scene

January 2005  
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World Radio History

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World Radio History

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Save £'s with our special offer for SWM readers. Plus get a 12 month SWM subscription free!

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If you want to meet others with a passion for radio, then look no further. Use our comprehensive and most up-to-date guide to local clubs.



• **Never underestimate the importance of antennas for successful monitoring!**



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Join in with the on-line action on the SWM Readers' E-mail Forum - send an E-mail to [swm\\_readers-subscribe@yahoo.com](mailto:swm_readers-subscribe@yahoo.com) to subscribe - don't miss the on-line action!

Share your thoughts

## Coming Up Next Month

in February 2005 SWM

- Reviewed - Digital World Traveller
- Phased Vertical Arrays
- World Radio Network - SWM investigates WRN
- How to make a Doppler Radar Set
- Keep on top of the world of monitoring with SWM
- and much more...

\*contents subject to change

## SWM Services

### Subscriptions

Subscriptions are available at £36 per annum to UK addresses, £44 Europe, £54 Rest of the World. Joint subscriptions to both *Short Wave Magazine* and *Practical Wireless* are available at £61 (UK) £75 (Europe) and £92 Rest of the World.

### Components For SWM Projects

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

### 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 inc P&P each and photocopies are £3.00 per article inc P&P.

Binders are also available (each binder takes one volume) for £6.50 plus £1.75 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.

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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.

# ED's



## comments

Since their inception, Ofcom have been working towards making better use (more money) of the radio spectrum. As part of the process they are looking to maximise commercial revenue from the bands in demand and save costs by simplifying the administration of areas that are agreed by national treaty and therefore are impossible to remove or change in the foreseeable future.

Two services have come to light in a consolation document recently published by Ofcom, which may actually benefit from the Government agency's desire to streamline. I refer to Maritime and amateur radio licences.

There are possible plans afoot to remove the need for individuals to have to renew annual licences.

I can see that this would save a small fortune in administration for the tax payer as I can't imagine that the current level of fee covers the cost of the licence operation. And clearly we licensed radio enthusiasts will benefit to the tune of £15 per year per call sign - not to be sniffed at eh?

Just what will happen remains to be seen. I guess the flipside is that licences for these activities could become vastly more expensive to help with the UK's finances. On that very subject...

## Waves Of Change

Exploiting The Electromagnetic Spectrum Commercial Opportunities For The Next Decade.

The electromagnetic spectrum, from radio frequencies through optical to x-ray, encompasses much adventurous scientific research and is the basis for a wide range of vitally important technologies that have applications in areas as diverse as communications, health and security.

Last week, over 70 representatives of the venture capital community attended an event at the Institute of Physics in London to hear about the Foresight *Exploiting the Electromagnetic Spectrum (EEMS)* project and the opportunities for innovation that it has highlighted.

The UK has a long history of world-leading research across the spectrum, but in the past, it has not always moved from invention to innovation to reap the commercial rewards from its discoveries.

This event, organised by Library House, sought to communicate the results of the *EEMS* project to the venture investing community, and to

initiate networking between scientists, technologist, investors and entrepreneurial company executives.

The Foresight project aims were to identify key areas of long-term opportunity across the spectrum, assess these against UK capabilities, and agree a plan of action to help the UK exploit these areas. Through a rigorous scoping process, involving the academic, business and user communities, along with representatives from other government departments and funding bodies, four key opportunities were identified:

Capturing a market of up to £0.5 billion in 10 year's time in fast optical switches.

Participating in a £5 billion market in integrated 'lab-on-a-chip' systems as a platform technology for a number of multi-diagnostic applications, e.g. diabetes treatment, health monitoring, drug targeting, cancer detection, etc.

Developing 'near-field' technologies that are critical to the evolution of smart antennas and integrated radio frequency infrastructure/circuitry.

Capturing a £6 billion share of the market for smart agents for medical imaging.

There are certainly opportunities and money in radio...

## Seasonal Thoughts

It's hard to believe, but yet another year has passed us by. As is traditional in the issue with a January cover date I'd like to wish you all a merry Christmas and a happy and peaceful new year. Assuming of course that you follow the same calendar as SWM.

On behalf of everyone involved in producing SWM, I'd like to thank all of our readers - dedicated and occasional - for their commitment to the magazine, the advertisers and all those who've helped in any way to provide each and every issue. It has been a real pleasure compiling the magazine over the past 12 months. Here's to an interesting 2005!

014 73 Kevin

# QSL

Is there something you want to get off your chest? Do you have a problem fellow readers can solve? If so then drop a line to the Editor at QSL, Short Wave Magazine, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.

THE BEST LETTER WILL RECEIVE A £20 VOUCHER TO SPEND ON ANY SWM SERVICE.

## Dear Sir

I have been short wave listening since 1969, but I became particularly interested in the UK short wave transmitting stations since your articles appeared on Woofferton and Rampisham in SWM back in September 2003 and January 2004.

In the 'Ed's Comments' in the January 2004 issue you mentioned that you had visited three stations and I would be very grateful if you could let me know whether you published an article on this third station and if so, which issue of SWM it appeared in.

Finally, I wonder if you know whether SWM covered the closure of Daventry in 1992? I look forward to hearing from you. Thanks for an excellent magazine.

**Brian Edwards  
Stirling**

*Brian, I have indeed visited three of VT Merlin's stations, the third being Orfordness. We have not however published a full report on the visit. I briefly mentioned it in 'Ed's Comments' in the November 2003 issue of SWM. - Ed.*

## Dear Sir

In the last four years I must say that SWM has got worse. By that I mean its about the new technology. Since the PCs have got more publication in the magazine, it seems to me that the PC seems more important than short wave radio. So, why should PCs be more important than radio?

In the last ten years I have collected up to 25 radios and each one an old valve system. With the PC's information being published in the magazine, I thought I would buy a PC, but when I put it into my radio shed and turned it on, all I received was masses of noise that interfered with my receivers and I couldn't hear what I did before I brought the PC. So, I scrapped the PC and now I get no interference at all!

Why do we have to visit websites to see interesting things about short wave listening when they interfere with the signals we normally get without a stupid PC? My decision is that, I will not buy another SWM unless 'www' systems are not published in the magazine. It's new technology that's ruining the interest of short wave listening. Why don't people tell other people's interest on PCs if they like it a lot, then why not publish another separate magazine, then more people would stay interested in SWM as it used to be in years gone past. Sort it or lose readers!

**D. Haigh  
Norfolk**

*Thanks for sharing your views David. I'm happy to continue to feature material relating to older equipment. I know that we have many readers who use valved equipment, I do own valved gear myself! Unfortunately, we can't ignore developments which are beneficial to our*

*readers. I'm sorry to hear that you had problems with your computer generating interference. This can be overcome in most cases. I really hope you don't abandon us as we genuinely try to cover all aspects of the hobby. - Ed.*

## Dear Sir

I have enclosed a drawing of my home-brew antenna, which I would like to share with your readers. I used 2mm pvc solid copper wire. I can hear lots of two-way communication on both civ and mil air traffic, ie London Info Centre on 124.600, also Manchester Control on 133.800. I can also hear aircraft on finals in all UK airports, Heathrow, Luton, Stanstead, East Midlands, Birmingham, Coventry, plus it pulls in lots more stuff, too much to mention.

**Ian McDowell  
Camb**

*Ian, thanks for the details. I intend publishing a feature in 2005 covering simple and effective antennas for readers to build. I'll probably include details of yours then. - Ed.*

## Dear Sir

There appears to be a great deal of confusion regarding the address - PO Box 25 ('Attention 123'). PO Box 25 was the headquarters address of the Radio Security Service and was located at 'Arkley View' in the small village of Arkley on the outskirts of Barnet in Hertfordshire where six large country houses had been requisitioned.

'Meadowbank' sat next to 'Arkley View' and was administration. 'The Lawns' was used as the initial training school and also provided additional accommodation. 'Rowley Lodge' with nissen huts in the grounds was the main accommodation site, (with icy cold washing and shaving facilities in the stable block if unlucky enough to be accommodated in a nissen hut!).

Two other houses were used by the Catering Corps providing message facilities. After training, the operator could opt to remain at the Arkley site or take transfer to one of four other intercept/DF sites - SCU3 - Hanslope Park in Buckinghamshire, SCU3 - Gilnakirk in Ireland, SCU3 - Forfar in Scotland or SCU3 - St. Erth in Cornwall.

After D-Day, three overseas sites were established - SCU4 - 'NORDET' at Bad Salzuflen in Germany, SCU4 - 'IDET' at Graz in Austria and SCU4 - 'MERS' at Sidi Bishr in Egypt. The Radio Security Service was disbanded in 1947 with operators being offered continued employment with GCHQ.

**Ex RSS  
Scotland**



## topqsl

## Dear Sir

In October 2001 I purchased an Hitachi KH-WS1 digital receiver, enabled to receive the stations broadcast by WorldSpace. I found that it transmitted approximately 48 Free To Air (FTA) stations, including four music stations that I was particularly interested in, namely RIFF (Jazz), MAESTRO (Classical), UP COUNTRY (Country and Western) and OYEME. These were excellent of their type. Unfortunately, due to a bout of ill health and a bereavement, I have been unable to use this radio for some considerable time.

A few days ago I decided to bring it back into service, but found that the stations, which I have mentioned, plus a lot more besides, have now been encoded and apparently one needs to purchase a yearly subscription to enable these stations and most of the others as well. WorldSpace's website now lists the Afristar program guide, which shows that there are only eight stations which are Free To Air. At the time of purchase of the radio, I completed the Warranty and Technical assistance card and became a member of the WorldSpace Global Club, but only received two of their quarterly magazines. Although registered as a member, I have never received notification that so many stations would become encoded and liable to subscription status. I may have missed some such notice in SWM, but I do not remember seeing such information.

I telephoned WorldSpace customer services and was advised that I would need to pay a yearly subscription of £76 to access encoded stations, and as I have a second radio, that cost would be £49.35; i.e. a total of £125.35. As I am a disabled pensioner I am not able to afford to pay such a yearly sum. I am now therefore the possessor of two Hitachi radios, which can access f.m./m.w. and SW1 and SW2, but not digital satellite, unless one pays for a subscription. I notice that for some time now, advertisements from main dealers who advertise in SWM do not mention WorldSpace satellite receivers.

I feel that I and probably many other purchasers of such radios, have been very hard done by, for at no time prior to purchase was there any indication that subscription charges would come into effect in respect of FTA stations at that time. My second purchase was in October 2002 and the number of stations available as FTA was exactly the same at that time. It would be interesting to see if any of your other readers have had a similar experience.

Best wishes to you and SWM. Keep up the good work.

**Ron Green  
Penarth**

*Ron, I contacted WorldSpace for their comments to your letter. This is what they have to say. - Ed*

Dear Mr. Green

With reference to your letter forwarded to us by Kevin Nice of Short Wave Magazine, 29 November 2004.

Since the purchase of your receiver over three years ago (October 2001), various broadcasters have seen their channels terminated, others have decided not to renew their agreements with WorldSpace and new broadcasters have been introduced as well. Therefore, it is reasonable to expect that WorldSpace will from time to time change its offerings.

Currently there are several free-to-air broadcast channels available to you and will continue into the future, albeit on a somewhat limited basis. The decision to place a portion of the WorldSpace system on a subscription basis has been neither sudden nor based on misleading information.

On-air promotions and regional marketing initiatives communicated the subscription transition beginning early last spring and have continued through the mid-June 2004 launch of WorldSpace Subscription Service to the present (you will hear announcements on the WS Promotion Channel as well as on individual broadcast channels if a channel has elected to enter the Subscription Service Package). In a response to market feedback, WorldSpace will continue to expand the channel line-up with high quality programming in our subscription package with no or limited advertising.

Currently, you can take advantage of our Holiday Promotion as an introduction to the Gold Subscription package. We are offering two months free of charge and no activation fee, You can call: **(01843) 593 222.**

We thank you for being a loyal and long-time listener to WorldSpace. We hope you choose to subscribe to our service. If you have any further questions or comments, please don't hesitate to contact us. WorldSpace Customer Care [www.worldspace.com](http://www.worldspace.com)

## Spring Foundation Course At Shefford

The **Shefford and District Radio Club** is preparing a new series of weekly two hour evening courses for the Foundation Licence. Encouraged by the success and 100% pass rate of their 2004 course, their Instructors invite interested readers, who may live in Bedfordshire and Hertfordshire, to contact **Stewart Baker G3RXQ** for details on **(01908) 585284** or **baker@nildram.co.uk**

## Signals From Outer Space

**N**evada are the official United Kingdom distributor of a range of receivers for the WorldSpace system. The new **AMI WS201** receives digital signals from satellites positioned 34000km in Space. The WorldSpace Satellite Radio from AMI, allows you choose what you want to hear in the language or the country that suits you.

If you're travelling to Africa, the AMI WS201 offers programming not just in English, French and German, but Hindi, Urdu and Swahili too! In Asia, you have your choice of English or French, of course. Even better, you can also hear programming in Japanese, Tamil and even Malayalam! It's compact and lightweight so won't take up too much room either.

The WorldSpace digital satellite sends signals to the compact dish attached to the radio and means no fading, noise or interference. The radio delivers near CD quality sound in a coverage area of 14 million square kilometres across the world.

As long as you're in line-of-sight with the satellite, you'll never lose the WorldSpace high-quality sound. There are over 40 channels of crystal clear, fade-free digital audio programming direct from the satellites.

The WorldSpace Radio comes with the option of additional programmes available via subscription, giving you even more choice. Now you don't have to rely on short wave radio and its crackly reception to find out what's going on in the world. Only WorldSpace gives you this kind of variety and allows you to stay tuned to the world. Retailing at **£119** visit **www.worldspaceradios.co.uk** for more information. Please note you may need a WorldSpace service subscription to receive the channels of your choice.



## Tuning In To Help

The winner's of this year's Transmission 2004 fund raising weekend in aid of the **British Wireless for the Blind Fund** (BWBF) have been announced. Prizes were awarded for groups and individuals who raised the most money for the charity or made the most contacts.

The Poldhu Amateur Radio Club in Cornwall was awarded the trophy in the most money raised by a club category, netting an impressive £1,304. Meanwhile, the prize for making the greatest number of contacts went to the Cray Valley Radio Society in Kent. Amateurs spent 43 hours on air and made a staggering 3000 contacts in more than 100 different countries.

The individual who raised the most funds for the BWBF was Daren Loxley, from Sheffield and the individual making the most QSOs was Bob Palmer, from Kempston, Bedfordshire. Prizes were presented by the BWBF chief executive Margaret Grainger and Radio Society of Great Britain (RSGB) president Jeff Smith at this year's RSGB HF and IOTA Convention 2004 at Gatwick Worth Hotel in West Sussex.

Margaret Grainger said, "I am delighted by the efforts of radio amateurs across the country who took part in the Transmission 2004 event. They worked incredibly hard on our behalf and I can't thank them enough".

Through a network of over 300 voluntary agents, the BWBF issues specially-adapted audio equipment on free permanent loan to blind and partially-sighted people in need across the UK. They are repaired or replaced by the Fund when necessary. Sets are also available to buy through the Fund's commercial wing. To find out more, or to support their work, visit **www.blind.org.uk** or call **(01634) 832501**.

## Meteor Showers 2005

Shower Name	Overall Period	Peaking
Quadrantids	1 - 6 Jan	3 Jan - 1000
Lyrids	19 - 25 Apr	22 Apr - 0800
ETA Aquarids	24 Apr - 20 May	4 - 5 May
Cetids	7 May - 9 Jun	14 - 25 May
Delta Aquarids	15 Jul - 20 Aug	29 July - 6 Aug
Perseids	23 Jul - 20 Aug	12 Aug - 1200
Orionids	16 - 27 Oct	20 - 22 Oct
Taurids	20 Oct - 30 Nov	3 Nov
Leonids	15 - 20 Nov	17 Nov - 1600
Geminids	16 Dec	12 - 14 Dec
Ursids	17 - 25 Dec	strong 13th - 2200 22 Dec

(Meteor shower details courtesy Neil Bone (Director BAA Meteor section).)





## Club Talk

**M**artin Foster G3VOF/W0DOC/JA1WIJ recently gave the club a lecture on DXing. Martin presented his personal views and approach to DXing. A slide show was given showing inside Martin's shack, his antennas and awards. Martin explained how he eventually made it to the DXCC honor roll and obtained 5BWAZ and more.

Martin explained the various popular operating awards that were available. He also explained long path propagation, along with a short explanation of the K and A indexes and finished up explaining some of the trickery that he uses trying to beat pile-ups. However, the best advice was 'the first and last rule' - tune, listen, tune, listen and tune, listen. If you can't hear the DX, you can't work it!

The floor was then handed over to **Fred Curtis G3SVK** who was the team leader for the 3V8DX expedition. Fred explained what it was like at the receiving end of a pile-up. He explained how the expedition was planned, how the advanced propagation was taken into account and other key aspects so the team would know approximately what bands would give them the best results on the day. He also explained the impatience of some amateurs, that would not listen to his directions regarding calling, this he explained made the QSO time longer.

Fred G3SVK is of **GM3SVK** fame in the Shetlands during the 1960s (some of the OTs will remember him). He promises to come back to the **Havering & District Radio Club** to talk of those days when he travelled all over the UK to give rare counties on Top Band.

The evening finished off with a contest tape being shown of the World Radio Sport Championships that took part in Finland in 2002. The best contesters in the world (52 of them) met in Finland and had a 24hr contest to determine the best contestant!



**Fred Curtis**  
G3SVK.

**Martin**  
G3VOF/W0DOC/JA1WIJ.

## Rocking The Nation

**W**RN has unveiled its first client for On Air, the UK's first fully serviced stereo radio channel on the Sky digital platform. *TotalRock*, playing the hardest rock on the planet, will be broadcasting via On Air across the UK on Sky channel 938 from 1 December. *TotalRock* has signed up for an initial three month run before the launch of its own channel on Sky digital.

*TotalRock's Andy King* says, "We at *TotalRock* immediately recognised the opportunity offered by On Air and WRN and we are delighted to be able to bring *TotalRock*, the true voice of Rock, to millions of homes ahead of schedule". **Richard Jacobs**, WRN's Business Development Manager adds, "I am delighted to have *TotalRock* on board. It's a rocking good start for On Air!".

WRN's On Air channel is for stations wanting access to Sky digital, but for a limited period only. This includes those, like *TotalRock*, who wish to be on-air earlier than their official Sky launch date. The On Air channel is also perfect for testing new formats or incubating new stations. Even RSLs covering large sporting or cultural events can book space on WRN's On Air channel for the duration of their broadcast and instantly be available in over 7.4 million homes!

*TotalRock* was formed in 2000 by, amongst others, DJ **Tommy Vance** and BBC Radio One producer **Tony Wilson**. Broadcasting through the Internet and Sky's radio facility, *TotalRock* immediately filled a broadcasting void, since its initial launch *TotalRock* has become popular with audiences both world-wide and in the UK, where it was researched as attracting a weekly audience in excess of 250,000 (Continental Research 2003).

During the summer and autumn of 2000, *TotalRock* developed a website - [www.totalrock.com](http://www.totalrock.com) - now receives in excess of 150,000 unique visitors a month and 50,000 listeners a week. *TotalRock* is fast becoming the UK and European brand for rock music broadcasting and merchandising. It supports a broad community of rock fans who listen to *TotalRock's* high quality radio programming, use its informative and interactive website and attend *TotalRock* sponsored and promoted events - ensuring that *TotalRock* is here to stay! So, if rock music is your thing, check out the website above and get 'rocking'.



## South Dorset Radio Society

**M**embers of the **South Dorset Radio Society** meet every second Tuesday of the Month at Chickerell Church Hall, Chickerell, Weymouth, Dorset. Meetings commence at 1900 for 1930 start. A guest speaker is usually invited to talk on a subject of interest to the Club Members.

Membership is open to all who are interested in all facets of amateur radio, the numerous activities are not just limited to those who hold transmitting licenses. Club members range from youngsters to Senior Citizens. All visitors are made most welcome and on Club Nights will receive a cup of tea or coffee and cake for just 50p.

The Society also has a Training Shack, with facilities for all kinds of radio oriented work and, of course, study and exam facilities are also available on request. The Training Shack is also open for all enthusiasts on Wednesday and Sunday Nights and is a must for up and coming radio amateurs or for those who just want to know what the hobby is all about.

Contact **Carol Hodges 2E1RBH** on (01305) 820400 or E-mail: [carolonfraggles@tiscali.co.uk](mailto:carolonfraggles@tiscali.co.uk) for more information about up and coming club events.

## Digital Radio Newsletter

**A** new monthly newsletter is now available covering developments in digital radio especially DRM, IBOC and DAB. Digital radio via Freeview, Sky Digital and WorldSpace are also featured together with developments in the delivery of digital content to mobile devices. The website and the newsletter aim to showcase these complex technologies to as wide an audience as possible in an easy to understand way. If you want to know about COFDM, QAM, P- and J-stereo and a host of other acronyms then this newsletter is essential reading. Signing up is easy and free by subscribing via the website at [www.radioeng.co.uk](http://www.radioeng.co.uk) The newsletter is published in PDF format on the first Monday of each month.

## New From Nevada

Nevada are pleased to introduce the New Palstar MW550 pre-amplifier manufactured in the USA. This unit is aimed at the medium wave or 160m l.f. DXer.



The MW550 has a vernier driven pre-selector and variable selectivity control to pull out the weakest of medium wave DX broadcast stations or 160m DX stations and is suitable for use with a wide range of antennas from long wires to beverages. A built-in broadband pre-amplifier enables the unit to be used up to 30MHz as a general pre-amp.

The MW550 is available for £225 (plus £8 P&P) and the full specifications are as follows:

- High performance preselector for medium wave & 160m
- Preselector range: 510kHz to 2.5MHz
- Covers a.m. broadcast and 160m reception
- Broadband pre-amp to 30MHz, for short wave reception
- Vastly improves reception for medium wave DXing
- Suitable for all types of antenna
- Special input socket for beverage antennas
- Variable selectivity control (down to 4kHz bandwidth for broadcast)
- Switchable 'low noise' pre-amp to 30MHz
- Switchable 15dB attenuator
- Bypass switch
- Vernier tuning for 'super smooth' action
- Designed for the Palstar R30 receiver, but may be used with any receiver (with 12V supply)
- Size 202 x 104 x 220.5MM (w x h x d)

More information from Nevada at **Fitzherbert Spur, Farlington, Portsmouth PO6 1TT, Tel: 02392 313095, FAX: 02392 313091** or visit [www.nevada.co.uk](http://www.nevada.co.uk)

## Rewards For Earlybirds

Special Earlybird tickets for next year's Royal International Air Tattoo at RAF Fairford, Gloucestershire, go on sale today (1 December) at the special Earlybird price of £25.95.

Until the end of February 2005, people will be able to purchase Tattoo tickets at the discounted price either on-line at or by telephone. The administration fee of £3 has also been waived during this period.

Everyone who purchases Earlybird tickets will automatically be entered into a prize draw to win one of 20 superb Royal International Air Tattoo DVDs featuring all the aerial thrills and excitement of the 2004 airshow.

The Tattoo, which takes place on 16 & 17 July 2005, will feature more than 300 aircraft, including some of the greatest aerobatics display teams in the world. The theme of this year's airshow, *Surveillance 05 - Eyes in the Sky* will lift the lid on the secretive world of aerial surveillance and demonstrate how state-of-the-art technology is being used to help save lives and understand the natural world.

There will also be a gathering of 'Tiger' and 'Big Cat' squadrons featuring international aircraft in brightly-coloured paint schemes plus special aerial displays to mark the 60th anniversaries of the end of World War II and the birth of the United Nations.

Ground based attractions will include a 'TechnoZone', flight simulators, a pop concert plus inter-active exhibitions offering visitors a rare glimpse of the high tech world of the future.

Tattoo Director Tim Prince said: "With an exciting eight-hour flying display, hundreds of aircraft plus a feast of ground entertainment, the Tattoo has always represented excellent value for money. Now, with our special Earlybird ticket, we're offering an unbeatable day out for all the family next summer - especially when you consider that accompanied youngsters aged 15 and under go free".

From 1 March 2005, advanced tickets will be available for £29.95 whilst entry on the day will be £35. Both these ticket prices remain the same as in 2004. You can purchase Tattoo tickets at the discounted price either online at [www.airtattoo.com](http://www.airtattoo.com) or by calling **0870 758 1918** - the administration fee of £3 has also been waived during this period.



## TI Ships Units for DAB

As a sign of the explosive growth in Eureka 147 digital audio broadcasting (DAB), Texas Instruments Incorporated (TI) recently announced that it has shipped one million digital radio baseband modules for receivers in the DAB market. Spurred by the launch of the first TI digital signal processor (DSP)-based RadioScape module in September of 2003, TI continues the pace it set in this market by outgrowing competition over the past year.

"We are very excited to get to the one million milestone in such a short space of time", said Nigel Oakley, Vice President of Marketing at RadioScape. "The release of our range of modules has really accelerated the adoption of DAB and contributed to the record time of reaching one million units shipped. Our modules, combination of RadioScape's Software Defined Digital Radio approach and TI's powerful DSPs meets manufacturers' needs perfectly by providing tremendous scope for rapid innovation and product customisation as well as being highly cost effective. This has resulted in milestones such as the first MP3 and DAB player, the first f.m./RDS DAB radio and the first tri-band DAB receiver. In addition, this software approach has enabled us to pioneer innovative features such as pause, rewind, record, Electronic Program Guide (EPG), Dolby 5.1 surround sound and video that can be implemented for nominal additional costs as these are done via software".

Many of the leading digital radio manufacturers have built radios around TI's analogue and digital radio baseband units, including Acoustic Solutions Limited, Cambridge Audio, Hitachi, Intempo, LG Electronics, Morphy Richards, Perstel and Roberts Radio Limited. In addition, module makers leveraging TI's digital radio solution have played an important role in the growth of this market, including GyroSignal, KwangSung Electronics and TBK Electronics, by enabling manufacturers to get DAB radios to market more quickly and cost effectively.

"We would like to thank RadioScape and all of our customers and technology partners for the tremendous success we have seen so far in the DAB market", said Les Mable, business development manager for Digital Radio, Texas Instruments. "TI's Digital Radio business has experienced exceptional growth over the last two years and will continue to drive this market by pioneering innovations that will enable the technology and features of tomorrow".

Texas Instruments Incorporated provides innovative DSP and analogue technologies to meet our customers' real world signal processing requirements. In addition to Semiconductor, the company's businesses include Sensors and Controls, and Educational & Productivity Solutions. TI's head quarters are located in Dallas, Texas. They have manufacturing, design or sales operations in more than 25 countries world-wide. More information can be found at [www.ti.com](http://www.ti.com)

# rallies

2005

**February 6:** The South Essex Radio Society are holding their Canvey Island Radio Rally at the Paddocks Centre, at the end of A130. Doors open at 1030 and features include Amateur radio and computer, electronics, components exhibitors. There will be home prepared snacks, soft drinks, tea and coffee etc. This is the 20th rally of this venue! **Brian G7IIO** on (01268) 756331 before 2100 for more information or visit [www.southessex.ars.btinternet.co.uk](http://www.southessex.ars.btinternet.co.uk)

**March 13:** The Wythall Radio Club are holding their 20th Annual Radio & Computer Rally at the Woodrush Sports Centre, Shawhurst Lane, Hollywood, Nr. Wythall, Birmingham. Book early as this is a popular rally. Trader booking forms can be obtained from **Chris G0EYO** on (07710) 412819, E-mail: [g0eyo@blueyonder.co.uk](mailto:g0eyo@blueyonder.co.uk) or visit [www.wrcrally.co.uk](http://www.wrcrally.co.uk)

**March 20:** The Cambridge & District Amateur Radio Club have now confirmed the date for their rally, which is to be held at Britten Arena, Wood Green Animal Shelter, King's Bush Farm, London Road, Godmanchester. Doors open at 1000 and entrance fee is just £2 (concession for OAP/disabled, children free). There will be free parking for up to 2000 cars, along with a bar and restaurant on-site. There will also be a Bring & Buy and a Talk-in on S22. More information from **John Bonner G0GKP** on (01954) 200072, E-mail: [j.bonner@ntlworld.com](mailto:j.bonner@ntlworld.com) or from **Ian Alexander G4AKD** on (01954) 782974, E-mail: [g4akd@thersgb.net](mailto:g4akd@thersgb.net)

**April 3:** The Northern Mobile Rally (Harrogate Rally) is to be held at the Harrogate Ladies College, Clarence Drive, Harrogate, N. Yorkshire. There will be all the usual facilities plus a Bring & Buy, catering and transport for any disabled visitors, etc. More information from Rally Manager **Gerald Brady G0UFI** on (07734) 478080 or visit [www.harrogaterally.co.uk](http://www.harrogaterally.co.uk)

**April 10:** The Yeovil ARC have booked the Digby Hall, Sherbourne for their 21st QRP Convention, the popular get together of QRPers from the South and West of England. Doors open at 1000 and car parking is free in the town centre car parks, which adjoin the hall. Follow the black and white Town Centre signs, off the A30 Yeovil to Salisbury Road. There will be two talks in the morning and another after visitors have enjoyed the excellent food available and browsed the many trade stands. Also, the Construction Challenge will be adjudicated and certificates will be presented to winners of the QRP Convention CW Funrun, which takes place prior to the Convention on the evenings 14-18 March, 1900-2100. Rules available from G3ICO. E-mail: [george@mudford.fstnet.co.uk](mailto:george@mudford.fstnet.co.uk)

**May 2:** The Dartmoor Radio Rally is to be held at Tavistock College, Tavistock, Devon. This is the same new location as last year, with plenty of space for traders to display their wares and for visitors to see them and talk to old friends. There is access for disabled visitors, but due to extensive building works, there can be no dedicated disabled parking. However, there is adequate car parking around the college site. There will be trade stands, a Bring & Buy and refreshments, etc. Doors open 1030 (1015 for disabled visitors), Talk-in on S22. Come and visit beautiful Dartmoor, ideal for picnics, so why not bring the whole family along? **Ron G7LLG** on (01822) 852586.

**June 19:** The Annual Newbury & District Amateur Radio Society's Car Boot Sale takes place at the Ackland Memorial Hall, nr. Thatcham, Berkshire. Directions and a map can be found on the club's website, visit [www.ndars.org.uk](http://www.ndars.org.uk)

**June 26:** The West of England Radio Rally is to be held in Frome, Somerset. Contact **Shaun G8VPG** on (01225) 873098 or visit [www.westrally.org.uk](http://www.westrally.org.uk) for more information.

**August 12:** The 12th Annual Junk Night of the Cockenzie & Port Seton Amateur Radio Club will take place at the Cockenzie & Port Seton Community Centre, South Seton Park, Port Seton. Entrance fee is just £1 and all proceeds will go to the British Heart Foundation. Tables are available on a first come, first served basis. There will be disabled access and a raffle at approximately 2100. Refreshments will also be available. Contact **Bob Glasgow GM4UYZ** on (01875) 811723 or E-mail: [bob.gm4uyz@btinternet.com](mailto:bob.gm4uyz@btinternet.com) for further information.

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

## Club Corner

The **Marconi Radio Group** meet on the first Thursday of each month at 2000 at the Ballycastle Museum, Castle Street, Ballycastle, Northern Ireland. More information about forthcoming events from **Melvyn MI0MSR** on 02820 741693 or E-mail: [melvyn.irvine@btinternet.com](mailto:melvyn.irvine@btinternet.com)

Members of the **Telford & District Amateur Radio Society** meet at the Community Centre, Bank Road, Dawley Bank, Telford, Shropshire. Visit [www.tdars.org.uk](http://www.tdars.org.uk) or contact **Mike G3JKX**, Secretary, at 12 **Ullswater Close**, Priorslee, Telford, Shropshire TF2 9RB, Tel: (01952) 299677, E-mail: [mjstreetg3jx@aol.com](mailto:mjstreetg3jx@aol.com) for more details.

The **Cockenzie & Port Seton Amateur Radio Club** meet at the Thorntree Inn (Lounge Bar), High Street, Cockenzie from 1900 till closing time. Lots of events are planned for next year, so contact

**Bob Glasgow GM4UYZ** at [gm4uyz@cpsarc.com](mailto:gm4uyz@cpsarc.com) or [bob.gm4uyz@btinternet.com](mailto:bob.gm4uyz@btinternet.com) for further information.

Meetings take place at the Whitchurch Folkhouse, Bridge Farm House, East Dundry Road, Whitchurch, Bristol for the **South Bristol Amateur Radio Club**. Commencing at 1930 every Wednesday, why not visit the club's website [www.sbarc.co.uk](http://www.sbarc.co.uk) for up-to-date information on planned events for next year. Alternatively, contact **Len Baker** on (01275) 834282 (24hr answerphone).

The **Basingstoke Amateur Radio Club** meet on the first Monday of each month at 1930 for an 2000 start at The Gems Sports & Social Club, The Club Hut, Lister Road, Basingstoke. More details of the club's activities can be found at [www.basingstokearc.co.uk](http://www.basingstokearc.co.uk) or from **Frank Heritage**, Publicity Officer, via E-mail at [barc@2lo.info](mailto:barc@2lo.info)

# LM&S

Long, Medium & Short Wave Bands

● **Martin Peters** 11 Filbert Drive, Reading RG31 5DZ  
 ● **E-mail:** lms@pwwpublishing.ltd.uk

**DXers:-**  
 A Bernard Curtis, Stalbridge  
 B Jim Murdock, Portadown  
 C Vic Prier, Seaton  
 D Eddie McKeown, Newry  
 E Henry Brice, Cornwall  
 F Simon Hockenhill, Lizard Peninsula

**A** very warm welcome to two new contributors. **Charles Hendry** E-mailed from Amersham so say hello and submit his first log. Charles is getting back into the hobby following a break of 40 years. His old logbooks from the sixties reveal medium wave catches from Bonaire, Belize and Cuba, amongst many others. With the band so heavily congested these days, to replicate this now would be no mean feat. As if to prove that DX reception is possible using only a modest set up, Charles netted VOA from both Sao Tome and Kuwait using nothing more than his Sony ICF-M400L portable with its internal ferrite rod antenna.

Hello to **Jim Murdock** who lives in Portadown, Northern Ireland. Jim starts by saying that he's "back DXing again" implying that he, too, has been off the scene for a while. Looking at his logs, Jim obviously specialises in listening to the ever-growing number of religious stations now broadcasting

**Listeners:-**  
 A Peter Pollard, Rugby  
 B Thomas Williams, Truro  
 C Sheila Hughes, Morden  
 D Phil Townsend, London  
 E Eddie McKeown, Newry  
 F Charles Henry, Amersham  
 G Simon Hockenhill, Lizard Peninsula

## Tropical Band Table

MHz	UTC	Service	Country	Listener
3.210	0625	WWCR, Nashville	USA	A
3.255	2110	BBC World Service	G/AFS	C D F
3.350	0435	Radio Exterior Espana	E/CTR	C
3.915	2125	BBC World Service	G/SNG	C D
3.955	2115	Radio Korea International	KOR/G	C D E
3.965	1944	Radio Taiwan	TWN/F	D
3.965	2011	Radio France Int'l	F	E
3.975	1947	Radio Budapest	HNG	D E
3.985	2348	RFE/RL	USA/?	D
4.005	0440	Vatican Radio	CVA	C D E
4.770	0455	FRCN Kaduna	NIG	C D
4.800	2120	CNR1 Shijiazhuang	CHN	C
4.800	2137	CPBS 2 Beijing	CHN	D
4.820	2115	Xizang Lhasa	CHN	C D
4.830	2342	All India Radio	IND	D
4.835	2110	RTM Bamoko	MLI	C

on short wave. Thanks for getting in touch, Jim.

Talking of religious broadcasting, the seemingly omni-present Brother Stair has been broadcasting out of Europe on medium wave. **Bernard Curtis** (caterpillars repulsed; greens sprouting) was lucky enough to catch Overcomer Radio via Kaliningrad on 1386 and 702kHz from Monte Carlo. These transmissions were by means of a test to gauge reaction and may have ceased by the time you read this, depending on what feedback he's had, not to mention his budgetary constraints.

**Fred Wilmshurst** replaced his old PC only to be faced with a stack of problems, not least of which was to be targeted with a virus the very first time he went on-line. Bad luck, Fred. The Sasser virus closed the PC down

MHz	UTC	Service	Country	Listener
4.845	2100	ORTM Nouakchott	MTN	C D
4.850	1540	All India Radio, Kohima	IND	A
4.890	0445	Radio France Int'l	F/GAR	C
4.895	2343	Radio Ulan Bator	MNG	D
4.905	2130	Xizang Lhasa	CHN	C D
4.910	0056	All India Radio, Jaipur	IND	D
4.915	2115	GBC 1 Accra	GHA	C D
4.920	2320	Xizang Lhasa	CHN	B
4.940	1910	Voice of America	USA/STP	A
4.950	2344	Voice of America	USA/STP	D
4.960	0500	Voice of America	USA/STP	C
4.976	1742	Radio Uganda, Kampala	UGA	B
5.010	2345	All India Radio, Thiru'buram	IND	D
5.025	2346	Radio Uganda, Kampala	UGA	D
5.025	0425	Radio Rebelde	CUB	C
5.030	2347	Radio Burkina	BFA	D
5.030	0415	University Network	USA	C
5.050	2315	WWRB, Manchester	USA	B
5.070	0625	WWCR, Nashville	USA	A

before he had a chance to download a fix from the net - very sly. To cut a long story short, Fred would appear to have solved his problems, for now. Three little words: virus checker and firewall. Do it now!

Apologies to **Simon Hockenhill** and **Sheila Hughes**, who, despite my best efforts, have had their initials transposed in recent editions of *SWM*. For the record, SH and ShH denotes Simon and Sheila respectively. I will have another word with my sub-editor, this time including various threats of personal injury, so I'm hopeful the credits will be correct from this month onwards.

Simon has been enjoying a two-week break on the Lizard peninsula in Cornwall. Paradoxically, there was a far higher level of interference down on the farm where he was staying, than in his flat in Bristol. This, was due to various items of security and other electronic equipment on site.

## The Luxembourg Effect

Has anyone else noticed the high level of ionospheric cross modulation (ICM) present on Radio Monte Carlo on 216kHz long wave? Here in the south of England, tune to RMC any time of day or night and you'll hear more than a faint trace of France Inter, which broadcasts on 162kHz.

For those of you unfamiliar with ICM, this phenomenon - sometimes called the Luxembourg Effect - occurs when the ionosphere, reflecting signals back to earth from station A, is modified by a high-power transmission from station B. In this case, broadcasts from the massive 2MW transmitter in Allouis actually heat and modify the ionosphere such that its audio is superimposed on that coming from RMC's outlet in Roumoules. The effect is so

## Long Wave Table

kHz	Service	TX Location	Country	Power (kW)	Listener
153	Deutschlandfunk	Donebach	D	500/250	A* B C D E G
153	Radio Romania	Brasov	ROU	1200	F*
162	France Inter	Allouis	F	2000/1000	A* B D E G
171	Radio Chechnya Svobodnaya	Tibilsskaya	RUS	1200	F*
171	Radio Rossi	Bolsakovo	RUS	600	A* C* D E G*
177	Deutschlandradio Berlin	Zehlendorf	D	500	A* D E* G*
183	Europe 1	Saarlouis	D	2000	A* B D E G
189	Rikisutvarpid	Gufuskalar	ISL	150	E* G*
198	BBC Radio 4	Droitwich	G	500	A* C* D E G
207	Deutschlandfunk	Aholming	D	500	A* D E G*
207	RTM A	Azija	MRC	400	G*
207	Rikisutvarpid	Eidar	ISL	100	G*
216	Radio Rossi	?	RUS	?	E*
216	Radio Monte Carlo	Roumoules	F	1400	A* B D E G*
225	Polish Radio 1	Solec Kujawski	POL	1000	A* C* D E* G*
234	RTL	Beidweiler	LUX	2000	A* B D E G
243	Denmark Radio 1	Kalundborg	DNK	300	A* C D E G
252	RTE Radio 1	Clarkstown	IRL	500/150	A* B C* D E G
252	Algiers Radio 3	Tipaza	ALG	1500/750	A* C*
261	Radio Rossi	Taldom	RUS	2500	A* C* E*
261	Radio Horizont	Sofia	BUL	40	F*
270	Czech Radio 1	Uherske Hradiste	CZE	650	A* C* D E* G*
279	Radio Rossi	?	RUS	?	E*
279	Belarussian Radio 1	Sasnovy	BLR	500	A* C* E*

\* = dark

pronounced that on occasions both audio components struggle for supremacy on 216kHz.

Distinguishing ICM-assisted interference from a co-channel signal is aided by the fact that the audio from the 'alien' station is fairly woolly, with only the lower part of the audio spectrum being heard.

A new radio station to listen out for on short wave is Radio Solh, which translates to Radio Peace. This US-backed venture is intended for reception in Afghanistan and broadcast from Merlin VT's UK transmitters at Woofferton and Rampisham.

This station, the latest in psychological warfare from the USA, broadcasts music interspersed with announcements offering rewards for information leading to the arrest of Bin-Ladin and others, wanted in connection with Al-Qa'idah and Taliban activities.

The current schedule, according to [www.dxing.info](http://www.dxing.info) website is 0200-0500 on 11.810MHz; 0700-1200 on 21.620MHz; 1200-1300 on 17.555MHz; 1300-1500 on 17.720MHz and 1500-1630 on 17.710MHz.

Meanwhile, BBC Monitoring has observed a broadcast in Persian identifying as Radyo Seda-ye Zan (Radio Voice of Women) on 9.495 at 1900-1930. The programmes are produced by a US-based organisation called Women's Forum Against Fundamentalism in Iran, which is "committed to promoting a

## Local Radio Table

kHz	Service	Svc area/TX site	kW	SWL
1458	BBC Asian Network	Birmingham	5	A
1458	BBC Radio Devon	Torbay	2	D
1485	Classic Gold	Newbury	1	A
1485	BBC Southern Counties Radio	Brighton	1	C D*
1503	Sound Radio	London	?	C
1503	BBC Radio Stoke	Staffordshire	1	A
1521	Classic Gold	Reigate	0.64	C
1530	Capital Gold	Worcester	0.52	A
1530	BBC Radio Essex	Southend	0.15	C
1548	BBC Radio Bristol	Bristol	5	D*
1548	Forth 2	Edinburgh	2.2	D
1557	Classic Gold	Northampton	0.76	A
1566	County Sound	Guildford	0.8	B* C
1566	BBC Somerset Sound	Taunton	0.6	A
1584	BBC Hereford & Worcester	Woofferton	0.3	A
1584	Turkish Radio	London	0.2	C
1602	BBC Radio Kent	Rustall	0.25	A C
1602	Desi Radio	Southall	0.07	C

\* = dark

Listeners:-

- A Peter Pollard
- B Sheila Hughes, Morden
- C Phil Townsend, London
- D Simon Hockenhull, Lizard Peninsula

greater awareness of the challenges women face living under fundamentalist regimes such as that of Iran". The transmission is believed to emanate from hired facilities in Juelich, Germany.

Following on from Radio Vlaanderen's announcement last month that it intends to close its English, French and German-

language programming there is, maybe, a glimmer of hope. In an eleventh-hour move, the Flemish Media Minister has invited comments from listeners in order to help evaluate Flemish public broadcaster VRT, of which RVI is part. I suggest you sharpen your quills and get writing, then.

Another one bites the dust? Israeli

## Medium Wave Table

kHz	Service	Location	Country	kW	Listener
531	RTA 1	Ain-El-Reida	ALG	600/300	B* I*
531	RNE 5	Many	E	10-25	I* K
531	Swiss Radio (German)	Beromunster	SUI	600	B* F K*
540	Kossuth	Soit	HNG	2000/1000	J*
540	RTM A	Tanger	MRC	300	I*
540	Radio Twee	Wavre	BEL	150	B D F G* H I* K
549	Deutschlandfunk (DLF)	Nordkirchen	D	100	F H
549	Deutschlandfunk (DLF)	Thurau	D	100	G
549	UCB Europe	Dundalk	IRL	70	B* F I* K
558	RNE 5	Many	E	5-50	B* K
558	YLE Radio	Helsinki	FIN	50	I*
567	RNE 5	Murcia	E	50	B* K*
567	RAI Uno	Many	I	20	I*
576	Sudwestrundfunk (SWR)	Muhlacker	D	100	B* G* I*
576	RNE 5	Barcelona	E	100	I* K*
585	RNE 1	Madrid	E	600	B* G* H* I* K*
585	FIP	Paris	F	8	D H I*
585	BBC Radio Scotland	Dumfries	G	2	I*
594	Saudi Radio	Duba	ARS	2000	I*
594	HR Skyline	Frankfurt	D	250	B* F G* H I*
594	RTM A	Oujda	MRC	100	K*
603	France Info	Lyon	F	300	B* G* I* K*
603	BBC Radio 4	Newcastle v Tyne	G	2	F I
612	RTM A	Sebaa-Atoun	MRC	300	K*
612	RNE 1	Vitoria	E	10	B* I* K*
621	RTBF 1	Wavre	BEL	300	B D F G H I
630	Tunis Radio	Djedaida	TUN	600	I* K*
630	NRK Europakanalen	Vigra	NOR	100	I*
639	RNE 1	Many	E	10-300	B* I* K
639	Czech Radio 2	Prague	TCH	1500	D G* H* I* K
648	BBC World Service	Orfordness	G	500	B* F G H I* K
648	RNE 1	Badajoz	E	10	I*
657	RNE 5	Madrid	E	50	B* G* I*
657	BBC Radio Wales	Wrexham	G	2	B* F H I*
666	Radio Vilnius	Sitkunai	LTU	500	I*
666	Sudwestrundfunk (SWR)	Rohrdorf	D	150	B* G* H* I* K*
675	Arrow Classic Rock	Lopik	HOL	120	B* D F G* H I*
684	RNE 1	Seville	E	600	B* G* I* K*
693	BBC Radio 5 Live	Many	G	1-150	B* F G H K
702	The Overcomer Ministry	Monte Carlo	USA/MCO	40	A* B* I*
702	NDR 4	Flensburg	D	5	F I*
711	Radio Bleu	Rennes	F	300	B* D F G H I* K
720	WDR	Langenberg	D	85	I*
720	BBC Radio 4	Lisnagarvey	G	10	F K*
720	BBC Radio 4	London	G	0.75	B* F G H
729	RNE 1	Many	E	10-100	G* I* K
729	RTE Radio 1	Cork	IRL	10	F I* K
738	RNE 1	Barcelona	E	500	B* G* I* K*
738	Radio France International	Paris	F	5	I*
747	Radio 747	Flevoland	HOL	400	B D F G* H I* K
756	Deutschlandfunk (DLF)	Braunschweig	D	200	B* D G H I*

kHz	Service	Location	Country	kW	Listener
756	Radio Euskadi	Bilbao	E	25	B*
756	BBC Radio 4	Redruth	G	2	K
756	Deutschlandfunk (DLF)	Ravensburg	D		K*
765	Option Musique	Sottens	SUI	600	B* I* K*
774	RNE 1	Many	E	20-100	B* E* I* K
774	BBC Radio 4	Enniskillen	G		F I
774	BBC Radio 4	Plymouth	G		K
783	MDR Info	Leipzig	D	100	D E* I*
783	Radio Mirimar	Barcelona	E	50	E* G*
792	France Info	Limoges	F	300	B* G* I* K*
792	NDR	Lingen	D	5	I*
801	RNE 1	Many	E	10-20	E*
801	Bayern	Munich	D	100	B* E* G H* I*
810	Radio Scotland	Westerglen	G	100	B* F G H I* K*
810	Radio Madrid	Madrid	E	50	K
819	RAI Uno	Trieste	I	20	I* K*
819	Radio Euskadi	San Sebastian	E	10	I*
828	NDR	Hanover	D	20/5	K*
828	Arrow Classic Rock	Heinenoord	HOL	20	I*
837	France Info	Nancy	F	200	D I* K*
846	RAI Due	Rome	I	60	I* K*
855	RNE 1	Murcia	E	300	B* G* I* K
864	La City Radio	Paris	F	300	B* D F G H I* K
873	SFR	Many	E	10-25	B* E* G H I* K*
873	American Forces Network	Frankfurt	D	150	A* D E* G H I* K*
873	BBC Radio Ulster	Enniskillen	G	1	B* I*
882	COPE	Many	E	2-5	K
882	BBC Radio Wales	Washford	G	100	B* F G H I K
891	RTA 1	Algiers	ALG	600/300	B* G* I*
891	Radio 538	Hulsberg	HOL	20	D F I*
900	RAI Uno	Milan	I	600	B* D G* I*
900	RP	Bilbao	E		K
909	BBC Radio 5 Live	Many	G	0.25-200	B* F G K
918	Radio Slovenia	Dornzale	SVN	600/100	B* G* I*
918	Radio Intercontinental	Madrid	E		B* I*
927	Radio Een/927 Live	Wolvartem	BEL	300	B* D F G* H I* K
936	Bremen 1	Bremen	D	50/10	D H* I*
936	RNE 5	Many	E	10-20	K*
945	France Bleu	Toulouse	F	300	B* G* H I* K*
954	Czech Radio 2	Brno	CZE	200	B* D
954	Onda Cara Radio	Madrid	E	20	B* H* I*
963	YLE Radio	Pori	FIN	600	I*
972	Nord Deutscher Rundfunk (NDR)	Hamburg	D		100 G* I* K*
981	RTA 2	Algeirs	ALG	600/300	B* I* K*
990	Deutschlandfunk (DLF)	Berlin	D	100	D G* H I* K*
990	Radio Bilbao	Bilbao	E	10	B*
999	COPE	Madrid	E	50	B* G* K*
1008	Radio 10 Gold	Flevoland	HOL	400	B* D F H I* K*
1017	Sudwestrundfunk (SWR)	Wolfshheim	D	100	B* D H K*
1017	RNE 5	Many	E	10	K*
1035	Radio Nacional	Porto Alto	POR	100	I* K*
1044	MDR Info	Dresden	D	20	B* I*
1044	Radio San Sebastian	San Sebastian	E	10	B* G* I* K
1044	RTM C	Sebaa Atoun	MRC		K*

kHz	Service	Location	Country	kW	Listener	kHz	Service	Location	Country	kW	Listener
1053	Talksport	Droitwich	G	500	F G* I	1404	France Info	Brest	F	20	B* D F G* I* K
1062	RAI Uno	Many	I	2-25	B* I*	1413	RNE 5	Many	E	5-10	G* I*
1062	Denmark Radio P3	Kalunborg	DNK	250	O G* H I*	1422	Deutschlandfunk (DLF)	Heusweiler	D	1200/600	B* D F G* H I* K*
1071	Euskadi Irratia	Bilbao	E	50	B* D G* I* K	1422	RTA	Fayat	ALG	40	K*
1071	Talksport	Clipstone	G	1	B F G I*	1422	Saudi Radio	Riyadh	ARS	20	B*
1080	SER	Many	E	5-10	B* D G* I* K	1431	Voice of Russia	Mykolaiv	RUS/UKR	1200	K*
1089	Talksport	Brookmans Park	G	400	B F G I*	1440	China Radio International/RTL	Marnach	CHN/LUX	1200/300	B* D F G* H I
1098	Radio Slovensko	Nitra	SVK	50	G* I*	1440	Saudi Radio	Damman	ARS	1600	J*
1107	American Forces Network	Bavaria	USA/O	10	I*	1440	France International	Moscow/St Petersburg/RUS	10	J*	
1107	Talksport	Many	G	2	F G I	1449	RAI Due	Squinzano	I	50	K*
1116	Radio Pontevedra	Pontevedra	E	5	G* I*	1449	Libyan Radio	Misurata	LYB	20	I*
1125	Croatian Radio HR1	Deanovac	HRV	100	G* K*	1449	BBC Radio 4	Redmoss	G	2	I
1125	Radio 21	Houdeng	BEL	10	O F H I* K*	1467	Vatican Radio	Romoules	CVA/F	1000	A*
1134	Croatian Radio HR1	Zadar	HRV	600	B O G* H I* K*	1467	Trans World Radio	Romoules	MCO/F	1000	E* G* I*
1143	COPE	Many	E	2-5	B* I*	1476	Radio 1426	Vienna	AUT	60	B* G* H I* I*
1143	American Forces Network	Many	USA/D	0.3-10	I*	1485	SER	Many	E	2-5	G*
1179	Swedish Radio 1	Solvesborg	S	600/300	B D E* F* G* H I* K*	1494	Voice of Russia	Krasnyy Bor	RUS	600	I*
1179	SER	Valencia	E	50	E* I*	1494	France Info	Clermont-Ferrand	F	20	B* G* H K*
1188	VOA/RFE	Marcali	USA/HNG	500	G* I* K*	1503	Radio Sarasyre	Bushehr	IRN	500	I* J*
1188	Radio Twee*	Kuurne	BEL	5	D F H	1512	Radio Vlaanderen/Radio Een	Wolvertem	BEL	300/25	B* C* F G* H
1197	VOA/RFE	Munich	USA/O	300/150	F* I*	1512	Radio Nederland	Wolvertem	BEL/HOL	300/25	E* I*
1197	Virgin Radio	Many	G	0.2-2	G K	1521	Saudi Radio	Urumqi	ARS	2000	J*
1206	France Info	Bordeaux	F	300	B* O F G* H I* K*	1521	China Radio International	Urumqi	CHN	500	J*
1215	Virgin Radio	Many	G	0.32-200	B F G I	1521	BBC Slovakia	Koscise	G/SVK	200	G*
1224	Radio Horizont	Vidin	BUL	500	I*	1521	Radio Castello	Castello	E	2	I*
1224	Radio Popular	San Sebastian	E	10	B* D I*	1530	Vatican Radio	Vatican City	CVA	150/450	B* G* I*
1233	Virgin Radio	Many	G	0.1-0.5	B F G I*	1530	Voice of America	Sao Tome	USA/STP	600	J*
1233	Cro6	Prague	CZE	40	I*	1530	Radio Romania Actualitati	Mhaileni	ROU	14	J*
1233	Radio 21	Liege	BEL	0.2	K*	1539	Evangeliums Rundfunk	Mainflingen	D	700/120	B* C* F G* H I*
1242	Virgin Radio	Many	G	0.5-2	F I*	1548	Radio Sawa	Kuwait	USA/KWT	600	K*
1242	France Info	Marseille	F	150	B*	1557	France Info	Nice	F	300	H K*
1251	Radio 747	Hulsberg	HOL	10	O I*	1575	RAI Uno	Genova	I	50	B* I* K*
1260	Virgin Radio	Lydd	G	1	H	1575	SER	Many	E	5	B* G* I*
1269	Deutschlandfunk (DLF)	Neumunster	D	300	B D F G* H I* K*	1584	SER	Many	E	2	B*
1278	France Bleu	Strasbourg	F	300	B* G* H I* K*	1593	Voice of America	Kuwait	USA/KWT	150	I* J*
1278	RTE Radio 2	Oublin/Cork	IRL	10	I*	1593	Radio Targues Mores	Miercurea Ciuc	ROU	14	J*
1287	Cro 6	Litomysl	CZE	150	I*	1593	Radio Cluj	Sibiu	ROU	7	J*
1287	Radio Lieida	Lieida	E	10	B* G*	1602	Radio Vitoria	Vitoria	E	25	B* G* H I* K*
1296	COPE	Valencia	E	20	B* K*	1611	Vatican Radio	Vatican City	CVA	100	B* H I*
1305	RNE 5	Many	E	10-25	B* I*						
1314	NRK Europakanalen	Kvitvsgy	NOR	1200	O F G* H I* K*						
1323	Voice of Russia	Wachenbrunn	RUS/O	800/150	A F G* H* K						
1323	Radio Santec	Wachenbrunn	O	800/150	I*						
1332	RAI Uno	Rome	I	300	I*						
1341	BBC Radio Ulster	Lisnagarvey	G	100	B O F G H K						
1350	Radio Orient	Nancy	LBN/F	300	A* B* I*						
1359	RNE 3	Madrid	E	600	G* I* K*						
1368	Manx Radio	Douglas, IOM	G	20	E* G* I K						
1377	France Info	Lille	F	300	B* D F G* H I* K						
1386	The Overcomer Ministry	Sitkunai	USA/LTU	750	A*						
1386	Voice of Russia	Sitkunai	RUS/LTU	750	B* D F H I*						
1395	Trans World Radio	Flake	MCO/ALB	500	B* I*						
1395	Radio 10 FM	Trintelhaven	HOL	120	G* I*						
1395	Radio Rossi	Buguruslan	RUS	5	J*						

\* = dark

Listeners:-

- A Bernard Curtis, Stalbridge
- B Peter Pollard, Rugby
- C Thomas Williams, Truro
- O Rhoderick Illman, Oxted
- E Sheila Hughes, Morden
- F Harry Richards, Barton-on-Humber
- G Fred Wilmshurst, Northampton
- H Phil Townsend
- I Eddie McKeown, Newry
- J Charles Henry, Amersham
- K Simon Hockenhill, Lizard Peninsula

newspaper *Yediot Aharonot* reports that Kol Israel is to axe its foreign-language short wave service. Network B was scheduled for the chop as of 1 January, saving the Israel Broadcasting Authority (IBA) some 48 million shekels each year; that's around six million pounds. Budget cuts were the reason given, and the station's availability over the Internet.

Irish broadcaster RTE returned to 567kHz medium wave following a period of closure during which the 500kW facility at Tullamore

underwent overhaul and refurbishment. The signal, which seems stronger than before (although this may purely be down to winter conditions), carries the RTE 1 service in parallel with 252kHz long wave.

Please treat this month's short wave listings with caution. Only those entries in bold refer to loggings made after the seasonal plan change at the end of October. Many broadcasts to Europe will now be an hour later than shown. Your contributions, please,

by the 10th of the month.

It's time now to thank you all for your support over the year, merely by reading the column, but especially to those of you who have taken the time and trouble to get in touch with your logs and news. Your contributions, large and small, regular or otherwise, are all deeply valued and appreciated. I look forward to hearing from you all - and any new recruits out there - during 2005. Happy new year!

## Short Wave Table

MHz	UTC	Service	Country	Lang	SINPO	SWL
<b>0000-0700</b>						
5.745	0035	WHRI, Noblesville	USA	Eng	45444	JM
5.835	0000	WHRI, Noblesville	USA	Eng	55445	BC
6.035	0545	Voice of America	USA	Eng	44444	SHH
6.145	0045	Radio Japan	J/CAN	Eng	33433	JM
6.150	0145	University Network	USA/CTR	Eng	24322	JM
6.160	0125	Radio New Zealand Int.	HOL	Eng	44444	JM
7.230	0600	Radio Japan	J/G	Eng	43333	SHH
7.465	0130	Overcomer Ministry	USA	Eng	43343	JM
7.580	0025	WHRA, Greenbush	USA	Eng	55545	JM
9.370	0010	WTJC	USA	Eng	44444	JM
9.300	0035	Sri Lanka Broadcasting Co	CIN	Eng	34333	JM
<b>0700-0800</b>						
7.355	0720	WYFR, Okeechobee	USA	Eng	44444	SHH
11.600	0720	Radio Prague	CZE	Eng	55555	FW
11.765	0725	BBC World Service	G/ASC	Eng	45544	FW
12.060	0730	Voice of Russia	RUS	Eng	44444	SHH
12.095	0705	BBC World Service	G	Eng	44444	SHH
15.120	0710	Voice of Nigeria	NIG	Eng	54343	VP
15.150	0715	Radio Romania Int.	ROU	Eng	44434	VP
15.545	0750	BBC World Service	G	Eng	35433	VP
15.760	0745	Kol Israel	ISR	Heb	55334	VP
17.490	0720	China Radio Int.	CHN	Eng	55634	VP
17.535	0730	Kol Israel	ISR	Heb	55555	VP
17.580	0750	China National Radio 1	CHN	Chi	34222	VP
<b>0800-0900</b>						
17.605	0750	China National Radio 1	CHN	Chi	34333	VP
17.630	0750	Africa No. 1	GAB	Fre	35433	VP
17.650	0750	China Radio Int.	CHN	Chi	53444	VP
21.530	0730	Voice of Greece	GRC	Gre	45544	FW
21.605	0745	UAE Radio Dubai	UAE	Ara	55545	VP
21.660	0755	BBC World Service	G/SNG	Eng	35623	VP
21.770	0730	Swiss Radio Int.	SUI	Eng	45232	EM
21.790	0715	Voice of Russia	RUS	Eng	55545	VP
5.825	0820	WEWN, Vandiver	USA	Eng	55444	BC
5.960	0800	Radio Vlaanderen Int.	BEL	Eng	44444	SHH
6.155	0810	ORF Radio Austria Int.	AUT	Eng	55445	BC
7.315	0830	WHRI, Noblesville	USA	Eng	44334	BC
7.345	0810	Radio Slovakia Int.	SVK	Ger	55444	BC
9.870	0830	TransWorld Radio	MCO	Eng	54444	SHH
9.885	0835	Radio New Zealand Int.	NZL	Eng	42432	EM
9.995	0850	Radio New Zealand Int.	NZL	Eng	34343	FW
11.710	0821	Radio Japan	J/G	Jap	44434	RI
11.730	0815	WHRA, Greenbush	USA	Eng	43334	BC
11.765	0850	KNLS	USA	Eng	34444	JM
11.830	0831	Radio Romania Int.	ROU	Eng	34434	RI
11.840	0830	TransWorld Radio	MCO	Eng	23432	RI
11.865	0843	TransWorld Radio	MCO	Eng	45344	EM
13.630	0820	Radio Australia	AUS	Eng	33333	BC
13.665	0815	Radio Rossi	RUS	Rus	55445	BC
13.840	0807	IRRS	I	Eng	45344	EM
15.415	0809	Radio Australia	AUS	Eng	24122	EM
15.565	0830	BBC World Service	G	Eng	24342	VP
21.620	0825	Radio Solih	AFG/G	Eng	55555	BC



## Scanner Base Verticals

**SUPERSCAN STICK I (WIDEBAND)** .....£29.95 PLUS £6.00p+p  
\*FREQ:0-2000 MHZ \*LENGTH:100cm \*SOCKET:SO239 \*RADIALS: 3X17cm

**SUPERSCAN STICK II (WIDEBAND)** .....£39.95 PLUS £6.00p+p  
\*FREQ:0-2000 MHZ \*GAIN:3.00dB OVER SSSI \*LENGTH:150cm  
\*SOCKET:SO239 \*RADIALS: 3X50cm

These two superb fibreglass external wideband antennas have capacitor loaded trapped coils to give maximum sensitivity to even the weakest of signals. No wonder they are best selling verticals !!!

**AR-30 (AIR BAND)** .....£39.95 PLUS £6.00p+p  
\*FREQ:CIVIL & MILITARY AIR \*GAIN:3.0/6.0dB \*LENGTH:100cm  
\*SOCKET:SO239 \*RADIALS:3X17cm

**AR-50 (AIR BAND)** .....£49.95 PLUS £6.00p+p  
\*FREQ:CIVIL & MILITARY AIR \*GAIN:4.5/7.0dB \*LENGTH:150cm  
\*SOCKET:SO239 \*RADIALS:3X50cm

These dedicated fibreglass external antennas are pre-tuned for both air band frequencies.

Get the gain and don't miss take off !!

**X1-HF VERTICAL (DEDICATED HF)** .....£49.95 PLUS £6.00p+p  
\*FREQ:1-50 MHZ \*LENGTH:200cm \*SOCKET:SO239 \*RADIALS:NONE

This HF vertical antenna incorporates helical traps and is an ideal alternative to a long wire



## Going Mobile

**G.SCAN II MOBILE (WIDEBAND)**.....£24.95 PLUS £6.00P+P  
\*TYPE: TWIN COIL \*FREQ:25-2000 MHZ \*LENGTH: 65cm  
\*BASE:MAGNETIC \*CABLE: 4m WITH BNC



**SKYSCAN MOBILE (WIDEBAND)** .£19.95 PLUS £6.00 p+p  
\*TYPE: 4 WHIPS \*FREQ:25-2000 MHZ \*LENGTH:65cm \*BASE:MAGNETIC  
\*CABLE:4m WITH BNC

Don't lose those signals while on the move, get high performance reception where ever whenever.

## Portable Antennas

**SKYSCAN DESKTOP (INTERNAL/WIDEBAND)** .....£49.95 PLUS £6.00 p+p  
\*TYPE:DISCONE STYLE \*FREQ:25-2000 MHZ \*LENGTH:90cm \*CABLE:4m WITH BNC

**TRI-SCAN III DESKTOP (INTERNAL/WIDEBAND)** .....£39.95 PLUS £6.00 p+p  
\*TYPE: TWIN COIL \*FREQ:25-2000 MHZ \*LENGTH: 90cm \*CABLE:4m WITH BNC

**SWP-2000 (GLASS MOUNT/WIDEBAND)** .....£29.95 PLUS £6.00 p+p  
\*TYPE: SUCTION MOUNT \*FREQ:25-2000 MHZ \*LENGTH:55cm \*CABLE:4m WITH BNC

**SWP-HF30 (GLASS MOUNT/DEDICATED HF)** .....£39.95 PLUS £6.00 p+p  
\*TYPE:SUCTION MOUNT \*FREQ:HF 0.05-30 MHZ \*LENGTH: 80cm \*CABLE:4m WITH BNC

**MAX-5 ACTIVE (INTERNAL/EXTERNAL/WIDEBAND)**£49.95 PLUS £6.00 p+p  
\*TYPE: ACTIVE PRE-AMP \*FREQ:25-1800 MHZ \*GAIN: 14dB \*LENGTH: 140cm \*CABLE: 4m WITH BNC



Get the most from your scanner buy using one of our portable antennas and enjoy great performance without the need to erect an external one.

## Discone Base Antennas

**STANDARD DISCONE (WIDEBAND)**.....£29.95 PLUS £6.00p+p  
\*FREQ:25-1300 MHZ \*LENGTH:100cm \*SOCKET:SO239 \*RADIALS: 16

**SUPER DISCONE (WIDEBAND)**.....£39.95 PLUS £6.00p+p  
\*FREQ:25-2000 MHZ \*GAIN:3.00dB OVER STANDARD \*LENGTH:140cm  
\*SOCKET:SO239 \*RADIALS:16

**HF DISCONE (WIDEBAND/HF SENSITIVE)**.....£49.95 PLUS £6.00p+p  
\*FREQ:0.05-2000 MHZ \*LENGTH:185cm \*SOCKET: SO239 \*RADIALS: 16

**ROYAL DISCONE 2000 (WIDEBAND/STAINLESS)** .£49.95 PLUS £6.00p+p  
\*FREQ RX:25-2000 MHZ FREQ TX: 50-52 144-146 430-440 900-986 1240-1325 MHZ \*LENGTH:155cm GAIN:4.5dB OVER STANDARD \*SOCKET:N-TYPE \*RADIALS:16

The discone has been around for over 40 years and is generally recognised as the original and probably the best all round scanner antenna. Choose the best one for your station or call us for advice.



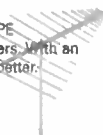
## Beam Antennas

**MLP-32 (LOG PERIODIC)** .....£99.95 plus £6.00p+p  
\*FREQ:100-1300 MHZ TX & RX \*GAIN:11-13dB \*LENGTH:140cm \*SOCKET: N-TYPE

**MLP-62 (LOG PERIODIC)**.....£169.95 plus £6.00p+p  
\*FREQ:50-1300 MHZ TX & RX \*GAIN:10-12dB \*LENGTH: 300cm \*SOCKET: N-TYPE

These two beam antennas are sold mainly to our military & commercial customers. With an SWR 2:1 or better over the whole frequency, for performance it just doesn't get better.

**AR300XL** rotator for both antennas £49.95 plus £6.00 P+P



## Getting Rigged Up

### 5ft SWAGED POLES

(Heavy Duty 1.8mm)

SINGLE 11/4" .....£7.00  
SET OF FOUR 11/4" .....£24.95  
SINGLE 11/2" .....£10.00  
SET OF FOUR 11/2" .....£34.95  
SINGLE 13/4" .....£12.00  
SET OF FOUR 13/4" .....£39.95  
SINGLE 2" .....£15.00  
SET OF FOUR 2" .....£49.95

### CONNECTORS

PL259/9 .....£0.75 each  
PL259/6 .....£0.75 each  
PL259/7 for mini 8 .....£1.00 each  
BNC (Screw Type) .....£1.25 each  
BNC (Solder Type) .....£3.00 each  
N TYPE for RG58 .....£3.00 each  
N TYPE for RG213 .....£2.50 each  
SO239 to BNC .....£2.00 each  
PL259 to BNC .....£2.00 each  
N TYPE to SO239 .....£3.00 each

### HI-SPEC COAX CABLE

RG58 6mm standard .....£0.35 per mtr  
RG58 6mm mil spec .....£0.60 per mtr  
RF mini 8 7mm mil spec .....£0.85 per mtr  
RG213 9mm mil spec .....£0.85 per mtr  
RH200 9mm mil spec .....£1.10 per mtr

(Phone for 100 mtr discount price)

## Shortwave Wire Antennas

**MWA-HF MKII (EXTERNAL DELUXE HF ANTENNA)** .....£49.95 PLUS £6.00 p+p  
\*TYPE:WIRE BALUN MATCH \*FREQ:0-40 MHZ \*LENGTH: 25M  
\*CABLE: 10m WITH PL259

**MD37-SKYWIRE (EXTERNAL STANDARD HF ANTENNA)** .....£39.95 PLUS £6.00 p+p  
\*TYPE: WIRE BALUN MATCH \*FREQ:0-40 MHZ \*LENGTH:25M  
\*CABLE:10m WITH PL259



**LONG WIRE BALUN (ON ITS OWN)** .....£19.95 PLUS £2.00 p+p

Get the best from your HF receiver and get a long wire. Our own ferrite baluns give up to 2 "S" points greater signal than other similar baluns, with a smooth match over 40mhz.



## Hand-held Antennas



**MRW-100 (SUPER GAINER BNC)** .....£19.95 PLUS £2.00 p+p  
\*FREQ: 25-1800 MHZ \*LENGTH:40cm \*FITTING:BNC

**MRW-210 (SUPER GAINER SMA)** .....£22.95 PLUS £2.00 p+p  
\*FREQ: 25-1800MHZ \*LENGTH:40cm \*FITTING:SMA

Going out? Don't miss out! Get a Super Gainer!!

## Something Extra

**MRP-2000 (ACTIVE WIDEBAND PRE-AMPLIFIER)** £49.95 PLUS £6.00 p+p  
\*FREQ:25-2000 MHZ \*GAIN:14.0dB \*POWER:9-15v \*CABLE:1m BNC-BNC

**MRP-137 (ACTIVE WEATHER SAT PRE-AMPLIFIER)** £44.95 PLUS £6.00 p+p  
\*FREQ:137.5 MHZ \*GAIN:25.0dB \*POWER:9-15v \*CABLE:1m BNC-BNC

**UK SCANNING DIRECTORY (8TH EDITION)** £19.50 PLUS £6.00 p+p

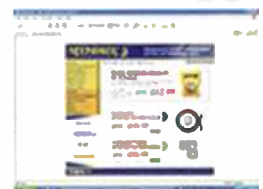
**TURNSTILE 137 (DEDICATED WEATHER SATELLITE)** £39.95 PLUS £6.00p+p  
\*FREQ:137.5 MHX \*LENGTH:100cm \*SOCKET:SO239 \*RADIALS:4

For use with receiving weather satellite pictures.



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WOBURN SANDS, BUCKS MK17 8UR.





MHz	UTC	Service	Country	Lang	SINPO	SWL
7.290	1835	Voice of Russia	RUS	Eng	4444	SH
7.475	1845	Voice of Greece	GRC	Gre	55545	VP
9.475	1815	Radio Australia	AUS	Eng	22342	VP
9.480	1805	Voice of Russia	RUS	Eng	55445	BC
9.530	1845	Radio Canada Int.	CAN/D	Eng	52343	VP
9.545	1855	Deutsche Welle	D	Ger	52433	VP
9.760	1820	Voice of America	USA	Eng	42243	VP
9.815	1830	RAI Int.	I	Ita	55555	VP
9.830	1850	Voice of Russia	RUS	Eng	55545	VP
9.895	1839	Radio Netherlands	HOL	Eng	34222	EM
9.950	1830	All India Radio	INO	Eng	55333	HB
9.960	1840	Voice of Armenia	ARM	Eng	55545	VP
9.990	1840	Radio Cairo	EGY	Ita	54544	VP
11.655	1838	Radio Netherlands	HOL	Eng	35343	EM
11.755	1820	YLE Radio Finland	FIN	Fin	55555	VP
11.795	1855	Deutsche Welle	D	Ger	55555	VP
12.050	1835	Radio Cairo	EGY	Ara	55555	VP
12.160	1840	WWCR, Nashville	USA	Eng	43334	BC
13.580	1800	Radio Prague	CZE	Eng	55555	VP
13.730	1805	Radio Canada Int.	CAN/D	Eng	54445	BC
13.830	1835	China Radio Int.	CHN	Eng	55344	VP
15.630	1820	Voice of Greece	GRC	Gre	44434	VP
17.510	1855	WYFR, Okeechobee	USA	Eng	35332	JM
17.895	1825	Voice of America	USA/MRC	Eng	55444	BC
18.930	1820	WYFR, Okeechobee	USA	Ita?	54445	BC
18.980	1815	WYFR, Okeechobee	USA	Eng	54344	BC
21.470	1800	BBC World Service	G/SEY	Eng	34423	VP
<b>1900-2000</b>						
6.020	1932	China Radio Int.	CHN	?	35343	HB
6.035	1935	Voice of America	USA	Eng	32433	HB
6.055	1938	Voice of Turkey	TUR	Eng	44444	HB
6.065	1957	Radio Sweden Int.	S	Eng	44444	FH
6.155	1941	ORF Radio Austria Int.	AUT	Ger	45334	HB
6.195	1945	BBC World Service	G	Eng	55545	VP
7.105	1915	Radio Minsk	BLR	Eng	45534	VP
7.155	1930	Radio Thailand	THA	Eng	45544	FW
7.250	1930	Vatican Radio	CVA	Fre	55545	VP
7.440	1945	Voice of Russia	RUS	Eng	33333	TW
7.590	1950	AFRTS (u.s.b.)	USA	Eng	55545	VP
9.325	1940	Voice of Korea	KRE	Ger	54344	VP
9.355	1938	?	?	?	33333	TW
9.370	1950	WTJC	USA	Eng	42222	TW
9.410	1935	BBC World Service	G/CYP	Eng	55545	VP
9.510	1930	TransWorld Radio	?/AFS	?	54423	VP
9.520	1915	Radio Tirana	ALB	Fre	54434	VP
9.585	1905	China Radio Int.	CHN	Eng	55534	VP
9.605	1945	RAI Int.	I	Eng	45333	VP
9.630	1950	BBC World Service	G/SEY	Eng	33343	VP
9.770	1950	Voice of America	USA/Q	Eng	55534	VP
9.785	1918	Voice of Turkey?	TUR	Eng	44444	FH
9.925	1945	Radio Vlaanderen Int.	BEL	Eng	33333	TW
9.935	1920	V. of Islamic Rep. of Iran	IRN	Ara	43344	VP
9.950	1942	All India Radio	IND	Eng	23222	TW
9.965	1925	Voice of Armenia	ARM	Eng	45243	EM
9.980	1928	AFRTS (u.s.b.)	USA	Eng	22222	TW
11.520	1940	?	?	?	33333	TW
11.980	1900	Voice of Russia	RUS	Fre	55545	VP
12.010	1900	Voice of Russia	RUS	Fre	55555	VP
12.030	1900	Voice of Russia	RUS	Fre	45523	VP
12.040	1900	Voice of Russia	RUS	Spa	55545	VP
12.070	1900	Voice of Russia	RUS	Fre	55545	VP
12.105	1915	Voice of Greece	GRC	Gre	54544	VP
15.220	1944	Swiss Radio Int.	SUI	Eng	25422	SH
15.400	1930	BBC World Service	G/ASC	Eng	45534	VP
<b>2000-2100</b>						
5.800	2022	Radio Bulgaria	BUL	Ger	45444	HB
5.850	2010	Radio Canada Int.	CAN	Eng	44444	TW
5.850	2025	Radio Canada Int.	CAN	Fre	35343	HB
5.875	2027	BBC World Service	G	rus	25222	HB
5.895	2032	Radio Rossi	RUS	Rus	33333	HB
5.915	2034	Radio Slovakia Int.	SVK	Fre	45434	HB
5.930	2036	Radio Prague	CZE	?	35333	HB
5.945	2037	ORF Radio Austria Int.	AUT	Ger	54444	HB
5.950	2050	Radio Canada Int.	CAN/S	Eng	54445	BC
5.955	2039	R. Free Europe/Radio Liberty	USA	Rus	55455	HB
5.965	2042	Voice of Russia	RUS	Rus	43344	HB
6.005	2045	Deutsche Welle	D	ger	34333	HB
6.035	2047	Voice of America	USA	Eng	43434	HB
6.040	2054	Voice of America	USA/GRC	Eng	34433	SH
6.065	2049	Radio Sweden Int.	S	Eng	42333	HB
6.075	2052	Deutsche Welle	D	Ger	45434	HB
6.105	2054	R. Free Europe/Radio Liberty	USA	Rus	44334	HB
6.120	2004	YLE Radio Finland	FIN	Fin	34333	TW
6.195	2007	BBC World Service	G/CYP	Eng	45544	FW
7.190	2000	China Radio Int.	CHN	Eng	53434	VP
7.295	2020	China Radio Int.	CHN	Eng	45534	VP
7.310	2030	Voice of Russia	RUS	Eng	44544	SH
7.350	2035	Family Radio	USA/MOL	Eng	55445	BC
7.450	2025	Voice of Greece	GRC	Gre	55545	VP
7.500	2030	Radio Bulgaria	BUL	Fre	55555	VP
9.410	2048	BBC World Service	G/CYP	Eng	45534	SH
9.420	2030	Voice of Greece	GRC	Gre	55545	VP
9.445	2050	All India Radio	IND	Eng	44544	SH
9.500	2016	Radio Australia	AUS	Eng	25243	EM
9.570	2041	Radio Exterior Espana	E	Eng	33433	SH
9.600	2015	China Radio Int.	CHN	Eng	53554	VP
9.660	2004	Vatican Radio	CVA	Eng	33333	FH
9.680	2038	Radio Thailand	THA	Eng	44444	FH
9.725	2054	Voice of Vietnam	VTN	Eng	33333	FH
11.835	2045	Voice of America	USA/KWT	Eng	43334	BC
13.610	2022	Radio Damascus	SYR	Eng	25312	EM

MHz	UTC	Service	Country	Lang	SINPO	SWL
13.700	2026	Radio Canada Int.	CAN	Eng	33333	TW
15.295	2023	Adventist World Radio	USA	Eng	25232	EM
15.400	2045	BBC World Service	G/ASC	Eng	15421	SH
15.595	2010	WYFR, Okeechobee	USA	Eng	44444	SH
<b>2100-2200</b>						
5.800	2100	Radio Bulgaria	BUL	Eng	55555	VP
5.850	2147	Radio Canada Int.	CAN	Eng	44444	EM
6.025	2105	Radio Budapest	HNG	Eng	55555	VP
6.065	2137	Radio Sweden Int.	S	Eng	44444	FH
7.130	2154	Radio Tirana	ALB	Eng	33333	FH
7.350	2125	WYFR, Okeechobee	USA	Eng	55555	JM
7.420	2154	Radio Ukraine Int.	UKR	Eng	33333	FH
7.935	2110	China National Radio 1	CHN	Chi	54444	VP
9.525	2140	Voice of Turkey	TUR	Eng	44243	EM
9.770	2148	Radio Canada Int.	CAN	Eng	24122	EM
9.990	2150	Radio Cairo	EGY	Eng	35323	EM
11.760	2114	Radio Havana Cuba	CUB	Eng	33333	JM
15.205	2128	Deutsche Welle	D	Eng	44444	FH
<b>2200-2300</b>						
5.840	2206	Radio Ukraine Int.	UKR	Eng		EM
6.025	2205	Radio Budapest	HNG	Eng	44444	SH
6.100	2209	Int. R. of Serbia and Montenegro	YUG	Eng	44132	EM
6.205	2201	BBC World Service	G/SNG	Eng	35433	JM
7.105	2207	Radio Minsk	BLR	Eng	43343	EM
7.410	2204	All India Radio	IND	Eng	35233	EM
9.445	2213	All India Radio	IND	Eng	44444	FH
9.625	2210	Canadian Broadcasting Corp.	CAN	Eng	22222	JM
9.705	2252	All India Radio	IND	Eng	34132	EM
9.720	2204	Deutsche Welle	D	Eng	44444	FH
9.950	2205	All India Radio	IND	Eng	35323	EM
12.160	2247	WWCR, Nashville	USA	Eng	45344	EM
15.800	2240	Radio Taiwan Int.	TWN	Eng	34433	JM
<b>2300-0000</b>						
5.920	2340	WBOH, Newport	USA	Eng	35343	JM
6.135	2310	Radio Romania Int.	ROU	Eng	54444	SH
7.275	2316	Voice of Turkey	TUR	Eng	55555	EM
9.475	2330	WWCR, Nashville	USA	Eng	44444	JM
9.625	2335	Canadian Broadcasting Corp.	CAN	Eng	23332	JM
9.645	2347	Radio Romania Int.	ROU	Eng	44444	FH
9.700	2339	Radio Bulgaria	BUL	Eng	44444	FH
9.905	15360	Radio Free Asia	USA/PLA	Chi	43433	RI
11.620	2314	All India Radio	IND	Eng	33333	FH

DKers:-	JM	Jim Murdock
BC	RI	Rhoderick Illman
EM	SH	Simon Hockenull
FH	SHH	Sheila Hughes
FW	TW	Thomas Williams
HB	VP	Vic Prier

## Equipment Used:

Bernard Curtis - Realistic DX-390 + outdoor wire  
Charles Hendry - Sony ICF-M400L  
Eddie McKeown - Grundig YB400 + whip  
Francis Heame - Sharp WQ1370 or Yaesu FRG-7 Vega Selena + wire  
Fred Wilmshurst - JRC NRD-525 + indoor wire or Sony 2001D  
Harry Richards - Grundig Satellit 700 + Datong AD-270 or Yacht Boy 400 + wire  
Henry Brice - Roberts R9914  
Jim Murdock - no info  
Peter Pollard - Sony ICF-2001D + whip  
Phil Townsend - AOR AR7030 + amplified frame  
Rhoderick Illman - Kenwood R-5000 + wire or Sony AN1  
Sheila Hughes - Panasonic DR48 or Sony ICF-7600DS + 16m outdoor wire or home-brew loop  
Simon Hockenull - Grundig YB400 + whip  
Thomas Williams - Grundig YB400 or YB206  
Vic Prier - Fairhaven RD500VX + Datong AD-270 or vertical

**The SINPO code is used for broadcast station reports, here is an explanation of the code.**

**Signal Strength**  
5 excellent  
4 good  
3 fair  
2 poor  
1 barely audible

**Interference**  
5 nil  
4 slight  
3 moderate  
2 severe  
1 extreme

**Noise**  
5 nil  
4 slight  
3 moderate  
2 severe  
1 extreme

**Propagation Disturbance**  
5 nil  
4 slight  
3 moderate  
2 severe  
1 extreme

**Overall Merit**  
5 excellent  
4 good  
3 fair  
2 poor  
1 unusable

# DSP Noise Cancellation Products from

## Say goodbye to annoying QRM and QRN!

# bhi

### NES10-2 MkII DSP SPEAKER



- New on/off audio bypass switch
- Dip switch setting for 8 filter settings
- Handles up to 5W input
- Max 2.5W output
- Requires 12 – 24V DC at 500mA max
- Use mobile with cigarette lighter adaptor

Also available is the **NES-5** basic plug and go model which offers a fixed level of DSP noise cancellation with the same dramatic noise reduction, priced **£79.95**.

**£99.95**



### NEIM1031 NOISE ELIMINATING MODULE

- Noise attn – 9-35dB
- Noise attn levels 8
- Audio output power 2.5W RMS max (8Ω)
- Audio connections: Line level in/out (RCA phono), audio in/out 3.5mm mono jack
- Line i/p impedance 10K
- Line o/p impedance 100Ω
- Line in sensitivity 300mV -2V RMS
- Headphone socket 3.5mm mono jack
- Headphone power 2.5W RMS max
- Power 12-24V DC 500mA
- Size: 170 x 85 x 34mm
- Weight: 265g

**£129.95**

**LSPKR** 20 watt extension speaker ..... **£19.95**

### NEDSP1061 DSP MODULE



- 4 levels of noise cancellation (11-35dB)
- Single button operation
- Low distortion to audio signal
- Visual and audible indication of DSP level
- Input and output signal level adjustment
- Small size – 27 x 37mm

**£89.95**

A small PCB module that allows the bhi noise cancellation technology to be fitted into existing equipment. Different DSP levels are selected with a single button, along with visual and audible indication of which level has been selected. Controls are provided onboard to set the input and output levels from the DSP to allow the matching of signal levels.

Fitting instructions already available are: **FT-817, TS-50, DX-77 and Generic.**

### 1042 SWITCH BOX



- 6x inputs: 3x loaded (8Ω speaker level)
- 3x unloaded (headphone/line level)
- 1x output (to speaker/module)
- All sockets 3.5mm mono
- Includes two free 3.5mm mono to 3.5mm mono plug leads

Allows connection of up to 6 pieces of equipment to one extension speaker.

**£19.95**

### Wonder Wand

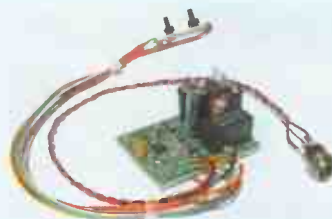
Portable rig-mounted antenna



- Covers 40m to 70cm
- Easy to switch bands
- Compact and easy to use
- Handles up to 25 watts
- Connects via integral PL259 connector
- Can be used with most QRP rigs

**£89.95**

### NEDSP1062-KBD AMPLIFIED DSP MODULE



- 4 or 8 levels of noise cancellation (selectable)
- Audio by-passed when switched off or power removed
- 3 watts output (4Ω)
- Supply voltage 12 – 18Vdc (500mA max)
- Small size 50 x 37mm
- Bandwidth 50Hz-4.3kHz

**NEDSP1062-KBD £99.95**

The modules are simply inserted into the loudspeaker path. The NEDSP1062-KBD comes supplied with the fitting kit, labels, fused DC power lead and installation instructions.

Optional extra: 1030-UKPA 12V DC power supply **£9.95**  
Can also be used with the NES5, NES10-2, NEIM1031.



### TCS

TCS – Tuneable Counterpoise for use with the Wonder Wand and other QRP antenna.

**£59.95**

**WWand Offer** – Wonder Wand & TCS only ..... **£139.90**



### FT-STAND

FT-817 mounting stand that simply clicks into the strap bracket. Features non-slip feet and is fully adjustable for the optimum operating position.

**£14.95**

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**Website: www.bhi-ltd.co.uk E-mail: sales@bhi.ltd.co.uk**



# Bandscan

Europe

● **Martin Peters** do SWM Editorial Offices, Arrowsmith Court, Broadstone, Dorset BH18 8PW  
● **E-mail:** martin.peters@pwpublishing.ltd.uk

**T**he 40m amateur radio band allocation in the UK and Ireland doubled in size overnight on 31 October. The band now runs from 7000 to 7200kHz meaning that the new extension (the top 100kHz) is shared with broadcasters. Amateurs enjoy so-called secondary status for now, meaning that interference must not be caused to the primary users.

By March 2009 broadcast stations will have vacated this part of the band leaving it for the exclusive use by the amateur fraternity. So far, the two services seem to be living in harmony. Already there are few radio stations broadcasting there during daylight hours. Consequently, the band is a quiet haven for inter-UK communication.

At night the reverse is true with almost every channel occupied by broadcast stations with very little amateur activity interleaved. Radio Amateurs in Croatia, Norway and San Marino also currently have access whilst Switzerland is scheduled for January.

## DTT In France

A press release from the European Broadcasting Union (EBU) proclaims that French Prime Minister Jean-Pierre Raffarin has announced that digital terrestrial television (DTT) will be introduced in France in March 2005, trebling the number of terrestrial free-to-air channels at a stroke.

Following a meeting with representatives of France's broadcast media watchdog, Mr Raffarin announced yesterday that the initial offer of free DTT channels would be in MPEG2 format. A decision regarding the format to be used for subscription-only channels to be launched later - either MPEG2 or MPEG4 - would be made before the end of this year. From UK regulator, Ofcom, a press release reveals that by June 2004, more than 55% of UK households were capable of receiving digital television.

Freeview was the largest contributor to growth, adding more than 400,000 households. This bodes well for the anticipated switch-over to digital. The BBC and the government are planning a rolling programme of switching analogue signals off and replacing them with digital transmissions. This is due to begin in 2008 on a regional basis so that by the end of 2012, switch-over should be complete.

Meanwhile, Ofcom's eagerly anticipated a.m. review, scheduled for release anytime now, is expected to encourage the use of DRM on medium wave. With near-f.m. quality possible over narrow bandwidth, a.m.

channels, the technology promises to breathe new life into the band, seen by many as lo-tech and lo-fi, with listeners turning in ever larger numbers to alternative platforms.

Virgin Radio is known to be interested (see last month's 'Digital Radio European' feature) and have made their wishes known. They are likely to receive a sympathetic hearing from Ofcom, who also plan a raft of large-scale, regional DRM services.

DRM broadcasters need not be bundled into a multiplex, dependent on whether the national or local provider wishes to carry them. Instead, each station can come up on air as a stand-alone service, completely independent of such gatekeepers, thus providing lesser broadcasters with a mechanism to reach their audience via a digital medium.

## Press Release

An interesting press release from the Digital Radio Mondiale consortium reads as follows:

"The Steering Board of the Digital Radio Mondiale (DRM) consortium has decided to bring a proposal to the DRM General Assembly to change the DRM Consortium Agreement to allow work to start on extending the DRM system to the frequency bands up to 120MHz. Currently, the DRM system covers the broadcasting bands below 30MHz.

The Steering Board decision was made at its latest quarterly meeting, held in Dallas on 11 November. The proposal will be on the agenda at the next DRM General Assembly meeting, scheduled to take place in March 2005".

Unfortunately, there was no additional information explaining why this extension is to be sought. One must presume that DRM are looking to launch a v.h.f. outlet for their technology, possibly even on Band II. A 1MHz-wide slice of spectrum could accommodate 100 stations at a quality not that far removed from UK DAB. An attractive prospect.

Macedonia is the latest country scheduled to dip its toe into the DRM water with some medium wave test transmissions. The broadcasts on 810kHz, were planned for 0100-0400 between 21 and 26 of November.

Exclusive to Dixons and Currys, an "innovative, cost-effective 'plug and play'

device that enables consumers to upgrade their Hi-Fi's to DAB digital radio capability". The £60 DAB Audio Adapter, compatible with any audio device with an 'AUX' input socket, is really a DAB receiver equipped with line level outputs so that users can simply plug it in to experience digital radio.

It is predicted that digital radio listeners in the UK could reach one million by the end of the year. If consumer take-up continues at its current levels, there will be more than 13 million DAB digital radios in homes by 2008, a third of the UK population.

A quick search on 'Google' threw up an Acoustic Solutions portable DAB receiver for



under £50. As prices continue to fall, the future of DAB seems assured. This is maybe just as well, as Ofcom has confirmed that it will not, after all, undertake the long-awaited f.m. spectrum review, according to a report in *The Radio Magazine*.

Consequently, no new licences, except for the 35 or so on the current working list, will be issued. Ofcom says that it took the decision in the best interest of the current commercial radio industry, fearing that any review would result in existing services having to change frequency.

## Final News

Two last snippets: a report carried in the Portuguese press speculates that Radio France International is considering closing its Portuguese service. The thin end of the wedge for RFI? Let's hope not.

Finally, Radio Caroline has moved to a new frequency on the *Eurobird 1* satellite at 28.5°E. They are now to be found on 11.390MHz, vertical polarisation with a symbol rate of 27500 and an FEC of 2/3. Caroline's switch to this new transponder provides a better signal listeners on the European mainland.

That's it for another year. A happy, healthy and peaceful 2005 to one and all.

SAVE £20

### MAYCOM FR100

#### Civil & Military HANDY AIRBAND SCANNER

- 66-174, 420-470 MHz
- AM/FM/WFM
- 150 Memory Channels
- S meter bargraph
- 3 x AA cells (not supplied)
- Supplied c/w:
  - SMA antenna
  - Belt clip
  - Carrying strap

Maycom FR100 SPECIAL PRICE £79.95

LIMITED OFFER

£99.95 £79.95



- Airband: 108-136.975MHz VHF: 136-180MHz
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# **DXTV Special -**

## **Long-Distance TV & FM Reception**

***Keith Hamer and Garry Smith get lots of feedback from their regular column and although many readers are intrigued by the reception reports, they are not convinced how easy it is to participate in the hobby. In this article Keith and Garry will discuss the more practical aspects of long-distance reception such as choosing the right equipment in order to provide a cost-effective, but highly efficient, set-up.***

**T**he hobby of receiving such distant signals is known as TV DXing with the random and unpredictable behaviour of reception providing the main fascination. There is also the technical challenge of capturing a stray broadcast intended for a limited viewing audience hundreds of km away or even on another Continent.

Most readers will be familiar with the mechanism of satellite reception where signals are deliberately redirected from an orbiting craft from the edge of space back to Earth to target an audience at a distance far in excess of what terrestrial transmission can reach. Terrestrial signals leave the Earth at a tangent and continue into space but occasionally atmospheric disturbances can create reflective layers, which intercept the signals and return them to Earth, sometimes thousands of km away from their source.

The 'collectable instinct' also plays a part among enthusiasts and it can be rewarding ticking off transmitters one by one until the full compliment is obtained. Identifying the reception is all part of the fun, but it should be done with care: just because there is a camel on the screen doesn't mean it is Egypt. There are test card hunters, where the sight of a test pattern will probably be more appealing than a Page 3 pin-up!

### **Technical Barriers**

Since the demise of the v.h.f. 405-line system in the United Kingdom, broadcasting is now confined to the u.h.f. band (Channels 21 to 68), whereas in most other countries v.h.f. bands I (40-70MHz) and III (175-230MHz) are still widely used. This means that a typical UK TV receiver or video recorder can only access u.h.f. channels. There are exceptions - some of the more upmarket TV receivers and recorders include v.h.f. tuning as

standard, but it is often difficult to tell this from the scant manufacturers' technical literature that is available.

### **Sporadic-E Activity**

For many enthusiasts, Band I provides the most fascination for long-range reception with activity throughout the summer months. This is due to a phenomenon known as Sporadic-E in which ionised layers form approximately 100km above the Earth's surface, intercepting and refracting TV signals back to Earth which would otherwise leave the Earth at a tangent and continue into space. The ionised layers are unstable and unpredictable in formation, which means that duration, direction and signal-strength varies constantly.

A skip-distance is involved, which means that transmitters located typically 1000km or more from the receiving site are frequently encountered while those closer to home rarely appear. Transatlantic or Middle East reception is possible at times. As Sporadic-E signals arrive at a low angle, signals can penetrate valley locations where distant reception is often thought impossible.

Sporadic-E activity is purely random and its occurrence is difficult to accurately predict. Reception can be brief, lasting only minutes, though openings in excess of 24 hours are not unknown, especially in the height of the season, normally June and July in the northern hemisphere. Sometimes signals can be absent for days at a stretch, so if at first you don't receive anything, just be patient and keep trying.

During intense disturbances, the f.m. band can become active and, on rare occasions, the 2m amateur band. Sporadic-E in Band III (175-230MHz) is not unknown but for the beginner, it would be advisable to concentrate on Band I or the f.m. band. For TV reception, all that is required is a receiver covering Band I, fed from a suitable antenna.

### **Tuning**

Dial or thumbwheel tuning is desirable for ease of operation, particularly in Band I where non-standard channel allocations exist. Avoid automatic search tuning which can be a hindrance and very confusing in operation. There are some receivers where channels or frequencies can be entered directly via the remote control keypad, but these are more suited to u.h.f. DXing where channel allocations are standard. The same remarks apply to video recorders.

### **Receivers**

A multi-system receiver may at first seem the ideal choice for DXing but as Sporadic-E propagation can be frequency selective, colour and sound may be absent for much of the time and facilities will be wasted. The complications of search-tuning and the dreaded 'blue-screen' video muting make these receivers more suitable as a supplementary receiver during bouts of strong stable reception.

TV cards for PCs suffer from the above shortcomings too, not to mention

radiation pick-up from the PC and monitor, so they are best avoided as a main receiver. Many High Street catalogue stores, garages and novelty shops stock small monochrome portables at prices usually lower than the cost of a computer printer's ink cartridge!

Most sets feature a simple dial or thumbwheel tuning system and cover v.h.f. Bands I and III as well as u.h.f. Examine the tuning scale before you buy - u.h.f. is marked 21 to 68, Band I (Lo-band v.h.f.) 2 to 4 and Band III (Hi-band v.h.f.) 5-12. Occasionally the channels are marked 1-3 and 4-11 depending on the country of origin or destination.

Such a receiver is a cheap and an easy way of getting into the hobby but most will only resolve the UK 6.0MHz sound-spacing, but this is no hardship if a scanner is at hand to monitor the overseas spacings of either 5.5MHz (most of Western Europe) or 6.5MHz (Russia plus CIS and Eastern European countries).

### Specialist Tuning System

Band I has the legacy of countries adopting exclusive channel allocations which means that during busy reception periods the band will become crowded with lots of vision carriers lying close to one another. A modern TV receiver has an inherently wide vision i.f. bandwidth of around 6MHz but if used for DXing it will 'see' several adjacent channels simultaneously, resulting in pictures floating over one another.

For over two decades, a dedicated and very popular external tuning system, known as the D-100 DXTV Converter, has been enjoyed by countless enthusiasts throughout the World. Its main attraction is its ability to restrict the i.f. bandwidth thus enabling a smaller band of frequencies to be 'seen', resulting in the rejection of unwanted adjacent carriers. During some openings, adjacent channels with only a slight frequency deviation have been successfully resolved on an individual basis. Another benefit of bandwidth reduction is reception threshold improvement allowing weak signals to be resolved which would normally be lost in the noise using a wide i.f. bandwidth.

The D-100 converter features an independent sound tuning system allowing any sound spacing used throughout the World to be married to the picture when fed into an f.m. receiver. Other non-TV carriers can also

be accessed such as f.m. links and the former OIRT f.m. band (62-72MHz). An alarm version is available for unattended monitoring during lulls in reception.

Although more expensive than the small-screen TV, the results are far superior. A budget version (the D-500) boasts similar narrow-bandwidth performance but for vision-only reception tailored to the 45-85MHz spectrum.

### Miscellaneous Devices

Some older video recorders available in the UK featured thumbwheel tuning with v.h.f. access as standard. Such a recorder could be used as a crude converter with signals viewed on the TV receiver; this would also allow the recording of pictures but not sound.

Early communal antenna systems distributed 625-line broadcasts at v.h.f. frequencies to preserve losses and a device known as an up-converter was widely available to allow the conversion of these signals to u.h.f. Their effectiveness for DXing was always questionable and personal experience found that patterning and lack of sensitivity always caused problems.

### Band I Antennas

Sadly, once a receiver is purchased the temptation is to neglect the antenna. Odd lengths of wire, screwdrivers, unearthed central heating pipes and even Grandma's wet woolly vest will all perform as an antenna when signals are strong. Element length is important so, don't be tempted to use an f.m. array (87-110MHz) for receiving Band I (48-70MHz) signals. It will work but not as efficiently as a proper Band I array.

A Band I antenna can be anything from a simple loft dipole, approximately 2.6m in length, to a rotatable outdoor multi-element Yagi. Although larger than a dipole, the Yagi provides superior performance as it has gain and when rotated it can reject co-channel signals arriving from other directions. Multi-element Band I antennas used to be a common sight in the UK in the days of 405-line TV so don't be deterred by size.

Mount the antenna with the elements horizontal as most overseas transmissions are horizontally polarised. Two dipoles can be mounted



**Fig. 1 (far left):** A compact u.h.f. wideband panel grid (Blake UK Limited).

**Fig. 2 (left):** George Garden's installation for tropospheric reception comprising of a Triax-100 Continental-style Yagi for u.h.f. (top), a four-element f.m. array and a vertical 9-element log-periodic DAB array.

**Fig. 3 (below right):** A robust DAB dipole (SAC Electronic Products Limited).

**Fig. 4:** Kevin Hughes' installation comprising of a compact VF-100 array (HS Publications) for Bands I, II and III plus a separately rotatable PRO-75 u.h.f. array (Televés), with a built-in amplifier.



horizontally at 90° and coupled together to provide a reasonable all-round coverage, fed to individual receivers or made switchable to select the desired direction. Polarisation shift can sometimes occur and an additional vertical dipole could be used to good advantage.

You can build your own antenna but the correct hardware can be difficult to obtain these days as Band I arrays are no longer mass-produced in the UK. A waterproof connector box and the appropriate type of alloy tubing are vital if it is to be used outdoors. Robbing an f.m. array of its components may seem a solution but the parts are normally smaller and too flimsy for correct Band I antenna construction. Height isn't too important as signals arrive at a slight angle but avoid situations where the antenna is beaming directly at an obstruction.

### Amplification

Amplifiers can be more of a hindrance for Band I reception due to the many unexpected sources of high-level interference both in-band and out-of-band. In practice, an amplifier makes very little perceived difference to weaker images in Band I, although one could be useful where the signal needs to be split and distributed to several receivers tuned to different channels.

### Notch Filters

A Band I notch filter is a 'must'. The main source of aggravation is around the Russian Channel R1 vision frequency at 49.75MHz where bedroom bugging devices, affectionately known as baby monitors or baby alarms, operate. Strong multiple carriers render this channel virtually useless unless a notch filter is used. Despite a small insertion loss, they really do work, making all the difference between seeing or totally missing an image.

### FM DXing

During intense openings the m.u.f (maximum useable frequency) can rise well into the f.m. band (87-110MHz). An f.m. receiver with RDS is

recommended and some upmarket tuners are available with a switched i.f. response for normal or narrow bandwidth to improve channel separation and sensitivity.

An f.m. dipole or even the rod antenna can be used during strong bouts of reception but for serious work a horizontally mounted multi-element beam should be considered, preferably rotatable. Special antennas embracing the 48-110MHz spectrum are available, which permit both TV and f.m. DXing.

### Tropospheric Reception

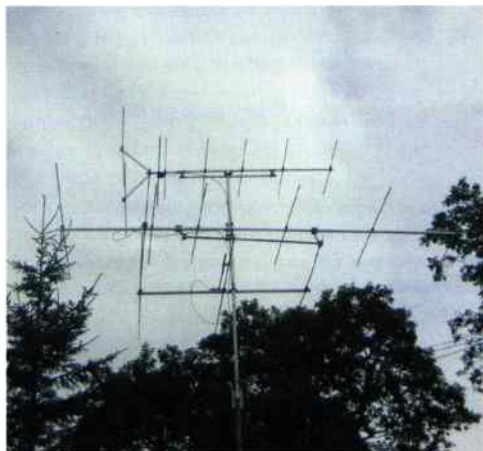
During periods of anti-cyclonic weather conditions, TV, f.m. and DAB signals can travel beyond their intended target area, but unlike Sporadic-E reception, where a skip-distance is involved, the signals tend to follow the curvature of the Earth. This means that enhanced reception of fringe area stations will be the first indicator that overseas reception may be possible.

Anti-cyclonic weather conditions can occur at any time of the year and by following the development of high-pressure systems on weather charts the chances of reception can often be predicted. Enhancement can last for several days with the best reception emerging in the evening through to morning.

Signals in the f.m. radio band, Band III and u.h.f. are more favourably propagated with Band I to a lesser degree. Much of the reception will be limited to the near continent, i.e. France and the Benelux countries but during intense enhancement, distant countries such as Poland and the Czech Republic can appear. Tropospheric propagation is much more stable than Sporadic-E and, depending on signal strength, colour, sound and text are resolvable.

### Band III & UHF Antennas

Tropospheric reception should be treated as 'super fringe' but there are few situations where massive antennas can be installed without scaring the neighbours witless, so concentrate on creating a reasonably-sized but efficient installation. A rotatable system is recommended.

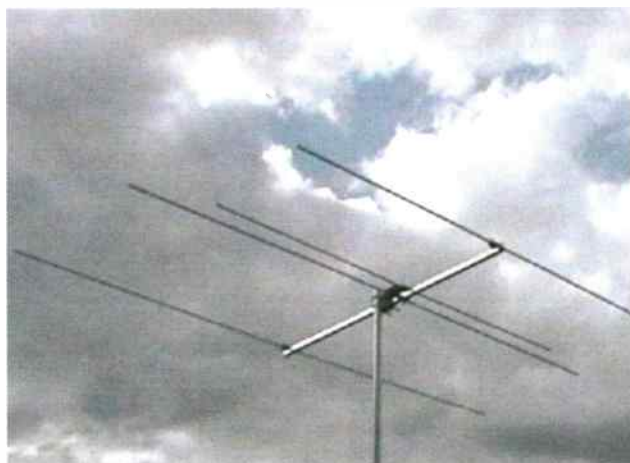


*Fig. 5 (far left): David Hamilton's lattice mast supporting two home-built f.m. arrays (top and bottom) and a custom-built array (HS Publications) for US Channels A2 to A4 (55-80MHz).*

*Fig. 6 (left): A screened Band I tuneable notch filter module, essential for removing baby alarms from around 49.75MHz.*

*Fig. 7 (right): A 4-element Band I array VF-1004 (HS Publications), which is ideal for chasing the weaker signals.*

*Fig. 8 (far right): A waterproof connector box, essential for outdoor antennas.*





A five or six-element array is quite adequate for Band III DXing, while at u.h.f. the choice tends to be a wideband panel grid or the Continental-style 'long' Yagi with its director chain. Both antennas have their merits - the grid is compact, cost-effective and visually acceptable with reasonably level gain throughout the u.h.f. spectrum.

The larger Yagis can be 2.5m or more in length but can achieve a higher gain, particularly at the upper end of the u.h.f. band, where directivity is at its sharpest. Having experimented with various arrays for more than thirty years, the panel grid has always been a firm favourite for general all-round performance, even though it is less directional when compared with the Yagi. Several manufacturers produce both types of arrays although the quality of construction varies.

Some d.i.y. shops sell wideband arrays which resemble the simple standard domestic antennas which are installed in good signal areas. Avoid these at all cost!

### Amplifiers

Adding a mast-head amplifier will perk-up performance in Band III and u.h.f. but the temptation is to be too ambitious and over-amplify which can invite serious problems such as cross-modulation and instability. Choose an amplifier with a low noise figure rather than the highest gain. Keep the system as simple as possible, using separate downleads and separate amplifiers to avoid signal mixing.

If you live close to a main transmitter then local signals will also be amplified and may drive the amplifier into cross-modulation, resulting in lines and false images throughout all or part of the band. In such cases, experimentation is the key factor and it may be that the amplifier is more useful when connected at the set-end on an 'as-and-when' basis as some channels or parts of the band may amplify without problems.

### UHF DXing

A normal UK TV can be used for u.h.f.-only DXing, although overseas sound cannot be resolved. Colour reception is possible provided that the

broadcasts are PAL; Russia and some Eastern European countries still use SECAM. Vision frequency allocations are standard throughout Europe, so a receiver where the 'real' channel numbers (e.g. '40') can be entered would be a bonus.

### French Reception

French broadcasts are difficult to resolve because the vision modulation sense is different to any other country, i.e. positive instead of negative-going. Pictures received on a non-French receiver will resemble a photographic negative, usually with unlocked white sync bars but many DXers use this characteristic to identify French stations. French sound is also incompatible with any other TV system as it is a.m. (amplitude modulated) rather than f.m. inter-carrier sound.

The D-100 will invert the video sense when French signals are strong allowing them to be viewed on a normal receiver, but the only reliable way to view French broadcasts in colour is to obtain a multi-system receiver featuring the French System 'L' standard. If you live in the south-east where French signals are common, then such expense may be justified.

Another option would be to nip over to France and purchase a budget French video recorder. The recorder will decode the French signals with normal sound and video retrievable via the SCART socket, but the SECAM signal would not be converted to PAL. Note that French 'Canal Plus' broadcasts in Bands I and III are encrypted.

### Band III Problems

As with Band I, vision frequencies in Band III are interleaved depending on which channel plan was adopted by individual countries. To make matters worse, the UK introduced p.m.r. to Band III in the Eighties with multiplexes arranged in blocks with a guard-band between, designed to protect the closer European TV broadcasts from interference. It goes without saying that a reduced vision i.f. bandwidth will make reception easier in this band.



Fig. 9 (far left): The VF-500 13-element array for Bands I, II & III with a boom length of 3m. A compact 8-element version, the VF-100, is available with a boom length of less than 2m.

Fig. 10 (left): Tony Jones' 'business end' featuring a D-100 converter and small-screen monitor for weak-signal work plus a multi-system TV for stronger openings. The video recorder extracts sound and video via the TV SCART socket.

Fig. 11 (far right): Kevin Hughes' set-up with a D-100 converter feeding a Roadstar 10in portable. Indoor amplifiers from Antiference and Fringe Electronics are at the ready to connect when strong local broadcasts from the nearby Sutton Coldfield and Lichfield transmitters allow!



Fig. 12 (right): A typical tuning dial to look out for. Note that in this example, Band I is marked Channels 1 to 3 and Band III, 4 to 11, implying that the receiver may have been intended for the New Zealand market.

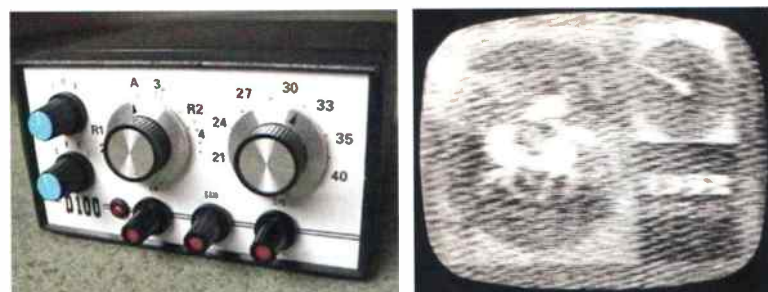


Fig. 13 (far left): The D-100 DXTV Converter with variable vision i.f. bandwidth reduction.

Fig. 14 (left): A Danish clock caption lurks beneath patterning on 55.25MHz (Channel E3).

## Receiver Summary

Many DXers find a combination of receiving equipment useful: the D-100 converter with its reduced bandwidth for weak and difficult reception conditions and a multi-system TV for when signals are strong and stable.

Video recordings can be made directly via the SCART socket of a multi-system receiver using a standard recorder. The audio and video signals are at baseband and are not influenced by the transmission standard. Even SECAM recordings can be made on many standard machines but the colour will only be resolved via a SECAM receiver.

## Digital Reception

DAB reception from Europe is possible during enhanced tropospheric conditions but unlike analogue reception, a certain signal level has to be breached before the receiver will reveal the digital transmission. The use of an outdoor antenna is recommended and will increase the chances of reception.

DAB transmissions are vertically polarised and the element rods should be vertical. A dipole is the simplest antenna and will provide all-round coverage although directional antennas with several elements will deliver a stronger signal but some form of rotation will be necessary.

Long-distance digital TV reception looks bleak, even from other UK transmitters, because the chances of finding a clear channel during enhanced conditions are extremely slim. The u.h.f. spectrum is already bursting at the seams and co-channel signals (analogue or digital) will disrupt the digital transmission.

As with DAB reception, a certain signal level has to be attained before the broadcast is revealed. Most DVB-T receivers are not exactly 'DXer friendly' with the ubiquitous automatic search-tuning taking several minutes to collect signals which it decides are suitable. If anyone has successfully resolved long-distance digital broadcasts in the UK, we look forward to hearing of your experiences!

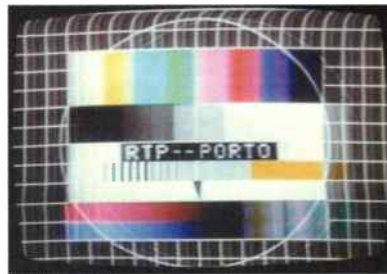
*Fig. 15 (below): Excellent-quality reception from The Netherlands at u.h.f. during a tropospheric opening.*



*Fig. 16 (below): Part of a Norwegian News programme opening sequence from NRK captured during tropospheric reception in Band III.*



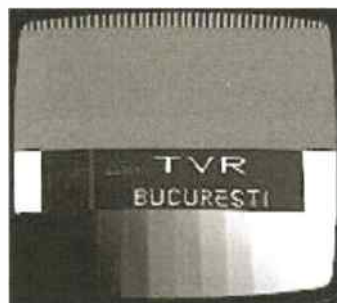
*Fig. 17 (below): A colourful Portuguese test card poses during a stable Sporadic-E opening.*



*Fig. 18 (right): The News At Six, Russian-style, seen in the UK on 49.75MHz (Channel R1).*



*Fig. 19 (middle): Typical Sporadic-E reception during an unexpected out-of-season opening.*



*Fig. 20 (above right): The evening News programme from Moldova on 59.25MHz (Channel R2).*

*Fig. 21 (far left): The monochrome EBU Bar from TVR in Rumania.*

*Fig. 22 (left): Tropospheric enhancement from a German transmitter.*

## Site Evaluation

Since the introduction of digital TV in November 1998, each main transmitter has gobbled up six extra channels which may have otherwise been clear for DX reception. It should be noted that a digital multiplex appears invisible to the untrained eye and a channel which appears to be completely clear may be totally blocked by strong digital signals.

This means that u.h.f. DXing is more of a challenge nowadays but with the aid of transmitter lists, simple research and patient experimentation, reception needn't necessarily be impossible. If distant ITV regions can be detected using a search antenna and amplifier then this may provide some idea of whether you have a reasonable take-off.

Valley locations which are open towards the Continent may provide shielding from transmitters which would otherwise impede reception.

## Mobile DXing

Mobile DXing is a hobby in itself and if you live in a disaster location then this may be the only way of receiving tropospheric signals. However, a trip to the mountain tops on a cold foggy November night is not everyone's cup of tea!

Some of the more productive and well-patronised elevated sites to explore for TV and f.m. signals, even under flat conditions, include Beachy Head (East Sussex), Axe Edge (near Buxton, Derbyshire), Middleton Top and Alport Heights (near Wirksworth, Derbyshire), Mow Cop (north of Stoke-on-Trent), Great Orme's Head (Llandudno), the Malvern Hills (Great Malvern) and Portland Heights (Dorset).

For mobile u.h.f. DXing, a panel grid is ideal and, unlike the long Yagi antennas, it can be shoved into the car boot without dismantling and is ready for action within seconds. It can be hand-held but for long-term comfort and the freedom to be able to operate the receiver and refer to transmitter listings, etc., a simple base or stand can be made to fit on top of the vehicle roof.

A low-noise amplifier, such as the Fringe Supreme wideband model provides excellent results, even close to main transmitters, and this can be powered from the vehicle's 12V supply via a suitable d.c./r.f. isolator or from an appropriate power unit fed from a 12 to 240V mains inverter. The inverter can also be used to power a portable TV and other low-current devices.

## Channel Allocations

Many novices are confused by references to Channels R1, E3, B, E2a, etc., in the reception reports of our regular column. History and politics have influenced the spectrum planning policies of various countries and it is a subject in itself.

In the early days of TV in Europe, there was a diversity of TV systems operating. The narrow-bandwidth 405-line system was used in the UK and Éire with five channels allocated in Band I, namely Channels B1 to B5. The French used 441-line and 819-line systems which had their own unique channel allocations. The greater bandwidth of the 819-line system meant that Band I could only support two channels.

Other Western European countries adopted 625-lines with a sound spacing of 5.5MHz (System B), where three channels could be accommodated comfortably within Band I, namely Channels E2 (48.25MHz), E3 (53.25MHz) and E4 (62.25MHz). What happened to E1 you may ask? This once existed in the 40-48MHz part of the spectrum, but it was never widely used, possibly only for experimental rather than regular broadcasts and was withdrawn before 1960. Russia and some of the Eastern European countries adopted a wider video bandwidth with a 6.5MHz sound spacing (System D) and so only two channels, R1 (49.75MHz) and R2 (59.25MHz), could be accommodated easily.

The prefixes give some indication as to the system used, namely, B = British, E = European, R = Russian, etc. Although Italy adopted System B with its 5.5 MHz spacing, it decided on a lettering system for channel numbering, i.e. A, B, C, etc. Just to confuse the issue, the Irish 625-line standard (System I) had lettered v.h.f. channels but their Channel B was on a different frequency to the Italian one!

Things were not much better in Band III but throughout Europe and Russia, u.h.f. channel numbering is standardised. Channel prefixes are still used, for example, Channel E21 (Western Europe), R21 (Russia, Poland, etc.) and L21 (France, System L) but these all share a common video carrier of 471.25MHz.

## Colour Systems

Politics had some influence over which colour system was adopted by the various countries. In Western Europe, the PAL system was chosen, apart from France which had to be different and decided on SECAM coupled to an obscure system with positive-going video and a.m. sound. Russia and the Eastern-bloc countries have always been staunch supporters of SECAM. Recently, however, some of these countries including Hungary, Poland and the Baltic States, changed to PAL. Many of these countries are also abandoning the former OIRT f.m. band (62-72MHz) in favour of the CCIR allocations between 87 and 110MHz.

## European Band I Channels

When tuning from the lower to the upper end of Band I, the following channels will be encountered in ascending order (see Fig. 1).

## Further Information

Hopefully, this article has provided an insight into the basics of long-distance reception and will tempt you into experimenting with DXTV. For a more in-depth look into the hobby, there are various unique publications available covering subjects such as hints and tips for beginners, improving DX installations, antenna erection and masts, data files with a world-wide TV systems directory, transmitter maps and listings. There are also specialist publications, videos and DVDs covering archive material such as vintage test cards from the 1960s and off-air reception from the mid-1980s.

● Fig.1

Channel	Vision Frequency (MHz)	Usage	System	Colour System
E2	48.25	Western Europe	B	PAL
R1	49.75	Russia and Eastern Europe	D	SECAM/PAL
E2A	49.75	Austria only	B	PAL
A	53.75	Italy	B	PAL
E3	55.25	Western Europe	B	PAL
L2	55.75	Corsica	L	SECAM*
R2	59.25	Russia and Eastern Europe	D	SECAM/PAL
L3	60.50	France	L	SECAM*
E4	62.25	Western Europe	B	PAL
B	62.25	Italy	B	PAL
L4	63.75	Corsica	L	SECAM*

\* Encrypted for much of the day.

## Specialist Supplier

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**Website: [www.test-cards.fsnet.co.uk](http://www.test-cards.fsnet.co.uk)**

Suppliers and designers of DXTV equipment including converters, Bands I, II & III arrays, custom-built antennas, filters, u.h.f. antennas, DXTV publications, transmitter listings, videos and DVDs. Archive TV publications (mainly BBC), vintage test card videos and DVDs. Illustrated catalogues are £1.25 or available free electronically via the website.

## Manufacturers & Trade Suppliers

**SAC (Electronic Products) Limited, Unit 6, Perkins Industrial Estate, Mansfield Road, Derby DE21 4AW, Tel: (01332) 348533.**

*DAB antennas, antenna combiners and splitters.*

**Blake UK Limited, 177/187 Rutland Road, Sheffield S3 9PT. Tel: (01142) 759729.**

*Domestic antennas and accessories.*

**Triax UK Limited, Thames Industrial Estate, Marlow, Buckinghamshire SL7 1TB, Tel: (01628) 488246.**

*Domestic antennas and accessories.*

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**Fringe Electronics Limited, Fringe House, 4 Highfield Road, Clipstone, Mansfield, Nottinghamshire NG21 9ER, Tel: (01623) 643802.**

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**Antiference Limited, Eastern Avenue, Lichfield, Staffordshire WS13 7SB, Tel: (01543) 267160.**

*Domestic antennas and accessories.*

**Maxview Limited, Setchy, King's Lynn, Norfolk PE33 0AT, Tel: (01553) 813333.**

*Domestic antennas and accessories including Tetra filters.*

# Dx

## Television

● Keith Hamer & Garry Smith

17 Collingham Gardens, Derby DE22 4FS

Sporadic-E activity throughout October was reasonable given the time of year and at least one opening confirmed that Spanish Band I transmitters were still operational. Chances of F2 propagation in Band I began to fade as the m.u.f. struggled to reach 35MHz. It's a sobering thought that F2 activity may not return to Band I until the end of the decade.

### Reception Reports

A Sporadic-E opening to Hungary was already in progress on 5 October when **Simon Hockenull** (Bristol) returned from work at 1750 and discovered a game show from RTL KLUB on Channel R2 from the Pécs outlet. Signal levels were strong and stable until they disappeared at 1805. Strangely, the signal could only be received via his loft loop antenna and not the main VF-100 array, which beams east. Then the penny dropped - Simon had forgotten to reconnect it after a severe thunderstorm a few weeks earlier. It's easily done, speaking from experience!

On the 10th, **Tony Jones** (Basildon) discovered TVR-1 (Romania) emerging on R1 at 1550, originating from the TVR-1 Cahul relay in Moldova. Around midday on the 23rd, Swiss and German pictures were battling on E2.

**Peter Barber** (Coventry) is able to devote several hours a day searching for signals. Patience paid off during October and on the 9th at 1008, a PM5534 test card, possibly from Sweden, was resolved weakly on E2. At 1037 on the 21st, blurred images materialised on R2. From 1050, paths were open to Italy with RAI UNO on Channel A and Spain with TVE-1 on E2 and E3.

At 1113 Tele A, an Italian private station,

was visible just below E2 on 47.720MHz. There were further Spanish pictures on the 30th with slow-fading signals from TVE-1 E3 from 1045. A pop music programme in widescreen format resembling *Top Of The Pops* was replaced at 1100 with miscellaneous views in standard format, which finally disappeared at 1104. There

were other instances of signals that were too brief in duration to identify.

**Stephen Michie** (Bristol) reports possible Auroral activity on the 22nd at 2314 on E3. The rest of the month was bleak, a complete contrast to October 1994 when Poland (TVP-2) was romping in on u.h.f. Channel R35 during intense tropospherics!

### Peak Viewing

This autumn, **Tim Bucknall** (Congleton) drove to Axe Edge near Buxton, Derbyshire and discovered an excellent take-off to the south-east. The contours to the north-west act as a shield which attenuates the 'nuisance' signals normally receivable in Congleton. One mystery was a viewable Channel 4 relay on E56 but only the Douglas (Isle Of Man) outlet at 2kW e.r.p. is listed. As the area is screened from the north-west this seems unlikely. A likely source is a self-help deflector in the Buxton area.

### Digital Viewing

A recent Ofcom report suggests that digital television penetration had increased to 55% of UK homes. The Government's hope and eagerness to axe analogue broadcasts sooner rather than later has always depended on this rising figure but it is misleading as it does not reflect the number of digital-only homes, which could

probably be counted on one hand!

Most homes have two or three receivers with video recorders, but when the axe falls, the cost of total conversion will mean an enormous burden on the viewer, not to mention the technical difficulties and technophobia particularly prevalent among the elderly. This is one aspect of switch-off that has not yet been successfully addressed or carefully researched.

### Test Transmissions

Test cards are still shown by some services, but their days are numbered due to the spread of wall-to-wall programming. **Stephen Michie** (Bristol) advises that the NED-3 network (Netherlands) shows two distinct test cards - the FuBK with 'ZENDER LOPIK' identification (from Lopik) followed by the widescreen PM5544 test card.

Spot checks throughout the night on the Belgian VRT TV1 network have revealed programme material, suggesting that this service no longer transmits the PM5544. The Irish 'One' and 'Network Two' services may also have abandoned test cards. Can any of our overseas readers confirm whether their services still air a test card even if it is broadcast during the night?

### Daily Belgian Reception

Thanks to a revamped set-up, **Kevin Hughes** (Tamworth) is now able to receive Belgian VRT TV1 E10 broadcasts from Wavre on demand, albeit weak and fluttery hovering just above noise level. Fortunately, living close to two main transmitters, there are few relays to block the channels. **Sandy Heath** is visible at reasonable level and should be a good indicator for tropospheric improvement. Sadly, Kevin missed out on the previous month's tropo extravaganza by one day but now seems well-equipped for future reception.

A weak fluttery station on Channel 30 has yet to be identified, but it is likely to be Channel 4 from Crystal Palace. This was receivable in Derby on a constant basis until a local 100W horizontally-polarised relay opened, which few people use.

### Service Information

**France:** The long-awaited DVB-T (digital terrestrial) service will be launched on 1 March 2005.

**Belgium:** The official launch for DVB-T is 2005.

**Germany:** ARD are to commence DVB-H (high-definition) trials in the Berlin area.

**United Kingdom:** Due to technical reasons, ITV News on Freeview Channel 41 has been suspended in some regions until early 2005.

This month's Service Information was kindly supplied by **Lionel Michelland** (Chambery, France).



Fig. 1: F2 reception on 49.75MHz in October 1978. This shot shows an unusual test card from the Black Sea area, possibly from the Rostov-na-Donu transmitter.



Fig. 2: Relatively clear F2 reception from China on 49.75MHz.



Fig. 3: A 30-year-old festive photo from the archives. The BBC-1 Christmas Identification Symbol used in 1974.

### Keep On Writing!

Please send your DXTV, slow-scan TV and f.m. reception reports, news, off-screen photographs and information to arrive by the first of the month to:- **Garry Smith, 17 Collingham Gardens, Derby DE22 4FS.** We can also use off-air pictures stored as JPG files on PC disks and good-quality video recordings.

Finally this month, don't forget our new-look DXTV and Archive TV website at [www.test-cards.fsnet.co.uk](http://www.test-cards.fsnet.co.uk)



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- 200 Memories
- 5 Tuning steps
- Fast scan speed
- Very sensitive
- Requires 4xAA cells (not supplied)
- Includes flexible antenna earpiece and carry strap

"BUDGET  
BARGAIN"

**£129 B**

### YUPITERU MVT7100

- 530kHz-1650MHz
- LSB, USB, AM, WBFM, NBFM
- 1000 Memory channels
- High Sensitivity
- Illuminated keypad
- High Speed search & scan functions
- Battery save function
- Priority channel
- Individual power/volume and squelch controls
- Free NiCad batts & charger, belt clip, earpiece and telescopic antenna

"STILL  
OUR BEST  
SELLER"

**£199 B**

Exceedingly Low Price!

### SONY ICF-SW-7600 SPECIAL OFFER

- 150kHz-30MHz (LW/MW/SW)
- 76-108MHz (FM)
- AM, SSB, CW (FM)
- 100 memory presets
- Audio output 380mW
- Supply: 4 x AA
- Size 190 x 118.8 x 35.3mm
- Weight 608g

**£119 B**



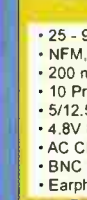
### UNIDEN BEARCAT UBC 3300XLT NEW



- 25 - 1300MHz with gaps
- NFM, WFM, AM
- 1000 Ch/10 Banks Memory system
- 10 Priority channels
- Turbo Search 300chs per sec
- 6V 600mAh Ni-Cd pack + AC charger
- LCD with back light
- BNC antenna socket
- Ni-MH Rechargeable battery (5hrs)

**£179 B**

### UNIDEN BEARCAT UBC 380XLT



- 25 - 956MHz with gaps
- NFM, AM (Airband)
- 200 memories
- 10 Priority channels
- 5/12.5kHz channel steps
- 4.8V 800mAh Ni-Cd power pack
- AC Charger
- BNC Flexible Antenna
- Earphone

**£159 B**

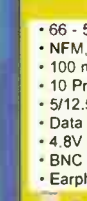
### UNIDEN BEARCAT UBC 220XLT



- 66 - 956MHz with gaps
- NFM, AM (Airband)
- 200 memories
- 10 band coverage
- 100 Ch/sec scan speed
- Priority channel
- 4.8V 600mAh Ni-Cd int.
- AC Charger
- BNC Flexible Antenna

**£119 B**

### UNIDEN BEARCAT UBC 120XLT



- 66 - 512MHz with gaps
- NFM, AM (Airband)
- 100 memories
- 10 Priority channels
- 5/12.5kHz channel steps
- Data skip (lockout channels)
- 4.8V DC Int. battery
- BNC Flexible Antenna
- Earphone

"GREAT  
PRICE"

**£99 B**

### PSR 282



- 66-88/118-137/137-174/380-512MHz
- Modes AM, FM
- Memories 200 (10x20)
- Search speed 50 steps/sec
- Scan speed 25Ch/sec
- 4xOne-touch search banks
- 8.33kHz steps in airband
- Audio 180mW into 8 Ohms int. spkr
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**£99.95 B**



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FREEPHONE ORDERLINE:  
08000 73 73 88



**UNIDEN BEARCAT UBC 40XLT-2**



- 66 - 512MHz with gaps
- NFM
- 80 memories
- 1 Priority channel
- 5/12.5kHz channel steps
- Data skip (lockout channels)
- 4x AA cells (not provided)
- BNC Flexible Antenna
- Earphone

**"BUDGET VALUE"**

**£69 B**

**ALINCO DJ X2000E "FABULOUS FEATURES"**

- 100kHz - 2150MHz
- AM, NFM, SSB, CW
- 2000 memories
- 23 tuning steps
- Channel scope
- Fully programmable
- 4.8V Ni-Cd battery pack
- 8-15V DC ext.
- Telescopic Antenna

**PAY 2005**

**£334 B**



**UNIDEN BEARCAT UBC 780XLT**



- 25-1300MHz with gaps
- NFM, WFM, AM
- 500 memories
- Analogue Trunk Tracking
- Alphanumeric display
- Automatic Tape recorder option
- Antenna BNC
- 13.8V DC 700mA

**PAY 2005**

**£279 C**

**AOR AR 5000A/AR 5000A+3 NEW**

The new AR-5000A now offers a frequency coverage of the entire radio spectrum that is practical to cover. The +3 version offers even more with synchronous AM (USB/LSB/DSB) AFC & Noise Blanker. \*10kHz-3GHz \*AM, FM, USB, LSB, CW \*2000 memories \*45 CH p/s scan speed \*Audio 1.7W (8 Ohms) \*Supply: 12V DC @ 1A \*217x100x260mm \*3.5kg



**PAY 2005**

**£1599 C**

**£1799 C**

**YAESU VR 5000 "DESKTOP RECEIVER"**



- 100kHz - 2599MHz
- FM, AM, SSB, CW
- 2000 memories
- Large digital display
- Real-time band scope
- DSP Noise & notch filters (Opt)
- Super HF performance
- Automatic Tape recorder option

**PAY 2005**

**£499 C**

**YAESU VR 500**

- 100kHz-1300MHz
- NFM, WFM, AM, USB, LSB, CW
- 1000 Memories
- 100 Skip channels
- Smart search feature
- 8 char. alphanumeric display
- Band scope
- PC programmable

**£199 B**



**YAESU VR 120D**

- 100kHz-1300MHz
- AM, FM, WFM
- Adjustable steps
- Over 600 memories
- Skip channels
- Smart search
- Alphanumeric tags
- Requires 2xAA cells

**£139 B**

**OPTOELECTRONICS X-SWEEPER NEW**

A fully featured nearfield receiver that displays analogue signals in spectrum format.

- \*30MHz-3GHz
- \*FM Analogue
- \*64x128 graphical display with white LED backlight
- \*20 memory banks, 100 freqs in each
- \*Sens: 100uV @ 500MHz
- \*Pwr: 8xAA alkaline or AC adaptor (optional) 12V DC 350mA
- \*Size: 203x108x22.5mm

**PAY 2005**

**£1399.95 C**



**ICOM IC R5**



- 150kHz-1310MHz
- AM, FM, WFM
- 1250 Memories
- Name Tagging
- AM Ferrite Antenna
- Civil & Military
- Emergency Services
- 2xAA cells (extra)

**£159 B**

**ICOM IC-R3 SCANNER & TELEVISION**

- 495kHz 2450MHz
- AM, FM, WFM, AM-TV, FM-TV
- TV mode PAL (UK)
- 450 memories
- 50.8mm (2in) TFT colour display
- Simple bandscope
- BP-206 Lithium-ion battery
- Telescopic Antenna

**PAY 2005**

**£339 B**



**VECTRONICS AT-100**

**Active Antenna/Tuner**

- \*Frequency 300kHz - 30MHz
- \*Band position switch \*Tune adjust \*50 Ohm to Rx \*Whip provided \*Up to 10dB gain
- \*Connectors SO-239 \*Supply: 9V DC batt, ext
- \*Size 84 x 55 x 60mm \*Weight 255g approx



**£79.95 B**

**ICOM IC-R8500 "THE EDITOR'S GOT ONE!"**

- 100kHz - 2000MHz
- USB, LSB, CW, AM, FM, WFM
- 1000 Memories
- 3x Antenna Connectors
- Audio 2.5W (8 Ohms)
- Supply 13.8V DC
- Free PSU included
- Weight 7kg



**PAY 2005**

**£1349 C**

**ICOM IC-PCR1000IS**



- 100kHz - 1300MHz
- USB, LSB, CW, AM, FM, WFM
- Unlimited memories
- Synchronous AM detection
- RS-232 interface D-sub 9-pin
- BNC Antenna connector
- New Icom version 2 software
- Requires PC (Not included)

**£549 B**

**DAI NEIMI031**



**NOISE ELIMINATING IN-LINE MODULE**

- \*Noise attn 9-35dB \* Noise Attn levels 8
- \* Audio output power 2.5W RMS max (8 Ohms)
- \* Audio connections: Line level in/out (RCA Phono), Audio in/out 3.5mm mono jack
- \* Line in impedance 10K \* Line out impedance 100 Ohms
- \* Line in sensitivity 300mV -2V RMS \* Headphone socket 3.5mm mono jack
- \* Power 12-24V DC 500mA

**£129.95 B**

**DAI NES10-2 MKII NEW**



- NES10-2 Combined speaker and programmable DSP unit, now with On/Off bypass switch. Offers dramatic noise reduction, even reduces annoying hetrodynes.
- 8 Ohms, 8 filter settings, 3.5mm plug, 12-24V DC

**£99.95 B**

- NES5 basic plug & go model - Fixed level DSP noise cancellation. £79.95 B

**WATSON FC-130 "MICRO COUNTER"**



- Off-air Frequency Counter
- 10MHz - 3GHz range
- 4 Switched Gate Spreads
- Hold Display Button
- 2 Switched ranges
- Internal ni-cad battery
- Whip Antenna
- AC Charger

**£59.95 B**

**OPTOELECTRONICS CUB**



- The CUB Mini Counter incorporates both digital filter and auto capture
- \*1MHz - 2.8GHz \*Input: 50 Ohms
- \*Gate times: 8 selectable \*Timebase: 10MHz
- \*Display: 9 digit LCD \*Supply: Int Ni-Cads
- \*Ext: 9-12V DC 100mA \*Battery life: 10 Hrs
- \*Size: 65x85x30mm
- \*Weight: 200g

**£129.95 B**



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- WDB-32 BNC 2m/70cm Rubber Duck 4.5cm **£12.95 A**
- WSMA-7000 Sma 2m/70cm Rubber Duck 17.7cm **£14.95 A**
- WHX-7000 BNC 2m/70cm Rubber Duck 20cm **£14.95 A**
- WHSM-270 Sma 2m/70cm Rubber Duck 40cm **£19.95 A**
- WHXX-270 BNC 2m/70cm Rubber Duck 40cm **£19.95 A**
- WSMA-801 Sma Reg/Gain 25-1900MHz 21cm **£12.95 A**
- W-801 BNC Reg/Gain 25-1900MHz 21cm **£12.95 A**
- WSMA-881 Sma Super-Gainer 25-1900MHz 40cm **£19.95 A**
- W-881 BNC Super-Gainer 25-1900MHz 40cm **£19.95 A**
- W-901 VHF/UHF airband flexi 10cm BNC **£19.95 A**
- ANT-60 Portable SW ant. 7m long 3.5mm jack **£9.95 A**

**WATSON SP-2B BASE SPEAKER**

- \*Tailored response for speech
- \*Cast alloy construction
- \*Extremely Rugged
- \*Matches modern radios
- \*Includes patch lead
- \*Size 12W x 18H x 11D cm.
- \*Weight 0.85kg

**£29.95 B**



**WDP-30 Short Wave Dipole**



**8.5m long!**

**£49.95 B**

This new design from Watson gives you dipole performance across the entire short-wave bands. Unlike random wires, it reduces the background noise and pulls in the signals. And its small size means it will fit most gardens. Absolutely no adjustment required. 10m coax feeder included

**WATSON HP-200 & HP-100**



**HP-200**

- Superb headphones with tailored response for radio comms. Excellent sound proofing, can pull in the weak DX.
- \* Mono 8 Ohm 200-10,000Hz
- \* Padded ear pieces
- \* 3.5mm stereo plug
- \* 1/4" stereo adaptor

**£22.95 B**



**HP-100**

- Excellent lightweight comm headphones with tailored response for the modern transceiver or receiver.
- \* 8 Ohms 200-9,000Hz
- \* Adjustable headband
- \* 3.5mm stereo plug
- \* 1/4" stereo adaptor

**£19.95 B**

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**PLACE AN ORDER OVER £100 AND GET THIS STEEPLETONE SVR-202 VALVE EFFECT RADIO FREE!**

# In The Ed's Shack

## TVC101 Video Controller - 2

**Are you struggling to control your microwave video receiver card? Last month Kevin Nice built a superb solution to the problem of tuning and displaying the monitored frequency. Now he discovers how it performs.**

Last month I looked at assembling the TVC101 electronic hardware and installing the p.c.b. assembly into the supplied enclosure. You can see the finished result on these pages. This month I'm left to cover the interconnection of the controller, a suitable front-end and a video monitor and the optional VCR.

The interconnection aspect is pretty straightforward as all the connectors (plugs) are provided with the kit. This is outstanding. You can easily tell that the TVC101 project has been run by competent enthusiasts. All I had to do was make up leads to allow the control signals generated by the TVC101 to be connected to my G1MFG (Comtech) 2.4GHz receiver card.

This is simply a case of soldering either some 3-way or 4-way cable to the 4-pin mini DIN plug, which is inserted in the receiver socket on the TVC101 and performing a simple modification to the receiver board.

The mod. is necessary to isolate the receiver's standard onboard control signals - otherwise there'd be a fight for control of the tuner. There are two recommended methods for performing the isolation of the serial clock (SCL) and serial data (SDA) lines. You can either opt to bend the pins on the RX board's microcontroller or break the connection to the shielded tuner modules pins.

I chose to bend the pins on the socketed PIC microcontroller, this is best done by removing the IC from its socket and carefully, with the use of needle nose pliers, bend the pins up horizontal so that they are excluded from the socket when the device is reinserted.

I then soldered the two appropriate wires to the SCL and SDA pins on the tuner. The transmitter requires similar modification though the SCL and SDA positions are reversed on the screened tuner module. Next was the ground connection.

If you wish for the receiver and or transmitter to be powered by the TVC101, you'll need to add the fourth wire to provide supply to the modules. Connecting in this



```
►Rx VFOA Step 1 MHz
Rx VFOB Step 1 MHz
Tx VFOA Step 1 MHz
Tx VFOB Step 1 MHz
Memory Store
Memory Recal
Memory Scan
Memory Skip
Scan Band
Scan Step 1 MHz
Scan Speed 200ms
Scan Mode Stop
Scan Resume 10sec
Sync Sens. 30ms
Rx Setup
Tx Setup
Display Mult 1
Band Select 13cm
Video Tune
↑ - | Exit
```

Fig. 1.

way allows the controller to provide a 'push to transmit' facility by translating a press of the F1 key on the front panel to the activation of a relay controlled switching of the transmitter 12V line. The receiver though, is constantly powered. When the transmitter module is activated in this way the TVC101 display displays the message "Transmitter On".

### Communicating

All of the user control of the TVC101 is achieved via the five buttons and the rotary encoder. In turn the unit lets you know what's happening via the large display and its internal beeper. Before you can fully exploit the potential of the controller and use it to control the capture of received video, there is one last part of the unit to set-up. The TVC101 includes a sensitive video detector which will both notify the user of the presence of a video signal on the receive frequency and switch relays to allow the control of a VCR so that only channels featuring active transmissions are committed to tape. A very handy feature indeed. Due to the nature of monitoring short-term transitory

signals this video detect feature allows the compression of hours of monitoring into a short length of tape or other form of video recording media. For that matter it allows the completely unattended capture of signals too.

### Using The TVC101

You'll have guessed by now that the main point of the TVC101 is convenience. The whole process of using a Comtech receiver or transmitter via the unit can be described in one four letter word - easy.

Gone is the need to waggle endless d.i.p. switches or multiple presses of fiddly buttons, or missing the required frequency in a single direction incremental ramp and not catching the switch in time to cancel the tuning action. Now, with a TVC101 you simply rotate the tuning knob!

Of course there's a little more to it than that, but it can be just that simple. There is a sophisticated set of search and scan functions, variable step rates, memories and multiple v.f.o.s too. All of which combine to improve the life of your average microwave video enthusiast.

The operation of the controller is achieved via an extensive menu system, which is brought into play by pressing the F4 key which is assigned a soft function of 'Menu' at start-up. The flexibility of the control of the unit is created by the use of the soft key functions, the bottom line of the four-line display shows the function assigned to the 'keys' at any given time. The whole menu list can be seen in Fig. 1.

It is possible to use the default settings and just start tuning around. The connected hardware must match the default configuration for this to be possible. Most likely however, you'll need to set the controller to work with the correct receiver/transmitter cards. There are three options, 2.4GHz (13cm), 1.2GHz (23cm) or S-band LNB. Cleverly, you can set the upper and lower frequency limits of operation to suit your transmitter or receiver. It is possible to restrict the range to less than that specified for a given card. The converse is possible, but not recommended.

The TVC101 will show the correct frequency on the display and provide the correct data to the external board to correspond to your selection. It is also allows for selecting the correct i.f. offset for a downconverter as long as it's in the range  $\pm 9.75\text{MHz}$ . The TVC101 also provides flipped tuning required when using a downconverter though it doesn't correct the resultant inverted video, you need to modify the receiver card to deal with that. The TVC101 also provides a display multiplier setting which allows for the use of band other than 1.2 and 2.4GHz by using downconverters for receive and frequency multipliers for transmit. The TVC101 allows a multiplier between 1 and 4 to be set. The synthesiser operated just the same, but the correct frequency is displayed - saves brain power!

As you'd expect from my earlier



comments, the controller provides some powerful search and scan capabilities. To make best use of these you must set up the video detector circuit. This is the equivalent of a squelch threshold in an audio receiver. For the detector operate, it means that you must route the receiver's video output through the TVC101. This then allows the controller to detect the presence of video synch signals on the tuned frequency. With video present the controller can stop on that frequency for a user programmed time. The stop and start relays are also activated to allow external equipment to be controlled. The detector circuit threshold need to be set before you screw the case together and fit the front panel label. Otherwise you are faced with the potential for messing up the aesthetics of the TVC101 by damaging the label. The same goes for fitting the optional receiver 12V link to the main p.c.b. - guess who forgot!

### Control

Unfortunately I don't own, neither did I have access to any portable video recording equipment. Typically camcorders and portable VCRs have remote stop/start/rec. controls brought out to a connector. These devices offer a good companion to the TVC101 for making copies of captured signals. My VCR doesn't have such facilities built-in, but it's not beyond being modified - I'm working on that.

As a previous user of both the VideoScanner receiver, which is essentially a modified commercial 2.4GHz monitor with simple scan and on-screen frequency display and the G1MFG 13cm receiver (no longer available), the TVC101 opens the door to fast flexible scanning and searching. Previous clumsy controls are replaced with excellent facilities that make finding signal a breeze. Storing these frequencies and recording leaves little room for improvement. The flexibility of allowing for control of hardware designed for use on different band and the intergration of receive and transmit make this a product that sets the mark.

From a monitoring perspective, the key to success is the ability to find signals quickly and store those active channels. Here the TVC101 is well equipped due to its highly configurable scan and search functions. All the important parameters are programmable these include step size (250kHz - 10MHz), scan speed (50ms - 10s), Scan resume delay (1 - 30s) and synchronisation detect sensitivity (2-50ms). This wealth of configurability provides you with all you need to make best of a wide range of circumstances. The search facility also provides the option of pausing or stopping on an active channel. A personal wish is for the ability to resume the scan whilst in pause mode early, with either the encoder or a key press.

Once you've discovered a busy frequency,



The completed TVC101 awaiting the fitting of the label and control knob.



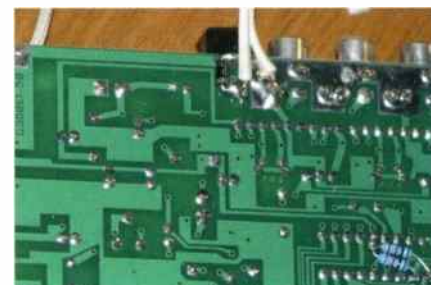
The controller displaying the transmitter on status.



SCL and SDA lines soldered to the r.f. module.



My G1MFG 2.4GHz receiver card pre-modification.



The leads for power added.



The mini DIN end of the interconnecting lead.



The connector cut-out.

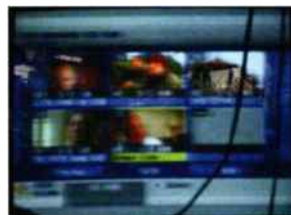
Don't forget to fit this link before you case the p.c.b.! It is quite tricky to remove the board as the label sticks to the display frame.

you will of course wish to store its value. The TVC101 provides eight memories for just this purpose. This might seem somewhat miserly compared to the 1000+ found on current v.h.f./u.h.f. scanners, but it is more than adequate for the purpose.

Once you've collected some active frequencies and stored them in memory, the



Images captures captured whilst scanning.



TVC101 allows you to scan these sequentially. As with all well appointed scanners the TVC101 allows the lockout of individual memories at will. As with the search function you can select both pause and stop modes with the rate and dwell times also applicable to this scan function.

I have to conclude this look at the

TVC101 by saying this unit has improved my video scanning beyond expectation. It turns clumsy to operate r.f. boards into a silky smooth multi-function receiver and transmitter with a suitable card attached. As always though, 'much wants more' and I'm left wishing that there were the addition of time and date stamping, as that would make a very handy addition to the TVC101's capabilities when left to operate unattended. I'd like to thank Carl Rabe G6NLC for the chance to experience the TVC101. I wish I'd found time to build it sooner!

SWM

If you'd like a TVC101, then visit [www.atvcontroller.dsl.pipex.com](http://www.atvcontroller.dsl.pipex.com) or E-mail [tvcontroller@dsl.pipex.com](mailto:tvcontroller@dsl.pipex.com) for an order form. The TVC101 kit cost £95 plus £3.50 P&P. Currently it's only possible to pay by cheque.

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- Frequency 66 88 108 174 406 - 512, 806 - 956MHz
- 200 Memories
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- Twin Turbo, Search and Scan
- Data Skip
- Manual Channel Access
- 10 Priority Channels
- Memory Backup
- Programmable Search
- Channel Lockout
- Rechargeable Ni-Cd battery pack supplies up to 12 hours of use in the close squelch position (normal spec)
- Scanning Mode: 15 ch/sec
- Search Mode: 25 freq/ sec
- Power requirement: 12V DC (internal battery AC adaptor or vehicle adaptor)
- Size: 15.3cm H x 6.7cm W x 4.5cm D
- Weight: 560gms

## Bearcat UBC 3300XLT

- 1000 channel memories
- 25.00-512.00 MHz
- Twin Turbo Scan & Search
- 806.00-960.00 MHz
- Scans 100ch / second!
- 1240.00-1300.00 MHz

**£229.00** plus £6.00 P&P 3 CHEQUES OF **£79.00**  
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## Bearcat UBC 68XLT

A BRAND NEW SCANNER WITH 5 PRE-PROGRAMMED UK SEARCHBANDS

The UBC 68XLT is simple and easy to use. Its the ideal choice for newcomers to scanning, offering outstanding value for money with 80 memory channels and a wide frequency coverage. It comes with 5 pre-programmed UK search bands, enabling the novice to be up and running in seconds. The radio will give clear reception of Marine Radio, Ship to Shore, Land Mobile Public Services and much more.

- 80 channels, 8 band coverage, 66-88 MHz VHF Low Band 137-144 MHz Land Mobile 144-148 MHz 2M Amateur Band 148-174 MHz VHF High Band 406-420 MHz UHF Band 420-450 MHz 70Cms Amateur Band 450-470 MHz UHF Public Service Band 470-512 MHz UHF TV Band
- 5 Pre-Programmed banks
- Scan Rate: 10 Channels per second
- Search Rate: 10 Steps per second
- Scan Delay: 2 seconds
- Audio Output: 240mw nominal into 8 Ohm speaker
- 12v DC, using optional adaptor or 4 x AA Alkaline or re-chargeable Ni-Cad batteries
- Earphone jack, DC Power Jack
- Rubber antenna included
- Weight: 340g (including antenna)
- Size: 63.5W x 178H x 38D mm

## Bearcat UBC 105XLT

A BRAND NEW SCANNER WITH AIRBAND & LOW VHF BAND

With 8.33 kHz steps for AM Airband

- Frequency: 29 - 54 MHz Low VHF/Cordless telephone 50 - 54 MHz 6 Metre Ham 108 - 137MHz Civil Airband (8.33/12.5 KHz) 137 - 174 MHz VHF Ham + PMR 406 - 512 MHz Public Services
- Large liquid crystal display lets you easily see displayed information
- Search Skip function: Lets you select up to 20 frequencies for the scanner to skip during a limit or direct search to avoid unwanted frequencies
- Freq Search: Scans through every available frequency
- Ten Channel storage banks: Lets you store 10 channels in each of ten banks to group frequencies and help you identify calls
- Two Second Automatic Scan Delay Delays scanning for 2 seconds before moving to another channel, so you can hear more replies
- Lockout Function: Keeps channels you select from being scanned
- Priority Channel: Lets you specify your most important channel and check it every 2 seconds so you don't miss important calls
- Display Backlight: makes the scanner easy to read in low light situations

## Bearcat UBC 180XLT

NEW HANDHELD SCANNER WITH 8.33KHZ COVERAGE ON AIRBAND

The NEW UBC BC180XLT is a brand new state of the art information radio. 14 pre-programmed Bands for fast searching of active frequencies, and Twin Turbo Search feature for up to 100 Channels per second. 100 Memory Channels to store your favourite frequencies. Airband has selectable steps 12.5khz or 8.33kHz.

- Bands (with gaps): 25 - 88 MHz, 108 - 174 MHz, 406 - 512 MHz, 806 - 960 MHz
- Programmable Alpha Characters
- Twin Turbo Scan & Search
- 100 Memory Channels
- 14 Bands, 10 Banks
- 10 Priority Channels
- Memory Backup • Band Search
- Limit Search • VFO Search
- Alert Beep • Auto Light
- Attenuator • Air Band Step
- Supplied complete with UK mains charger, Nicad battery pack, carrying strap, earphone, belt clip
- Scan Rate: 100 Channels/sec
- 14 Preprogrammed Search Bands (Frequency)
- Search Rate: 100 Steps/sec (Normal) 300 Steps/sec (Turbo Search)
- Scan Delay: 2 Seconds
- Audio Output: 180 mW nominal into 8 Ohm speaker
- Rubber Antenna Supplied
- Power: 4.8V internal battery or external mains supply.
- 65(W) x 39.5(D) x 296.5(H) mm
- Weight: 320 grammes

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- 100kHz - 1300MHz
- AM/FM/WFM
- 700 memory channels
- Steps: 5/6.5/8.33/10/12.5/15/20/25/30/50/100kHz
- Auto descrambler
- Bug detector
- Stereo FM (with headphones)
- Attenuator
- SMA Antenna
- Battery saver cct
- 56w x 102h x 23d mm
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# The Roberts RD-1

**Simon Hockenhull examines and evaluates the latest and flagship DAB offering from Roberts Radio, also known as the Gemini 1.**

The Roberts RD1 is a new DAB and f.m. portable receiver released by Roberts in July 2004. It is quite a large and unusual looking set with its upright appearance and the front taken up by the large back-lit liquid crystal display, which sits above the 100mm mono speaker. Some of the controls are on the sides or around the top of the display with the lock switch, tuning control, volume control plus separate bass & treble controls located on the right hand side of the cabinet. Down the left hand side are the two sets of stereo analogue outputs labelled Audio 1 and Audio 2, digital fibre optic output plus a RD1 (Radio Data Interface) output, which enables the radio to be connected to an external data recorder and the stereo headphone output. The input for supplied 6.5V d.c. mains powered supply is also located here as is the telescopic rod antenna, which may be removed to allow an external antenna to be connected.

The RD1's style might not be to everyone's taste, but believe me, it rapidly grows on you.

## First Contact

My first impressions were, I have to admit, not too favourable. With anything new I like to see how far I can get without referring to the instruction book, with this set it was not very far. I managed to get a few stations on the BBC multiplex but nothing else. The list was full of these strange sounding South coast stations, which the set was stubbornly hanging onto. So I gave up and reached for the instruction book. The only way that I could get the DAB radio to auto tune correctly was to do a full factory reset, once this was done the radio went straight into auto tune mode and found all the local multiplexes. Once this was done everything else began to fall into place. *The set was not in an out-of-box configuration as it had been utilised as a demonstration set before we passed it to Simon - Ed.*

Once all the DAB stations were listed it was a simple matter selecting the required station by scrolling up and down the station list using the tuning control and selecting the required station by pressing in the tuning control and releasing. Then you can add up to six stations to the presets.

Pressing the band button switches the set over to the f.m. band (v.h.f. band II). Tuning again can be manual by tuning through and selecting the required station using the tuning control or auto tune can be selected using the tuning control. This can be made to seek up by turning the control a few segments clockwise or anti clockwise for down frequency. Then you can assign up to six stations to the presets.

## The Display

The display is worthy of mention because of its size and clarity. Instead of the two line affair, which is found on

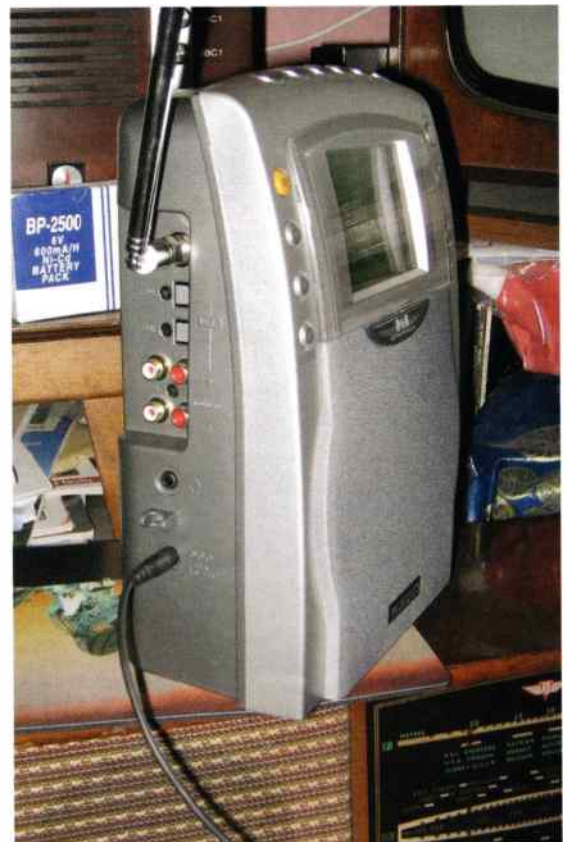
most other DAB radios, I particularly like the soft orange back-light, which is very pleasing on the eye.

When tuned to a DAB radio station the RD1's large clear display will show (from top to bottom) various icons, the station name, programme type, name of the multiplex, signal level, a mains indicator or battery meter, then time and date. By pressing the display button the display will show very clearly any text information, such as news, traffic reports or weather forecasts, being sent out by the broadcaster. Further technical information about the multiplex such as allocation number, frequency and bit rates can be accessed via the Service status, which you reach via the Set-up menu. More on this later.

On f.m., unfortunately, there is no RDS so you get the frequency, signal meter and either battery meter or mains indicator. I think the excellent display could have been utilised more by the inclusion of RDS on f.m., but clearly, f.m. users aren't the intended customers for the RD1.

From the 'Set-up' menu you can change the contrast levels, whether or not the clock is displayed when the RD1 is switched off and the back-light options, i.e. permanently illuminated, only illuminated with mains operation, (to save batteries), or illuminated when any of the keypads are operated.

The 'Set up' menu is the heart of this radio and I will cover it in more detail later.



## Features

The RD1 has a number of interesting features on offer. There are enough here to keep the keenest of gadget enthusiasts occupied for hours on end.

I must stress the importance of having the instruction manual to hand here. Without it you will not get very far. Believe me!

The first thing I checked was the 'Pause Plus' facility, which I found fascinating. If you are listening to any DAB station and say the telephone rings, all you do is hit the 'Pause Plus' button the set then mutes and continues to record the station. When you return to the radio you simply press the 'Pause Plus' button again and it continues to play from where you left off. Radio stations can be put on hold for 15 minutes using the radio's built-in memory or up to 30 minutes when a suitable SD memory card is fitted. In a similar vein, the 'Pause Plus Rewind' facility works along the same lines. For example, if you are listening to the weather and could not quite believe your ears when sunshine was mentioned, all you do is press the rewind button and scroll back using the tuning control to the required time. You return to real-time simply by pressing the 'Rewind button' once more. You get the same amount of record time from the memory as with the 'Pause Plus' capability.

All the next set of features are accessible via the main set-up menu. Don't forget to have the user manual close to hand. You access the Set-up menu by pressing the 'Set up' button and then use the tuning control to scroll up and down the menu lists. Pressing and releasing the tuning control selects the required function - simple.

## Alarming

Next to check out was the Radio Alarm. Like most of the RD1's features, you need the aid of the instruction book and enter the set-up menu. There are two alarms sounds, a buzzer and radio. I decided to give this the ultimate test and set it for my normal early morning rise time. Well, no problem with the 'Radio alarm' but the 'Buzzer alarm' was another matter. When the buzzer sounds, it emits a very low level beeping sound which repeats every two minutes. The level was woefully inadequate for all but the lightest of sleepers. Note that the Radio and buzzer alarms can be used for both DAB and f.m. stations. There is also a snooze and sleep facility available as you might expect.

The 'Favourite' facility keeps track of your most listened to DAB stations on the station list and arranges them at the top of the station list for ease of selection in case you run out of presets.

Feeling brave I then inserted the supplied 32MB SD card. Guided by the instruction book I checked the SD Card format, which can be varied for the amount of capacity allocated to either 'Record' or 'Rewind'. I left it at the default 50% each. I assume that you can vary it to

allow more record time between the two.

I then went into the 'Record Timer' list via the 'Set-Up' button. After a failed first attempt, I resorted to contacting the very helpful Roberts Radio Help desk who soon put me right.

Setting the on/off times was simple enough, but selecting the appropriate days were not. The days are listed the usual way, i.e. SMTWTFS but confusingly you select the days by erasing the days you don't want the RD1 to



record. For example, if you wanted to record a broadcast on Tuesday only you set the days list on the Record Timer like this —T——. At this stage, I must also point out that like the 'Pause Plus' features you can use the Timer record facility on DAB stations only.

I decided to check whether Radio 4 still starts up with the wonderful *UK Theme*. The last time I heard this was a few years ago, when I used to do the night shift looking after my young son during his first few months. So, I set the Record Timer to start at 0530 and end at 0545 with Radio 4 selected. I then switched off the set. The display gives you clear indication that the Record Timer is set. Success! Yes BBC Radio 4 does indeed still start up with the *UK Theme*.

Unlike the 'Pause Plus' features I noticed that the sound quality was reduced somewhat on playback, fine with speech but not so good with music.

The last feature that I tried was the 'Audio 2' function. This also only works with DAB reception. The facility allows the audio from a second station in the DAB multiplex to be routed to the set's auxiliary phono

connectors whilst the main selected station routed to the main output connectors and is also being monitored via the onboard speaker.

I connected the radio up to my hi-fi via the 'audio output 2' socket. It was quite strange to listen to BBC Radio 2 from the RD1's internal speaker whilst at the same time listening to Radio 4 through the hi-fi via the same radio!

There wasn't time to take a detailed look at the DRC function, but this is only available at one level on Radio 3. The idea is to make quieter sounds louder when the radio is used in a noisy environment. Wow, I like the sound of this, audio compression that we have some control of!

There is one more very important feature that I must mention, it's all to do with saving battery power. First when the radio is run on batteries the output power through the internal loudspeaker is automatically reduced from 1.5 to 0.7W or 700mW. Then, via the 'Set-up' menu, you can choose to switch off the 'Pause plus', 'favourites' facilities and display back-light with battery operation only. Roberts claim that this can extend the battery life to a possible 25 hours!

There are quite a few more options mostly to do with control settings and clock but all is explained within the instruction manual.

As I was putting the RD1 through its paces, I noticed a couple of annoying points. First a slight flicker on part of the display. Second, the tuning control could be fiddly to use, i.e.; sometimes when scrolling through the lists it would overrun or appear to stick. I spoke to the Roberts help desk and they advised me that the set I was testing was an early sample and both these minor problems have been removed by firmware updates on production sets.

### Overall Performance

Although not as sensitive as my Pure Evoke 2, the RD1 received all stations by fully extending the telescopic antenna and adjusting the position of the set. Bizarrely the RD1 struggled to pull in a good signal on our local **Now Bristol**

multiplex yet it received quite clearly the much weaker signal from the **Now West Wiltshire** multiplex. This did leave me rather perplexed!

On the f.m. band when I started to tune through manually my heart sank! I have never heard such a cacophony of noise, which included whistles, howls, pulsating buzzing sizzling sounds which seemed to reach a crescendo even just 50kHz away from the required station. But strangely once you have your local stations tuned in the results are rather good with little or no background noise. I live in an area of very poor f.m. coverage, in our living room there is only a couple of my portable mono sets that will give hiss free reception one being the excellent Roberts R250, the second is a slightly older but brilliant Philips D-2345. Well now I can add the Roberts RD1 to this elite list. One night I gave it the ultimate f.m. test.

With the RD1 sitting in the middle of the lounge and just using its telescopic antenna, I monitored Radio 4 for several hours. No interference, distortion or noise was noticed. Audio quality, from the internal speaker is good,



(running on both mains and batteries) with plenty of volume which does not distort at high levels. The tone is very pleasant, in fact very natural sounding. I did like the separate bass and treble controls which enabled me to fine tune the tone when listening to the different DAB radio stations.

Despite all the digital propaganda about CD quality, stations like Radio 2 still sound much clearer, sharper and more defined on f.m. than on DAB. This is no detraction from the RD1, but highlights the

problem of low bit rates (128Kbps or less, instead of 192Kbps) which are presently used by all UK DAB broadcasters.

### Conclusions

Although it does not have quite the same DAB front-end sensitivity or output power of my Pure Evoke 2, I shall sadly miss the RD1's multiple features, generous battery life and the large clear display. Ignoring the multitude of features, just using the RD1 as a basic DAB radio is very easy and will appeal to listeners of all technical ability.

As the recent Roberts advert mentions, 'this set certainly proves how far radio has advanced since the days of Marconi and Tesla!

If you are tempted by the RD1, then you can find out more at [www.robertsradio.co.uk](http://www.robertsradio.co.uk) The recommended price of the RD1 is £200. You'll find the RD1 Gemini 1 DAB radio is available from the usual radio outlets.

# Starting Out

## Part 7

**The beginner's series that's back due to reader demand. This month we continue the rerun of the excellent beginner series from the past, originally brought to you by the late Brian Oddy G3FEX.**

**W**ith radios, although the cost usually bears some relationship to the quality and performance of a product, it's advisable to study the design features of each receiver carefully and then arrange for a demonstration of the most likely models before making a final decision. Of course a basic knowledge of superhet principles and the circuit arrangements, which are likely to result in good or bad receiver performance would enable the choice to be made more easily. So, let's now consider some of them.

By studying, in simple terms, some of the problems associated with the cheaper sets, the need for the more complex circuit arrangements used in the higher priced receivers will then be evident. Furthermore, the study will provide an insight into the even more complex circuit configurations used in communications receivers. These are sets designed to achieve the highest standards demanded by professionals and some dedicated DXers.

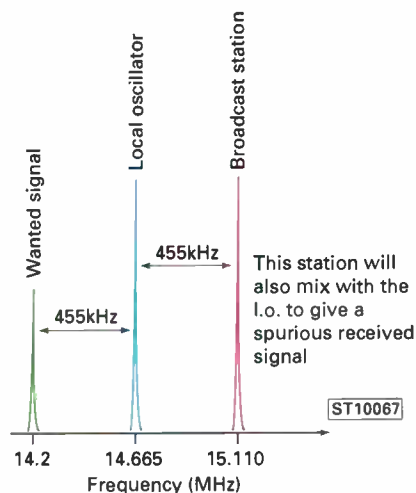
Although many of the cheaper receivers provide coverage of the long, medium and short wave bands, reception is often unsatisfactory, especially on the s.w. bands. Often, in order to cut the manufacturing costs, only the basic superhet building blocks of mixer, local, oscillator, i.f. amplifier, detector and audio output stage are employed in these designs (see *SWM* November 2004) and it's important to be aware of the limitations of these simpler sets.

One of the most undesirable effects that manifests itself in some of the cheaper sets stems from the first stages of these often simple receivers. The stage that often causes the greatest problems is the mixer stage, sometimes called the frequency changer. When the problem makes itself known, it often results in broadcast and other stations appearing where they're least expected on the dial! In order to understand why you may hear stations where you least expect them, and how this may happen, it's necessary to reconsider the operation of the mixer stage itself. In the mixer stage shown in

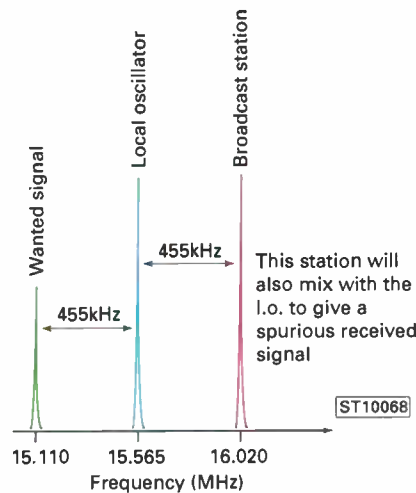
**Fig. 7.1**, an incoming signal ( $f_c$ ) passes unchanged (other than level) through the r.f. amplifier, it's then mixed with a locally generated signal from the local oscillator ( $f_o$ ) to produce two additional frequencies. The output from the mixer stage, contains two further signals, the sum ( $f_c + f_o$ ) and the difference ( $f_c - f_o$ ), usually called the **intermediate frequency** or i.f.

### Image Signals

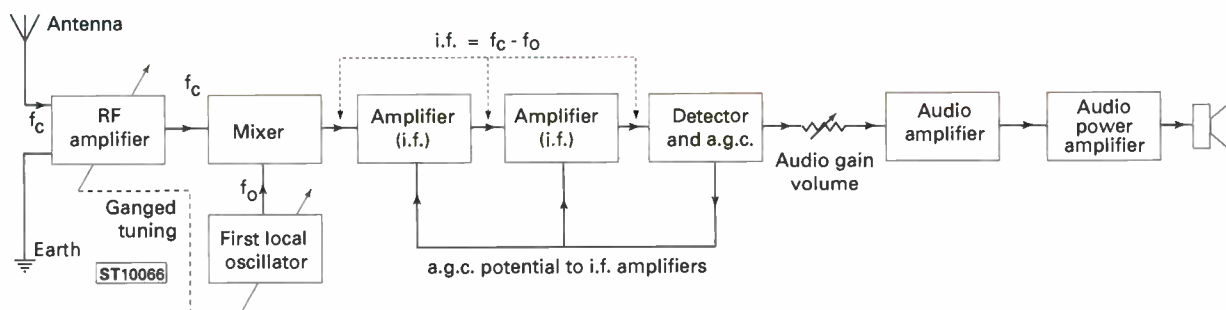
It's important to realise that the locally generated oscillation signal ( $f_o$ ) can be placed above or below the incoming signals ( $f_c$ ) to produce the same i.f. It also follows that any signal, spaced above and below the local oscillator by the i.f. will also be mixed with the oscillator to produce a signal at the i.f. And this is where a serious problem arises, because the selectivity of the tuned circuits associated with the desired incoming signal ( $f_c$ ) at the input of the mixer may allow unwanted signals on the other side of the local oscillator to enter into the mixer too



**Fig. 7.1:** Showing how a broadcast station in the 19m band can appear to be within the 14MHz amateur band with an i.f. of 455kHz.



**Fig. 7.2:** The same receiver i.f. can allow two broadcast stations to appear to be using the same frequency.



**Fig. 7.3** A simple superhet receiver may suffer from spurious image signals if the i.f. frequency is low. See text for more details.

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APR .....	19.9%	48 Payments of .....	£17.72
PRICE .....	£599.00	Total purchase price .....	£850.56
Deposit .....	£00.00		



Fig. 7.4: Anti-backlash gearwheels have two half-width sets of gears held with a strong spring to counteract gear tooth wear.

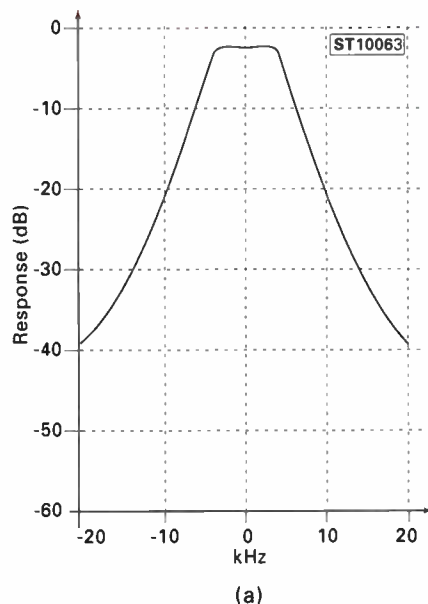


Fig. 7.5: A receiver with such an i.f. response would be usable if the bands weren't too crowded, but could suffer problems on crowded short wave bands.

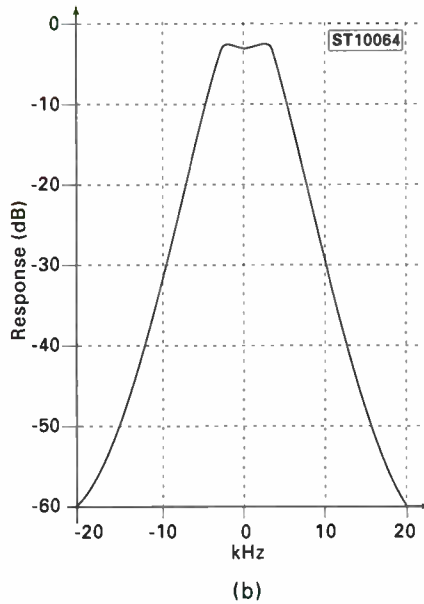


Fig. 7.6: An i.f. with this response curve, though better than that of Fig. 7.5 may leave something to be desired on some bands.

and become mixed to produce an i.f. When this happens, unwanted signals called **image signals** appear in the i.f. chain.

To illustrate the foregoing with a practical example, assume that one of these simple receivers is set to receive 14.200MHz ( $f_c$ ) as in the 20m amateur band as shown in Fig. 7.1. If the i.f. is 455kHz, and the local oscillator is operating higher than the incoming signal by the receiver's i.f. of 455kHz (0.455MHz) - a typical figure. In these circumstances,  $f_o$  will be  $(14.200 + 0.455) = 14.655$ MHz. When listening to this amateur signal on 14.2MHz, you may find that although the receiver is operating normally, there may also be a broadcast station that can be heard. This broadcast station is apparently also on 14.200MHz. So, why is that?

The broadcast station signal that you hear will in fact be an unwanted image of the signal from a broadcast station operating in the broadcast band on 15.110MHz, also known as the 19m band. The broadcast station at 15.110MHz can also mix with the local oscillator at 14.655MHz and these too can produce an i.f. of

455kHz. Consequently it will appear to the listener as though the broadcast station (in the 19m band) is actually in the 20m amateur band!

From the above example, it can be seen that an image signal originates on a frequency that's twice the i.f. away from a wanted signal and on the same 'side' of the desired signal as the local oscillator is. If the receiver is retuned to 15.110MHz, the real broadcast signal will be found again at greater strength than it appeared on 14.200MHz. Note that the local oscillator, on retuning to the real frequency of the broadcast station Fig. 7.2, will then be operating on 15.565MHz. Under these circumstances, if a strong signal is present on 16.020MHz, then this too may mix with the l.o. (on 15.565MHz) to produce an image signal that appears at 15.110MHz!

## RF Amplifiers

With simple receivers, image signals can become a real problem on the higher frequency s.w. bands, because the selectivity of the tuned circuit at the mixer input becomes less as the frequency of the incoming signal  $f_c$  is increased. One way of increasing the selectivity is to add one or more tuned radio frequency amplifier stages ahead of the mixer - see Fig. 7.3. The tuning of the r.f. stage is kept in step with the mixer and local oscillator by using a 'ganged' variable tuning capacitor. Each tuned circuit has to be carefully aligned at the factory by adjusting pre-set trimming capacitors so as to ensure that they remain exactly in step over the whole length of each band. This setting is known as 'tracking'.

## Image Ratio

The added selectivity introduced by the tuned circuit of the r.f. amplifier will considerably improve the ratio of the strength of a wanted signal to that of an unwanted image signal - this is

usually referred to as the **image ratio** - or sometimes **Image rejection ratio**. Most receiver specifications quote the image rejection in terms of decibels, e.g. -50dB. The higher this ratio figure is, in general the better the receiver. Some of the more expensive receivers also make use of double, or even triple mixing systems to overcome image problems - these will be discussed in a future article in this series.

## Sensitivity

Adding an r.f. stage will also increase the **sensitivity** of the receiver, or its ability to pull in weak but usable signals. Mixers are generally low gain devices and the noise they generate tends to mask weak signals. Although r.f. amplifiers also generate noise, they are high gain devices, consequently, they can improve the signal-to-noise ratio of a simple receiver.

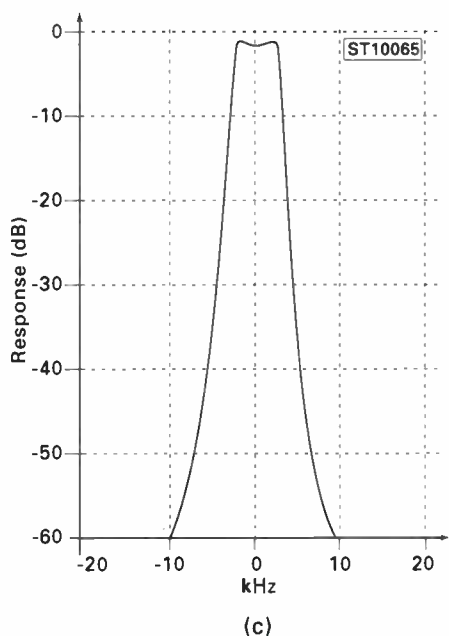
The sensitivity of a receiver is often quoted in terms of the amount of signal, in microvolts, required at the antenna terminals to produce

a specified amount of audio power at the loudspeaker. However, a better expression states the amount of signal required at the antenna terminals in microvolts to give a specific signal output above the inherent noise of the receiver. This ratio is often known as the **signal to noise ratio**.

The r.f. stage may amplify strong incoming signals to the point where they overload later stages of the receiver, so an **r.f. gain control** is usually provided on the more expensive receivers to allow the amplification of this first stage, to be varied. Sometimes the automatic gain control (a.g.c.) potential is used to automatically control the amplification of the r.f. stage.

### Calibration

Although the main dial of a receiver fitted with an analogue display is intended to indicate the incoming frequency ( $f_c$ ) to which the receiver is tuned, in the cheaper receivers, the accuracy of the calibration may be poor and unreliable. Consequently it will be difficult to re-locate a station heard previously at a particular point on the dial. Some form of slow-motion drive between the tuning knob and the ganged, variable, tuning capacitors is essential so that precise adjustments can be made - this may consist of a simple system of pulleys and a spring tensioned nylon cord, an epicycle driver, or in the case of the more expensive receivers, a gear driven system using spring loaded gears to avoid **backlash** or **slop** as shown in the photograph of **Fig. 7.4**.



**Fig. 7.7:** The sort of i.f. response that is favoured for communication receivers to allow the reception of weaker signal with nearby stronger station.

The frequency of oscillation. The type of circuit employed, the quality of the components used, rigid mechanical construction and regulated power voltages are all important factors in ensuring good frequency stability.

Instead of using a self-excited oscillator, many of the more expensive receivers use a **frequency synthesiser** to generate the local oscillation required by the mixer - they rely entirely upon the stability of a quartz reference oscillator and their general principles will be discussed later in this series.

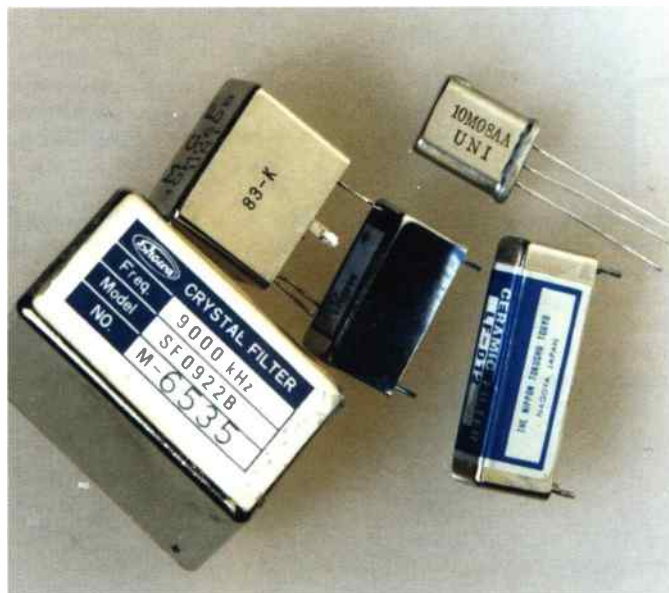
Manufacturers often omit to quote the stability ratings of the cheaper sets, but for the more expensive receivers, they may detail the frequency change to be expected over a given temperature range, eg:  $\pm 2\text{kHz}$  from 0-40°C. The specifications for a communication receiver are much more precise, eg:  $\pm 300\text{Hz}$  during the first hour,  $\pm 50\text{Hz}$  per hour thereafter.

It is the above problems that contributed to the need and desire to develop the type of tuning systems universally adopted in modern

radios. However, digital tuning comes with its own set of problems. We'll cover those later in the series.

### IF Amplifiers

Unlike the r.f. amplifier, which must tune over a wide frequency range, the intermediate frequency (i.f.) amplifier is only concerned with the single frequency output from the mixer. Since this output is centred around a pre-determined i.f. frequency, the tuning may be pre-set at the factory. The ability of a superhet receiver to reject



**Fig. 7.8:** Rather than use discrete coils and capacitors, some receivers use crystal filter units, such as these shown here, to achieve an i.f. response nearer to the ideal.

unwanted signals operating close to a wanted signal is determined mainly by the sharpness of the tuning, or the selectivity of the i.f. stages, however, the maximum amount of selectivity that can be employed is determined by the bandwidth of the desired incoming signal.

The bandwidth required by an ordinary broadcast station amplitude modulated (a.m.) signal is equal to twice the highest modulating frequency (see page 37, September 2004 SWM) and so the tuning of the i.f. circuits of an a.m. receiver must have sufficient bandwidth in the i.f. to accommodate this type of signal without distortion (muffling of the signal, if the bandwidth is too low). There may be only one i.f. stage employed in the cheaper type of receiver. If this is the case, then the maximum gain from the i.f. stage will be limited and the shape of the i.f. response will be often be too broad across the base for good selectivity, see **Fig. 7.5**.

The more expensive receivers usually employ several i.f. stages and the gain of each stage is usually controlled by the a.g.c. potential, see **Fig. 7.3**. The additional stages not only produce more gain, but allow the associated tuned circuits to be carefully adjusted so as to improve the shape of the i.f. response - see **Fig. 7.6**.

The most expensive receivers, until the advent of d.s.p. systems, employed either a quartz or a mechanical filter to produce the very steep sided response needed to provide high selectivity - see **Fig. 7.7**. The shape of the i.f. response is usually detailed in the receiver specifications by quoting the bandwidth in kHz at two points along the curve, eg 6kHz at -6dB and 19kHz at -50dB. You may see a specification term called **Shape Factor** and this often given as the ratio of the bandwidth at -60dB divided by the bandwidth at -6dB. So, the lower this number is, the steeper the sides, or 'skirts' of the filter are, and the nearer to the so-called 'ideal' shape of i.f. with its flat top and vertical sides.

No doubt you are beginning to appreciate some of the finer points of receiver designs by now! Some of the more advanced designs will be discussed next month.

# Amateur

## Bands

- **Clive Hardy** SWM, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW
- **E-mail** clive@pwpublishing.ltd.uk

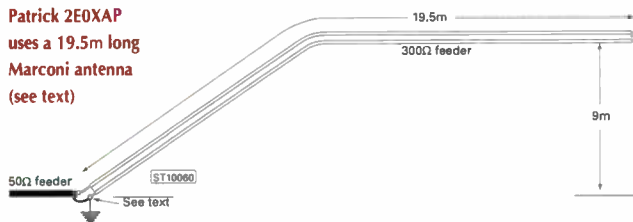
The strong winds that visited the south of England in late October put paid, after many years faithful service, to my 29MHz vertical antenna. Having started life intended for use on 27MHz, it wasn't of the most robust construction, but the 20 plus years it did last made it very good value for money. It's now been replaced by a rather impressive looking Solarcom A99, which I managed to cut slightly too short for optimum v.s.w.r. mid-band on 28MHz, but it's spot on at 29MHz and works a treat.

As the coaxial cable was at least as old as the antenna, I replaced that at the same time as the antenna. Like the old antenna, the new one will spend most of its time connected to my trusty 10m f.m. radio, which I converted from a DNT 27/81 CB back in 1984. I've had a lot of interesting contacts on that band with that radio, and the almost 5W it produces usually prove enough for most QSOs, unless conditions are particularly hostile.

At the same time that I was replacing the antenna I, at long last, fitted an f.m. board into my Yaesu FT-840. That'll give me a higher power option should my trusty DNT, for which I have much affection, find the going difficult. It's also interesting to have the facility to monitor the same frequency with two radios and note the differences, particularly as one uses a vertical antenna and the other a horizontal. If you'd like to check out 10m f.m. there's a repeater in Maine, W1OJ, on 29.620MHz (the input is on 29.520MHz) that's one of the first to be heard in the UK when atmospheric conditions start to become favourable.

To test the new antenna I worked **Alan Stride G7MYI** through the repeater whilst penning this piece. As he was only about ten miles from my home I could also hear him on the input frequency. For 10m f.m. simplex listen on 29.600MHz.

- **Patrick 2E0XAP** uses a 19.5m long Marconi antenna (see text)



World-wide 28MHz propagation is very dependent on there being plenty of sunspots. These solar disturbances on the solar surface reach a peak in number roughly every 11 years, with the most recent maxima seen during 1979, 1990, and 2001. The next one is due in 2012 but, meanwhile, predictions for

the minima in 2006 are that it could be the lowest for a long time. So, make the most of the conditions whilst you can!

## UK Ahead Of The Rest

Unbelievably, the UK is ahead of almost all of the rest of Europe in making another 100kHz of h.f. spectrum available to amateurs. As of 31 October the '40 metre' band covered from 7.000 to 7.200MHz instead of to 7.100MHz. In Europe, apart from the UK, only Eire has that extra allocation. The rest of the continent is still without it, although the chances of that being the situation for much longer are pretty slim.

Unlike some transceivers, and although not 'opened up' to transmit out of the amateur bands, my Yaesu FT-840 already transmitted on the new frequencies. This made life much easier than if I had owned, for example, like the Editor, an FT-817. Although from the same manufacturer, out of the box the '817 only transmits up to 7.100MHz.

Getting the extra coverage isn't as easy as with some other rigs either. Keeping the power applied to the c.p.u. is essential at all times. Operating systems have been lost requiring radios to be returned to the manufacturer following uninformed attempts to 'wide-band'.

Beware of apparently simple diode snipping procedures being peddled as able to do the job. They don't. You would have

thought there would have been consistency across all of a manufacturer's range. However, back to the action.

I didn't stay up until the new part of the band's opening time of 0100 (also 0200BST as

it was the night the clocks went back) but I did get my call on the air later that day. Despite the good number of broadcast stations in the new part of the band, there was still plenty of space for amateurs.

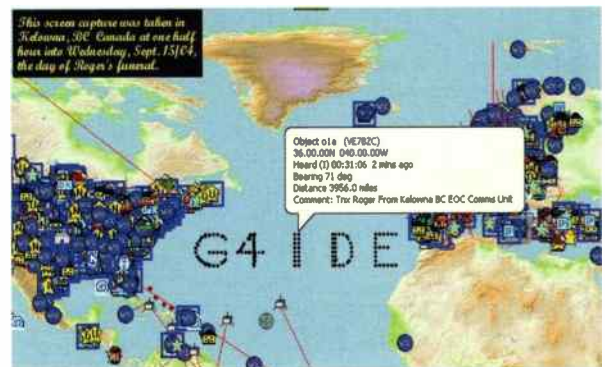
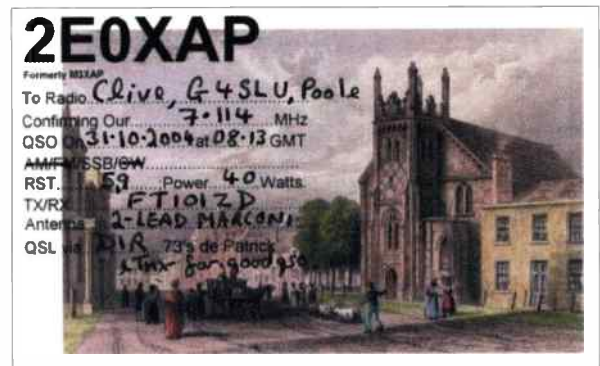
Thanks go to **Patrick Xavier 2E0XAP** in Billericay for my first contact on 7.114MHz

on s.s.b at 0822. Connected to his Yaesu FT-101ZD, Patrick uses a 19.5m long Marconi antenna 9m a.g.l. made of 300Ω feeder shorted at the far end, the length being roughly a half-wave on 7MHz.

To provide a good earth where the antenna joins the 50Ω coaxial feeder, it is connected to six earthing spikes linked under the soil with 2kg of copper pipe. It's an old design for an antenna but, provided the earth system is good, it still works very well.

## Other News

In September's column I mentioned the sad passing of **Roger Barker**, creator of APRS software, *Ui-View*. In a tribute to him on the day of his funeral, hundreds of amateurs each used the 'object' facility of the software to



place a dot on the map of the Atlantic. By co-ordinating the locating of the dots, Roger's callsign was spelled out. Quite a feat of organisation and a measure of the value placed on Roger's contribution to amateur radio.

Many dots had messages of thanks attached. The one shown, from **VE7BZC**, said 'Tnx Roger from Kelowna BC EOC Comms Unit'.

Three French amateurs will be on the air using 7 to 28MHz s.s.b. and c.w. from west African Mauritania over the post Christmas and New Year period. The call will be **5T5DY** and the actual dates of activity are from 26 December - 9 January. During the first week they'll operate from coastal Nouakchott, then inland Atar and Tergi. During the second week they'll be in the Banc d'Arguin region to the north of their initial location.

Early readers of this column should be able to catch **Mark VK2GND** operating as **ZK1GND** from Rarotonga in the Pacific, South Cook Islands from the 24-30 December. Look out for him on 14.195 and 14.273MHz.

# Info<sup>in</sup> Orbit

● **Lawrence Harris** 55 Richville Road, Shirley, Southampton SO16 4GH  
● **E-mail** info.orbit@pwpublishing.ltd.uk **Website** www.astronomer.plus.com

**W**eather satellite (WXSAT) activity is as high as ever: one successful Chinese launch in October, an imminent Ukrainian launch (December) and a February NOAA launch! The latest Chinese meteorological satellite - the geostationary *Fengyun-2C* - was launched on 19 October and transmitted its first image on 29 October. The Ukrainian satellite *SICH-1M* (M apparently means 'modified') is scheduled for launch on 28 December, failing any last minute hitches. The next NOAA WXSAT is scheduled for 12 February 2005.

## *SICH-1M* Launch 'Imminent'

Those who started monitoring WXSATs and receiving pictures during the last few years could be forgiven for not being familiar with the *SICH* (and *OKEAN*) series of satellites - see **Fig. 1**. They are virtually identical satellites, but are not the conventional WXSAT type.

NOAA WXSATs transmit continuous data including two different types of imagery - low resolution (a.p.t.) in the 137MHz band and high resolution (h.r.p.t.) in the 1700MHz band. The former (a.p.t.) can be received on relatively low-cost equipment; thousands of amateurs and professionals around the world have set-up suitable receiving stations.

The latter (h.r.p.t.) provides 1.1km resolution imagery from stations and costs in the region of £2500 or so. The *SICH* and *OKEAN* series are resources satellites that image in the visible, infra-red and also the microwave part of the spectrum using additional sounding equipment.

The *SICH-1M* spacecraft - see **Fig. 2** - is a cooperative Russian-Ukrainian, multi-purpose earth observation mission, based on an agreement between Rosaviakosmos (Russian Space Agency) and NSAU (National Space Agency of Ukraine). The agreement forms part of the Ukrainian National Space Program.



**Fig. 1:** *OKEAN-O* courtesy National Space Agency of Ukraine.

The *SICH-1M* satellite is an upgraded *SICH-1*, the latter previously launched on 31 August 1995 and a descendent of *OKEAN-O*. The spacecraft has been built and integrated by the State Design Office Yuzhnoye of Dnepropetrovsk, Ukraine, which also provides the launch vehicle *Tsyklon-3*.

The satellite is stabilised using a gravity boom and has high orientation accuracy in roll, yaw and pitch. It carries a GPS receiver and has a daily average power consumption of 380W. The design life is one year, though the aim is for three years operation.

*SICH* is the Ukrainian name for 'owl', although some sources say it means 'battle'. The main objective of the mission is the monitoring of earth and oceans, together with other meteorological studies.

Like its predecessors, *SICH-1M* will be able to acquire information simultaneously in the three bands. The satellite also carries equipment related to the international project Variant to study the ionosphere (the ionised layer above the atmosphere). This is the first international scientific project led by the Ukrainian specialists and they are excited about its prospects.

The Variant experiment is the investigation of earthquake precursors. The satellite launch takes place with the *DEMETER* French micro-satellite launch of which its main scientific task is the monitoring of active seismic phenomena in the ionosphere. Coordinated ground and remote sensing experiments using *DEMETER* and *SICH-1M* will be performed. The satellite has new instrumentation and is far more sophisticated than *SICH-1*.

## *SICH-1M* - Onboard Imaging Equipment

Side-looking radar: The side-looking radar swath has been increased from 450 to 700km. The visible - microwave scanner (MTB3A) will make



**Fig. 2:** *SICH-1M* courtesy Yuzhnoye Design Office.

measurements in the three bands and carries NAVSTAR satellite navigation equipment and hard disk storage memory.

The consideration of user requirements for easy access to the data, including hobbyist reception, has been ensured. Transmissions of data will be made using the 137MHz, 1.7 and 8.2GHz bands to allow reception of the signal by practically all existing receiving stations around the world. The Ukrainians estimate that more than 1000 stations can receive 137MHz, more than 200 can receive 1.7GHz and over 30 can receive 8.2GHz.

The spacecraft is equipped with space-to-ground downlinks:

Frequency	Link
8.2GHz	Intended for high rate data transmission
2.2GHz	Radio link with a data rate of 6Mbit/s, transmitter power of 9W
1.7GHz	Intended for local data transmission, having data rates of 665.4 or 1330.8Kbit/s, and transmitter power 6W
137.4MHz:	Intended for APT transmission with usual bandwidth of 2.4kHz

## Monitoring *SICH-1M*

It is likely that *SICH-1M* might work in a different manner than the conventional WXSATs. There have been rumours of possible continuous transmissions from *SICH-1M*. My enquiries so far have failed to answer this question.

If, as with all previous *SICH* and *OKEAN* satellites, transmissions on 137.40MHz are short-lived, then there is only one way to reliably receive them. Leave your WXSAT receiver tuned to 137.40MHz and coupled up to either a tape recorder or other audio recording device fitted with a signal detection facility, or to your normal computer configured for reception.

The satellite's orbit will be a polar, non-sun synchronous, near circular orbit at 650km ( $\pm 30$ ), with inclination 82.5° and 98.7 minutes orbital period.

## *FENGYUN-2C* Launched

On 19 October a Changzheng-3A (Long March-3A) rocket lifted off from the Xichang Satellite Launch Centre (XSLC) in the southwestern Sichuan Province carrying *FENGYUN-2C* (the name means 'Wind and Cloud'). The first image transmission came ten days after launch, to the relief of satellite



**Fig. 3:** Launch of *FENGYUN-2C* - image courtesy XINHUA.



Fig. 4: FY-2 series.

controllers at the National Satellite Meteorological Centre (NSMC) in China. The satellite was independently developed and manufactured in China, and is much enhanced from earlier satellites in the series.

The primary payload is the Visible Infrared Spin-Scan Radiometer (VISSR), consisting of a scanning system, a telescope and infrared and visible sensors. The scan mirror produces cloud cover pictures in five channels - two channels more than its predecessor *FY-2B*.

Spectral coverage includes the three conventional channels in the wavelength bands of visible, infrared and water vapour. The VISSR makes day and night observations of cloud and determines cloud heights and temperatures.

*FY-2C* produces a cloud image once every half an hour, with a nadir resolution of 1.25km in the visible channel. *FY-2C* nominally transmits 28 cloud images daily, though during the flood season this can increase to 48 or more images per day. The satellite also carries instruments to monitor solar activity, such as X-ray emission and particle radiation in orbit.

The complete first image measuring 9164 by 9164 pixels - of which only a compressed copy was immediately available - see Fig. 5 - shows a large cloud-free area that extends south of the Yangtze River to the southern Guangdong Province and Guangxi Zhuang Autonomous Region. Chief Engineer Xu Jianmin of the *FY-2C* ground application system, said that based on the first image, there was "an obvious improvement" in the quality of the imagery compared to that returned from *FY-2B*.

### How Times Change!

I periodically visit sites that have previously provided valuable information about the Russian and Ukrainian space programmes. One of these, based in the Ukraine, has sadly become unusable. Apparently giving in to extreme commercialisation, it has recently carried links to sites of highly inappropriate and very questionable taste, together with premium-rate diallers and pop-up windows. It has also removed the contact E-mail address. Fortunately, there are several other sites that remain more formal. The Ukrainian Space Agency and Yuzhnoye Design Office have provided the updates referred to in this column.



Fig. 5: First image from *FY-2C* courtesy XINHUA.



Fig. 7: *METEOSAT-8* channel-12 (HRV - see text) 1100 27 October. © EUMETSAT 2004.

### Future WXSAT Monitoring

The equipment that I have - *METEOSAT-8*/HotBird receiver, a.p.t. and h.r.p.t reception systems - is set to continue to remain usable for some years to come. Some of the new satellites, however, will present new challenges. We generally receive direct signals from the satellites - NOAA and FENGYUN - because this is the original and most challenging reception method - and is a little more interesting than searching the Internet for someone else's pictures!

**HOTBIRD-6 (*METEOSAT-8* re-transmission):** This forms possibly the cheapest entry to the world of monitoring WXSATs. A commercial satellite television receiving system can be set up to receive DVB broadcasts from *HOTBIRD-6*. I use mine via a dish at ground level. By adding a suitable (and inexpensive) DVB decoder (either PCI or USB) to your computer and purchasing and configuring the necessary software from EUMETSAT, you can receive high quality images and data transmissions originating from *METEOSAT-8*.

I have mentioned various software options for the subsequent job of managing and compiling the images, in recent editions of this column. The image flow from this system includes HRIT (the highest quality images), LRIT and Foreign Satellites. This system forms possibly the cheapest 'per image' option.

**Automatic Picture Transmission:** Our polar WXSAT receivers already have frequencies 137.50 and 137.62MHz selectable. The new NOAA polar orbiters require the new frequencies 137.9125 and 137.10MHz in



Fig. 6: METOP polar orbit. © EUMETSAT 2004.

order to ensure reception until 2012. Adding these new frequencies to current polar WXSAT receivers is unlikely to add considerably to the cost.

**High Resolution Picture Telemetry:** reception equipment will remain operational until the last NOAA ceases to transmit (h.r.p.t.) - possibly around 2012.

**METOP data:** METOP is the European (EUMETSAT) polar satellite series - see Fig. 6 - that is currently scheduled for launch in the last quarter of 2005. It will form part of the new all-digital WXSAT constellation in cooperation with the NOAA WXSATs. The main image formats are LRPT and (A)HRPT. The METOP (Advanced) High Resolution Picture Transmission (AHRPT) system will provide data for large, professional user stations. It will carry data from all instruments, including those provided by the USA, but it will not be compatible with the system of the similar name currently flown on NOAA satellites.

The Low Resolution Picture Transmission (LRPT) system will provide data for small user (hobbyist and professional) stations and will be the long-term digital replacement for the analogue Automatic Picture Transmission (a.p.t.) system currently used on NOAA satellites.

**LRPT:** 150kHz bandwidth (plus Doppler shift) on 137.9125 and 137.10MHz. (Note that the signal algorithms used for LRPT (called Viterbi and Reed Solomon decoding) are not compatible with LRIT. The equivalent was the relationship between APT (compare with LRPT) and WEFAX (compare with LRIT) where both APT and WEFAX can be decoded using the same software. Future Russian meteorological WXSATs will use LRIT. We have to hope that all LRIT telemetry will be compatible!

**AHRPT:** 1.69GHz band transmissions, but not compatible with HRPT. It remains to be seen whether hobbyist interests will be able to develop AHRPT reception systems.

### The October Storm

Late October saw an extremely intense depression developing off the southwest coast. Mention was made of it deepening to levels not seen since the hurricane of 1987 that severely damaged the roof of our Plymouth house. The worst of the storm - see Fig. 7 - travelled northwards, delivering severe gales

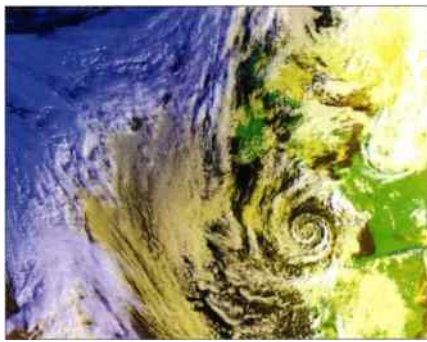


Fig. 8: *FENGYUN-1D* 0924 30 October - the storm moves south.

across Wales and the north-east and Ireland.

It was interesting to notice the variation in wind speed published on the various weather-associated websites. The Met Office provide local forecasts selected from their main page - the first section of the following:

[www.meto.gov.uk/weather/europe/uk/centralsouthern.html](http://www.meto.gov.uk/weather/europe/uk/centralsouthern.html)

From the main page, you can enter your postcode to obtain a specific forecast. Their forecast showed severe gusts for the Thursday. Contrastingly, MetCheck also provides a postcode-based forecast and on this occasion it was quite accurate, showing little more than gusty wind - [www.metcheck.com](http://www.metcheck.com)

Kevin Hughes' picture from *NOAA-17* shows the clearing weather following the vigorous system referred to above.

## Take A TIP!

The NOAA WXSATs provide a huge amount of information through their downlinks and at least two of these are available via v.h.f. transmissions. The allocation of frequency bands is a function of the ITU World Radio Communication Conferences, which are held every two or three years.

In the 1980s, the 136-137MHz band was allocated to the aviation industry so the NOAA 136.77MHz beacon frequency (BTX-1) was changed to 137.35MHz for NOAA-KLM (and subsequently N and N'). Other design changes for these spacecraft were the moving of commanding from v.h.f. to S-band and the adding of a S-band telemetry capability (STX-4).

In the 1990s, most of the 137-138MHz band was re-allocated to the mobile satellite service, with the meteorological satellite service then confined to two small segments at each end. With the launch of *NOAA-N* (currently scheduled for February) and *N Prime* (currently anticipated for 2008), analogue data (a.p.t.) will be on 137.1000 or 137.9125MHz. These frequencies will also be used for the METOP (digital) LRPT service, due for launch in December 2005. My thanks to Mike Kenny of Australia for clarifying the background to the change of TIP frequencies.

## Around The World

*METEOSAT-8* forms just one component of the Global World Weather Watch. Images are gathered from *GOES-9* (located at 204°W longitude) over the far east, from *GOES-10*



Fig. 9: *NOAA-17* 4 November from Kevin Hughes.

Fig. 10: *GOES-9* 0300 14 November (via *METEOSAT-8*). © EUMETSAT 2004.



Fig. 11: *NOAA-17* 2106 13 November infra-red view of frosty Britain.

over the eastern Pacific (longitude 135°W - off the western continental USA), *GOES-12* over the eastern coast of USA (longitude 75°W) and *METEOSAT-6* over the Indian ocean (at longitude 10°E). Hobbyists all over the world can receive (relatively) low-cost imagery wherever they are.

A series of images from *GOES-9* is transmitted as part of the FSD (Foreign Satellite Data) imagery from *METEOSAT-8*. If your imaging equipment is running overnight (UK time), the whole disc, visible-light image from *GOES-9* should be received - see Fig. 10.



## Frost Over Britain

I just had to squeeze in Fig. 11 showing the channel 4 (infra-red) view of the effect of late autumn clear skies. The frost formed rapidly and was very clear on both NOAA and other satellite imagery.

## Next Month

NOAA is hosting a Conference for Direct Readout Users (us!) called *A Decade in Transition*, in Miami between December 6 and 10. That gives me just a few days to obtain reports from those attending. I understand that both GEO (Group for Earth Observation) and RIG (Remote Imaging Group) will be attending.

## Seasonal Greetings!

This issue is published just days before Christmas, so once again I must thank those contributors around the world who, during the year, have provided pictures for inclusion in the column. Next year is likely to be a particularly busy one for WXSAT enthusiasts with both NOAA and METOP launches scheduled. Keep a listen out for the first transmissions from *SICH-1M*.

## Frequencies

### a.p.t.

*NOAA-12* and *NOAA-15* transmit a.p.t. on 137.50MHz.

*NOAA-17* transmits a.p.t. on 137.62MHz.

during overlap periods, *NOAA-12*'s a.p.t. may be switched off.

### h.r.p.t.

*NOAA-12* and *NOAA-16* transmit h.r.p.t. on 1698.0MHz.

*NOAA-14* transmits (no image) on 1707MHz.

*NOAA-15* transmits on 1702.5MHz.

*NOAA-17* transmits on 1707MHz.

*FENGYUN-1C* and *-1D* transmit on 1700.5MHz.

*SICH-1M*: should transmit on 137.40MHz after launch.

WEFAX: *METEOSAT-7* (geostationary) transmits WEFAX on 1691 and 1694.5MHz and Primary Data on 1691.0MHz.

*METEOSAT-8* HRIT, HRIT and other formats transmitted via *HotBird-6* at 13°E on transponder 117- 10.85344MHz as EUMETCast data.



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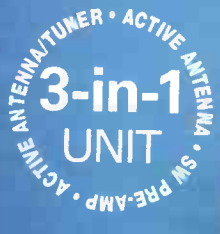


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## SOME COMMENTS ON WRTH 2004:

Again this year, I can recommend serious DX-ers to buy this "DX-ers Bible"! I have all Editions of the WRTH since 1961 in my collection and I am pleased to say that the 2004 Edition is the best!

*Anker Petersen, Danish SW Club International*

I just got WRTH for 2004. It is so well done, I can't believe it! As I flip thru, picking various stations and countries - it's all there. I thought last year's WRTH was the end of the line, it could not get any better - this 2004 is superb! *H Ragan, USA*

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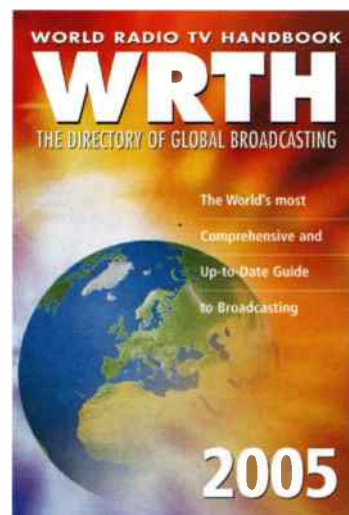
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# Sky High

● **Peter Bond** c/o Editorial Offices,  
Broadstone

● **E-mail** skyhigh@pwpublishing.itd.uk

**W**ith the cold winter months almost with us, my postbag has become a bit sparse, so I am grateful to those readers who have recently been in contact. How about some more of you dropping me a line? I have always maintained that whenever possible, all answers to letters and E-mails will be made within the 'Sky High' column, (with the very odd exception).

I was therefore somewhat surprised to be informed by a regular reader of what I feel is some fairly vitriolic and unwarranted criticism on an airband newsgroup regarding the fact that I never answer a certain individuals E-mails or include their information in the column. The first point regarding E-mails I have already answered. Having checked, I found that the person concerned has sent me just one E-mail well over two years ago. I did contact them to query some of the information as it conflicted with other reports I had received - no reply was received! It's funny how some people can find the time to put fingers to keyboard to have a moan but not to send in information that may be interesting to 'Sky High' readers. Right, sorry about that I've climbed off my Soapbox now!

## Brize Norton - 1 June

My thanks go to **Adrian** for the next report on a bit of a rare visitor, (sorry it's a bit late I mis-filed the E-mail). On 1 June he noted what appeared to be a military Boeing 757 landing at Brize Norton, the callsign was TERRA 72. (It was spelt as TERRA). It didn't appear to be the standard C-32As from the 89th AW based at Andrews AFB, so he (and I), did a bit of investigating.

We discovered that this is one of two or possibly three C-32Bs, which are operated by the United States Government/Military with military crews on what appear to be 'support' missions, when there has been some sort of terrorist threat or act against USA or Allied resources abroad. They come under the titles of DEST, (Domestic Emergency Support Team) and FEST, (Foreign Emergency Support Team). The actual unit under whose umbrella they operate is a bit vague, although some sources have suggested it is the 486th FLTS, (Flight Test Squadron), based out of either Eglin AFB or McGuire AFB.

There does seem to a bit of a clandestine element to their operations as I have read

some suggestions on the Net that the aircraft serials may have been changed or duplicated. A practice that was not uncommon in the past, a famous example of this in the eighties being a picture of two RC-135s parked back to back on the ramp at Mildenhall, both with the same serial, which if I remember correctly was 64-14849! A second C-32B has been reported recently in the USA using the callsign DACTYL 80.

## RIAT 2005

In early November, information was released regarding the themes for the Royal International Air Tattoo 2005 at Fairford. The first theme is to be surveillance aircraft, which will 'lift the lid on the secretive world of aerial surveillance and demonstrate how state-of-the-art technology is being used to help save lives and understand the natural world'. It should be interesting to see what aircraft will participate in that line up, perhaps we should put together a wish list and send it in, I'll set the ball rolling with a couple Japanese E-2 Hawkeyes. (Closer to home, perhaps even a RAF Nimrod R.1 may take part!).

The second theme is a good old favourite and will be the next Tiger Meet, to be called 'Tigers Roar 05'. This theme has provided some superb colour schemes in the past and has helped use up many a roll of Kodak and Fuji film, (or Flash Cards as the case may be these days). A collection of aircraft will be drawn from the squadrons with big cats in their insignia or badges and hopefully provide some spectacular schemes, (remember 1991?).

Let's hope that Air Force paint shops around the world will be arming their spray guns ready for action next Spring. The last theme for 2005 will be a commemoration of the 60th anniversary of the end of the Second World War with a focus on International co-operation since the birth of the United Nations. With thanks to the RIAT Press Office/website.

## Leuchars Airshow

I am grateful to **Keith P** who sent me a report on the Leuchars Airshow, he also sends me a CD with some photos/images from the show, but unfortunately for some reason my computer will not read the disk.

Keith reports: In general it was not a bad show, although the static display was

somewhat sparse. As it was made up of mainly locally based Tornados, it became a bit repetitive. Barriers were also a bit close to the aircraft, which hampered good photos of the static. It was good to finally see the Eurofighter at the show, both static and flying, as it had cancelled for the last two years. It was however a bit worrying when the hotdog and burger vans almost outnumbered the static display aircraft!

The flying display was, in my opinion, better than last year. The best display being either the 18 Squadron Chinook or the RAF Sea King SAR Demo, which came all way up from RAF Boulmer. It was good to see the Typhoon in the air and the airfield attack by the Tornado GR4s was very impressive with the use of pyrotechnics to act as bomb explosions.

The weather hampered things slightly with the Battle of Britain Memorial Flight having to cancel its arrival due to severe weather on the Friday. The weather on the actual day of the show was touch and go at times. The rain managed to stay away, but with a wind peaking at 28 knots, it made the flying display challenging to say the least.

The one major complaint I would have, is why do the Americans never fly here? They can make the shows down south and bring all their fancy hardware, F-117s, U-2s, B-2s, etc., but it is beyond me why they cannot at the very least bring some more interesting static aircraft. Its always the same, F-15, B-52 and KC-135, although this year there was also a KC-10. The 352 SOG based at RAF Mildenhall often pass through RAF Leuchars, so I cannot understand why they couldn't at least bring a couple of aircraft to the show.

As far as an airshow in Scotland is concerned, it was not too bad at all and something that Scotland really needs to see more of. The show could be better, but then it could also be worse. If the Americans would beef up the static and actually fly and if there were some more interesting aircraft in general, I am sure the show would be a lot more popular and attract far bigger crowds.

## Exercise Eagle Eye

My thanks go to **Ian, Martin and Robbie** who spent a couple of days around Salisbury Plain tracking the aircraft involved in the southern element of Exercise *Eagle Eye*. Based out of Devizes, their main source on action was Keevil airfield, which is located on the Northwest corner of Salisbury Plain about 7km



east of Trowbridge. Almost all of the movements were noted on two frequencies: 282.25, which is Salisbury Plain Operations and 370.025, which is a Lyneham Operations Dropzone frequency, regularly used at Keevil Tower.

The ground callsign that seemed to be in use for this frequency was VANQUISH on the 11 October and GRIFFIN on the 12th. Much of the traffic arriving and departing used Lyneham Zone on 123.4. Although the report was quite extensive they say that they still missed quite a lot of movements. I have abbreviated their offering to include some of the more interesting callsigns noted.

A visit for a couple of hours on the afternoon on 10 October produced several pairs of Apaches using the callsigns, VALIANT, VANGUARD, VENTURE, VICTOR, VILLAIN plus three pairs of Lynx using SCEPTRE, SUMO and SWITCHBLADE. Several other pairs of helicopters remained unidentified.

A busy day on the 11 October produced the following, (the list excludes callsigns already listed above and AAC/ARMY AIR callsigns). CHINOOK callsign GAMBIT, APACHE callsigns CASTLE, DEMON, VILLAIN, MERLIN callsign RAPIER. There was sometimes quite intensive helicopter activity during the day and into the evening with callsigns regularly being re-used with

Frequencies in use:	
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Approach	123.3, 292.475
Ground	297.9
Display	121.175
Red Arrows	243.45

different numerical suffixes. Some helicopter flights were noted to change callsigns for what appears to be different elements of their exercise.

The traffic flew a variety of routes between various destinations, including, Keevil, Deptford, South Cerney and Westhill Farm. Other frequencies noted in use were 256.2, 259.6, 261.1 and 284.1, all of which are known Forward Air Control frequencies (FAC). Just to confuse matters, whilst 259.6 is a known FAC frequency it is the first time I have seen reported for about three years.

I have also had two reports this year, that 259.6 it is a 27 Squadron Operations (or Air-to-Air) frequency, which would tie in quite well with the GAMBIT callsign as it is a wing callsign for Odiham. But, 259.6 has also been reported this year as an Air-to-Air used by the Blue Eagles Display Team

- any comments anyone?

Variable weather around Salisbury Plain on 12 October meant that some sorties were either changed or cancelled, nevertheless some new callsigns were noted: APACHE callsign DISCUS, CHINOOK callsigns GOLDFISH, HARDY, INDIGO? MERLIN callsigns SHERBERT or SHUBERT? Another source has provided a couple of callsigns for 13 October, APACHE callsign CRAVEN and JOTTER. MERLIN callsign WAGTAIL.

This only represents a small proportion of

what was obviously a fairly major exercise. The second part of the exercise took place in the north of the UK based around West Freugh and involved Hercules Parachutes and also some fast jet activity. Thanks for the report lads.

## Xcorder 2.0

In the Spring of 2003 I reported on a piece of software, which is very useful if you use a computer in association with a radio. I am grateful to Steve L who tells me that a new version of Xcorder is now available for download, (I discovered that it's actually been available for about nine months).

If you want a computer based voice/signal activated recorder that records radio activity onto your hard-drive than this is the software for you. It allows you to record and playback long pieces of airband, (or any other band), that is only limited by the size of your hard-drive - a very useful piece of software.

Once downloaded and installed you just need a 3.5mm jack stereo/stereo audio lead and away you go. The latest version is Xcorder 2.0, it is freeware so can be downloaded for nothing and can be found at [www.Xcorder.com](http://www.Xcorder.com) It is also featured on the SWM software collection CD. - Ed.

Finally, having mentioned the classic years of the Tiger Meet at the RIAT, this month's photo shows a Dutch F-16 in joint Tiger and NATO anniversary markings in 1999.

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 ● **E-mail** [ssb.utils@pwwpublishing.ltd.uk](mailto:ssb.utils@pwwpublishing.ltd.uk)



The large Joint Maritime Course (JMC) course/exercise ended at the beginning of November and provided much of interest to the h.f. monitor. The following frequencies were in use: 7.5185, 1.725, 5.706, 5.208, 5.267, 5.2617, 5.2045, 5.400, 9.032 and 6.72MHz. All frequencies were utilised with u.s.b. Another frequency heard at the time was 8.1155MHz, but this may not have been JMC related.

Most of the traffic referred to radar tracks and other similar information, but 5.1725MHz was the frequency to monitor for action, as during operations on several days they announced 'Air Warning Red' and similar alarming transmissions. The exercise involved naval and air forces from the USA and UK plus some other European countries and took place mostly at sea off the north west coast of Scotland.

While the JMC was taking place a collision occurred in the Minch (the stretch of water separating the Scottish mainland and the Western Isles) between the participant Norwegian Submarine KN *Utstein*, which was at periscope depth and, appropriately, a Norwegian tanker called the *Kilstraum*. The prang took place at 0350 on Thursday 28 October. The sub briefly docked in Stornoway, Isle of Lewis for a swift damage assessment before continuing on patrol.

Land based military units were also sighted by correspondents and one such unit equipped with a Land Rover, two minibuses, bivvi tents and radio mast was interrogated by locals in Scotland, but they didn't give much away even when their radio tent was invaded by sheepdogs! Apparently voice communications could be heard from within their tent but no frequencies were identified. They may have been using encrypted/secure radios and in any case these may well have been on v.h.f. or u.h.f. A digital camera equipped sheepdog owner took the photo of their encampment for me.

Without wishing to take up too much space reprinting HM Coastguard frequencies, this time of year presents an ideal opportunity for a reminder of h.f. frequencies used by their voice services - all u.s.b.

Some of the frequencies listed (see **Table 1**) have not been published in SWM before.

I have never been terribly good at Morse code (c.w.) decoding. At peak performance I suppose that I could manage about 25w.p.m. but that was some time ago.

While I make brave attempts to copy Morse from stations that are on the bands it seems that confusion is often the result. I may be able to mitigate my incompetence by reminding myself that there are more types and variations of Morse code than one would imagine.

Practically every type of alphabet (or whatever) has its own version of the code. The

Russians have a version that allows Cyrillic characters to be decoded as do the Israelis (Hebrew - of course), Japanese and Koreans. You can bet that the Chinese have a version too. And the Greeks, yes it's all Greek to me!

Numbers in all versions appear to be the same but many letters, with which we as English speaking people, are familiar, are somewhat differently encoded in Morse codes used in other countries. As an example of this please consider the letter U with the two Umlaut dots (Ü) above it as used in Germanic languages. This letter is sent as ..- - (dit dit dah dah) in Morse. Similarly Umlaut A (Ä) is sent as -.- (dit dah dit dah), which also in French would indicate the letter Ç (Cedilla).

If you are confused by all this and for further information on the differing types of Morse code there is a simple explanation and set of charts online at: <http://homepages.cwi.nl/~dik/english/codes/morse.html>

## Auroral Activity

The nights of the 9, 10 and 11th November were characterised by a fair amount of auroral activity in northern latitudes. Visible auroral columns were detected as far low as 45°N. If any readers were in areas of zero light pollution with a cloudless sky to the north then the illuminations were worth watching.

The effects of the Northern (and Southern) Lights on h.f. propagation are not as spectacular. Although v.h.f. conditions can be enhanced via auroral working, the absorption at h.f. frequencies is remarkable.

On one occasion, some years ago, I was in the north and the commercial radio (Yaesu) that was my companion at that time just refused to receive anything at all. I started to dismantle the set in an attempt to locate the fault.

Halfway through the procedure I popped outside the shack and happened to look skyward (it was late evening). I returned inside immediately and put the set back together, poured myself a drink and went outside to watch the rest of the light show.

## Cold Core

In colder temperatures the coaxial cable that most people use in connection with their antennas can cause problems. When the mercury drops much below -10°C the outer covering on coaxial cable can become

delicate and crack.

At lower temperatures still single copper cores can also become brittle. The copper core may also contract due to low temperature.

On more than one occasion operators investigating signal loss have examined the N-type connector, or similar, only to find that the centre pin is absent. Further examination has revealed that the centre pin of the plug had in fact been drawn into the coaxial cable by the contracting copper wire core.

In the harsh climates of polar regions a silicon based antenna is often used. To the touch this material feels somewhat waxy. It does not, however, break in low temperatures but it is rather expensive.

## No Antennas Allowed?

These days some local authorities don't allow antennas of any sort to be erected or deployed on properties that fall within their jurisdiction. A friend of mine lives in such an area. Without becoming vitriolic about the people on expenses who dream up these rules, it seemed that he needed some help to get his receiver up and running.

Although we did locate a wire antenna in his roof space, no indoor antenna is as good as an external one. Peeking around his garden I noticed that the property was bounded on three sides by a cedar lap panel fence. These panels are supplied in sections and his fence was about six feet high.

His wire antenna now runs from the shack window, down to ground level where it enters a small length of garden hose that is buried at a very shallow level across the lawn, terminating at the base of one end of the fence. The wire is then run up a vertical fence slat and is then interleaved with the cedar fence panels at a level just under the top of the fence. The wire runs all the way round three sides of his garden ground in this way and he is very pleased with the results.

MHz	Used by
2.226	Fishing vessel Intership
2.241	Intership
2.246	Intership
2.596	RNLI lifeboat, Light vessels and CG use
2.762	Secondary use subject to propagation
2.860	Coastguard Helicopter private channel
3.023	International night time Aeronautical Frequency
3.380	Secondary use subject to propagation
3.488	CG Helicopter secondary frequency
4.718	Secondary use subject to propagation
5.680	International Rescue Coordination working frequency
7.777	Secondary use subject to propagation

● **Table 1**

# Propagation

Forecasts

- Jacques D'Avignon VE3V9A
- E-mail: Jacques@pwpublishing.itd.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.

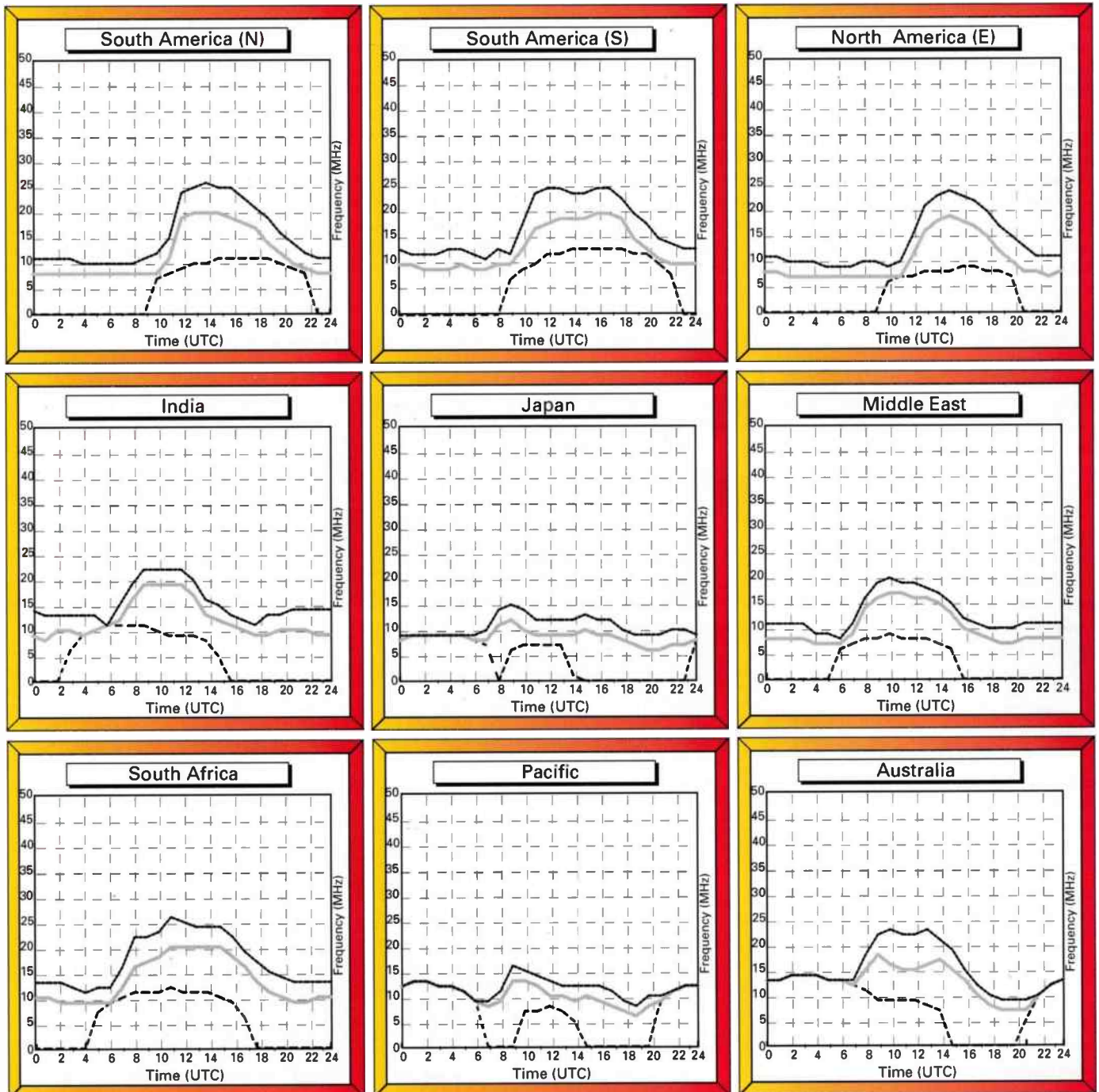
The middle line indicates the optimum working frequency (OWF) with a 90% probability of success for the particular path and time.

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.

January 2005  
Circuits to London



SK10062

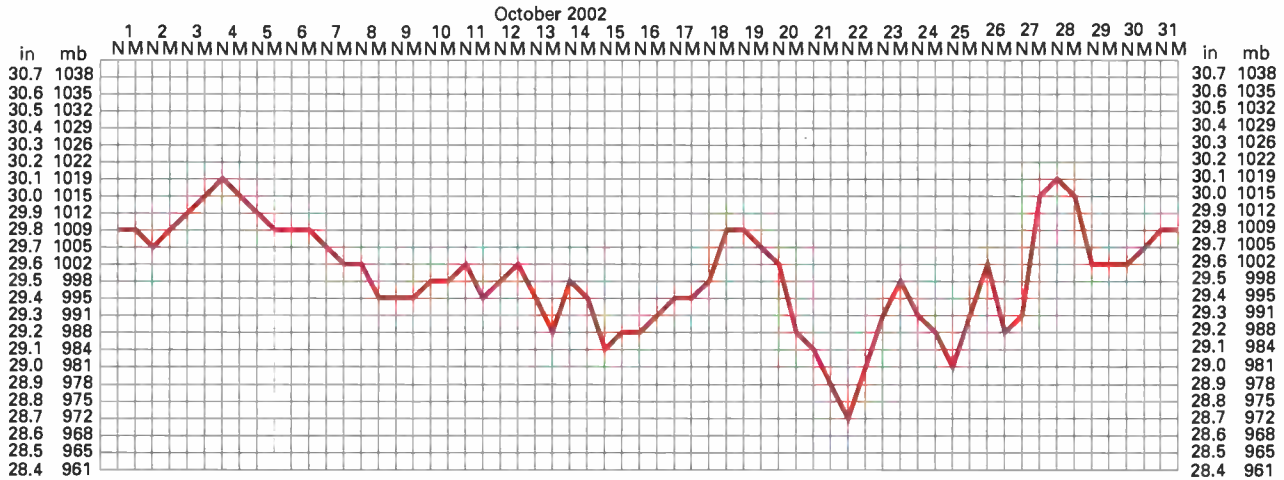


# Propagation

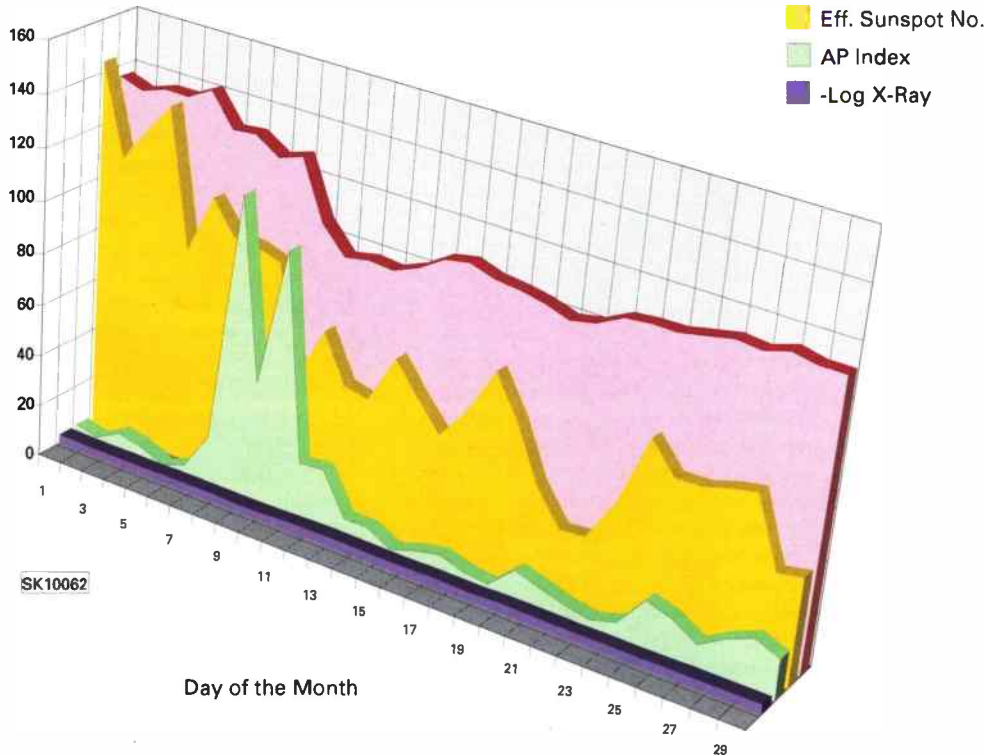
Extra

- **Kevin Nice** G7TZC, M3SWM,  
SWM Editorial Offices, Broadstone
- **E-mail:** kevin.nice@pwpublishing.ltd.uk

Ron Ham's barometric pressure chart, taken at Storrington, W. Sussex, November 2004



November Data



## 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

- **Mike Richards G4WNC**, 49 Cloughs Road, Ringwood, Hants BH24 1UU
- **E-mail** [decode@pwpublishing.ltd.uk](mailto:decode@pwpublishing.ltd.uk) **Website** [www.mikespage.btinternet.co.uk](http://www.mikespage.btinternet.co.uk)

I am going to continue last month's theme with a further look at how best to navigate the airwaves to get to the stations you want to hear. As well as a bit of theory on propagation, I'll be introducing some great software that can make life a lot easier.

## Mechanics Of Propagation

Let's start with a quick look at the mechanics of h.f. propagation, so that you have a better appreciation of what's going on. I won't complicate it, just provide a light introduction! The first point to note, is that radio signals really do travel in a straight line - just like the beam of a torch! But if that's the case, how does long distance propagation occur? It's all down to smoke and mirrors - well - not quite smoke and mirrors, but certainly electrons and ions. Like most things on this fragile planet of ours, long distance h.f. communications is brought about by the Sun interacting with the Earth's upper atmosphere or ionosphere. The high power ultraviolet radiation from the Sun causes gas atoms in the upper atmosphere to be separated into free electrons and positive ions. The process is called ionisation, hence the term ionosphere.

The ionisation causes the Earth's upper atmosphere to start behaving like a poor and highly variable mirror for radio signals. Although I've used the mirror analogy, the amount of reflection (refraction really) is highly variable and depends on the time of day, frequency and the angle at which radio waves strike the ionosphere. Whilst ionisation enables reflection, the free electrons in the atmosphere tend to absorb radio frequency energy so the overall effect starts to become quite complex. The rates of refraction and absorption are also highly frequency dependant! Just to add another dimension, the Sun goes through a regular cycle of violent surface activity called Sunspots that produces huge surges in the amount of radiation reaching the Earth. This, in turn, produces large changes in the Earth's ionosphere that effect radio signals.

The Sunspot activity goes through a regular cycle of approximately 11 years and explains why h.f. conditions seem to

keep changing year-on-year. One area I haven't mentioned so far is ground wave propagation. Whilst most long distance h.f. communication is done using the ionosphere to bounce signals around the Earth, lower frequency signals (up to about 2MHz) can travel far more than line of sight thanks to ground wave propagation. This is where the radio signal interacts with the Earth's magnetic field and slightly bends the signal back towards the Earth's surface. This type of propagation allows ground wave communications of 160km or more.

However, the good news is that there have been huge amounts of research into the subject and modern PCs can be put to excellent use, providing detailed predictions for radio routes across just about any path at any time.

## Into Practice!

The main point of running through this explanation is to show you that h.f. propagation prediction is not a simple task. So, after some essential background, let's put it into practice so you can work out the best way to receive that rare utility station. By far the best way to work out the best time and frequency to use is to employ a computer program to do all the hard work for you. There are a host of programs on the web, but one that seems to do particularly well is the Australian program, *WinCAP Wizard 3*. Although this is commercial software, an unrestricted 60 day version is available for download from their website at: [www.taborsoft.com](http://www.taborsoft.com)

Once installed, you can use the program to automatically work out the best time and frequency for any location on the planet. Before you can do this you need to tell the program where you are and set a few basic parameters. Setting your home location is done using the 'Circuits' button on the neat 'Master Control Palette'. This brings up the 'Circuit Configuration Manager' and you then need to select the 'User' tab. If you don't know 'Lat and Long' for your location, you will need to use the 'Locations' button to open-up the location manager. Here you can choose the nearest city to your home base and automatically

transfer the details to the Circuit Manager by pressing the New User button. With the location transferred you then need to set the time zone.

For the initial predictions you can leave all the other settings at their default values. Click 'Done' on the Circuit Configuration window to close it. If you want to have a quick look at some of things the program can do, press the Map button and you will be presented with a colour map showing the Dark/Light areas complete with the vital Grey-line area I discussed last month. To bring this to life you need to add some calculated data and the quickest way to do that is to hit the Beacon Predictions button at the top of the Map screen. This will display the results for 18 beacons dispersed throughout the world.

To make this information easier to read, go to the right-hand side of the map display and make sure that Signal-to-Noise Ratio (SNR) is the only button depressed. The display will then just show the call sign of the beacon and the Signal-to-Noise ratio for the chosen time and frequency. To see the results for different times or frequencies you can scroll the time using the arrows at the bottom of the map or choose a frequency from the bottom left. An interesting option is to press the MUF key as this will show the Maximum Usable Frequency for communication to that station. If you then scroll through the time you will see how conditions change for any given location. You may find that this is all you need to give you a good idea of the best frequency and time to get to a particular station. However, you can get a lot more precise if you have a particular station in mind.

Let's take a look at the USCG station at New Orleans, USA. To get a custom plot for the this station, first click the Menu button from the Master Control Palette then choose Location Manager. Next you need to select New Orleans - to do that click City then N. You can then scroll through the list to find New Orleans and highlight it. All you then have to do is press the Analyse button to get a custom report. Click done to close the first tabular report and you will be able to see the, more interesting, graph of the Best Usable Frequency. Make sure that the only buttons depressed on the right hand side of the chart are SNR and SSB. You should now have three

main graphed lines showing the Best Usable Frequency, Alternative Best Usable Frequency and the signal-to-noise ratio.

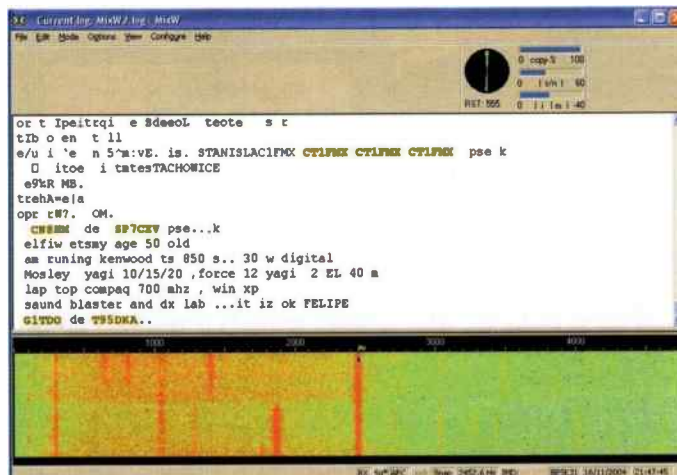
You will see from my sample chart that the only time the SNR moves into the green section is between 1400 and 1600 in the afternoon with a best usable frequency of 18MHz. A check of the station details for New Orleans shows that this station operates on the following frequencies: 4.3179, 8.5039, 12.7899 and 17.1464MHz. So you can see that *WinCAP* has shown quite clearly that the only decent chance I have to receive this station is by tuning-in between 1400 and 1600 hours on 17.1464MHz. If you have a selection of stations that you want to be able to check regularly you can set-up a user batch of stations that can be displayed in a similar fashion to the beacon list we looked at earlier. I won't go into that here, but if you have trouble and can't work out from the included help files drop me a line and I'll provide more coverage in a later 'Decode'.

## MixW

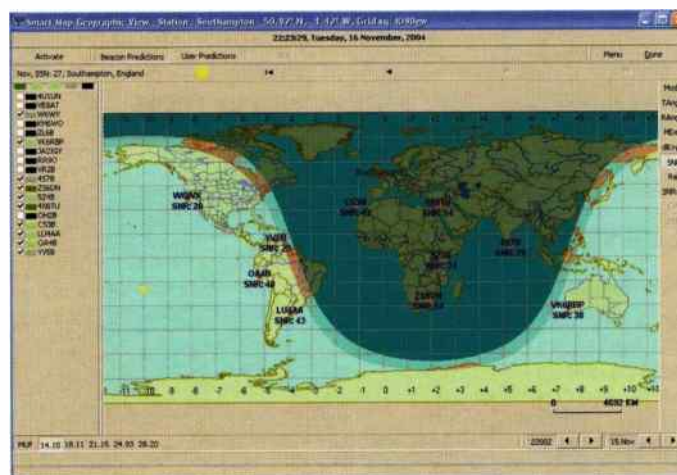
Leslie Goddard has written to me asking for help getting started with the decoding program *MixW*, a very capable multi-mode decoding program. But *MixW* has been designed very much with the radio amateur in mind, so Leslie can be forgiven for finding it a little clumsy for the short wave listener. Like most modern decoding packages it can be set to take its audio input directly from a standard soundcard. If you want to take a look at the program for yourself a trial version can be downloaded from the following website: [www.mixw.net](http://www.mixw.net)

When you first start-up you will be asked to supply your callsign and location - you don't need to worry about this as the information is only used to support the radio amateur functions. Then when you get to the main program screen, the first priority is to check your soundcard configuration. Do this by going to the Configure item on the top menu bar. In the Device box you need to select 'Computer Soundcard' and you should be able to leave the Input and Output boxes at their default setting. However, should you have multiple soundcards installed, you can use this option to make sure *MixW* uses the correct soundcard. The next job is to tidy up the screen a bit and remove surplus items, which you do by going to the View menu and make sure only the following are ticked: Tuning Indicator and Status Bar. You also need to go to the Log Bar on the View window and un-click 'View Log Bar' to further tidy the screen.

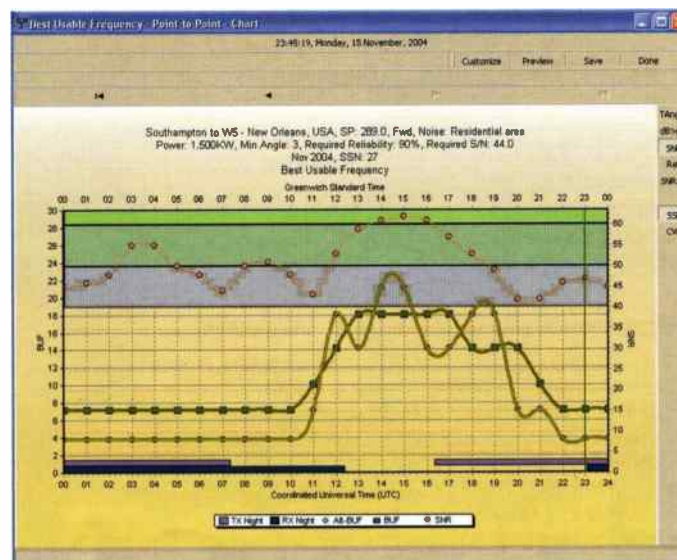
When you've finished, it should look like the screenshot shown on this page. You're now ready to start decoding and this is done by choosing the Mode menu and selecting the appropriate mode. Also found in the Mode menu is the facility to adjust an assortment of parameters that relate to the chosen mode. A useful shortcut to both the Mode and mode settings is to be found by clicking the mode on the bottom status bar. This immediately brings up the mode menu and you can very quickly swap modes or change the settings for the chosen mode. That's about all you need to get started. So, now you can have a play yourself!



● *MixW* multimode decoder in action.



● *WinCAP*'s Beacon propagation predictor.



● *WinCAP* predicts the r.f. path to USCG New Orleans.

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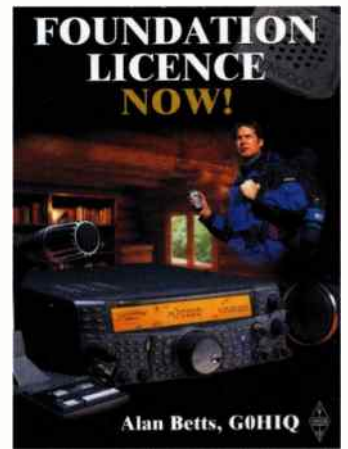
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# Scanning

Scene

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

**E**ver had your car damaged or broken into? My friend Bob Smith has! The difference between most of us and Bob is that he finds out who has done it. The combination of lateral thinking and the application of inexpensive technology ensure that if you mess with Bob's motor you'll be found out and your world will turn high-intensity blue before you can say, "It's a fair cop Cuv". It's simple to arrange as well!

Pictured in **Fig. 1**, on the front seat of my car, are three of the units that Bob uses to provide the police with the evidence to drag the offenders before the court. Working from the bottom of the photo, the small black stringy thing with the 9V battery attached is a black and white camera with an integral transmitter. Voltage is applied either from the battery or, if necessary, from a small power supply unit.

The small square metallic box is the receiver. This can be d.c. powered or plugged into the supplied 'wall wart' unit to operate it from mains voltage. Total cost £30. The receiver is then wired up to a video recorder and the resulting movie is sold to the producers of *Britain's Thickest Thieves* or some similar programme.

The larger cylindrical camera/transmitter shown is more sophisticated in that it transmits colour images and incorporates infra-red light emitting diodes for night time illumination of the subject and also has a sound channel. The cost of the colour transmitter/receiver combination including power supplies and connectors is £50.

Of course you could always use a 49MHz baby monitor unit as a sound channel if you needed the audio pick up to be remote from the video. For example, the small camera could be mounted inside the vehicle peering through the windscreen and the 49MHz sound source somewhere outside the car.

The cameras operate in the 2GHz region and the ones shown are licence free on 2.4GHz. If you have a G1MFG video scanner receiver then these units present easy pickings if you are within range and the range is somewhat greater than you would first imagine.

## Tracking Device?

Another pal of mine was working late and on returning to his car in the public car park a flash of light on the ground caught his eye. Upon closer examination he realised that he was looking at a small metallic cylinder with two flashing l.e.d.s encased in a domed plastic lens on one end. It appeared to be almost underneath the car that was parked next to his.

Being an electro geek like most of us he uplifted it and chucked it on the passenger seat of his vehicle as he drove home. Held up at

traffic lights he took a closer look at it and became aware that a section of it consisted of a pretty strong magnet.

Now, he's the kind of bloke who is pretty quick on the uptake and so, while stuck at the lights, he tugged at it and managed to locate a small button cell type battery, which he 'shook out' of the gadget, thus turning it off. Yep, it was some sort of tracking device.

The photo (**Fig. 2**) shows the tracking device and it's interesting in that it isn't GPS based. It appears to be too small to be a GPS type, there is no discernable antenna and the power source doesn't appear robust enough to run a GPS receiver and a reporting transmitter or memory source. Neither does it seem to be the type of tracker that relies on a cell 'phone circuit to poll base stations within range thus allowing the unit to be triangulated and located.

It looks like a straightforward 'bumper beeper' unit that emits a signal allowing tracking vehicles with d.f. facilities to follow the vehicle that it's been attached to but its range would be very limited. Having said that it could just contain a passive chip that resonates when interrogated by a roadside unit or even perhaps a more remote r.f. source. There is certainly a surface mount device on the p.c.b. I just don't know at the moment.

It would seem that the thing was popped up underneath the car in a hurry without being correctly located on a flat metal surface to ensure it stuck and then fell off as the vehicle stopped in the car park. The flashing l.e.d.s would indicate the transmitter's location to an operative recovering the small unit attached to the underside of a large car. Has anyone seen one of these before?

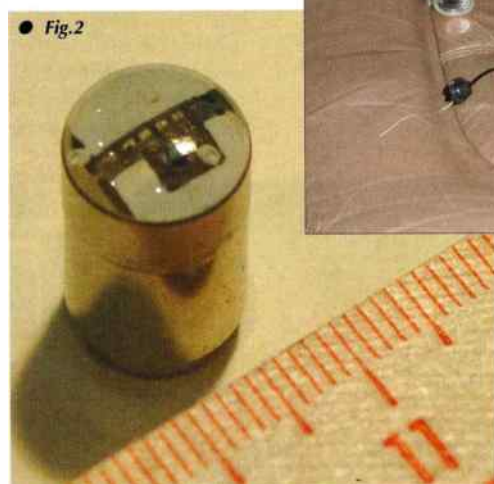
The old 'beeper' type trackers worked on low band, a typical frequency being 81.4876MHz (best monitored using a.m.). The type of sound emitted was indicative of whether the vehicle to which it was attached was stationary or moving etc. Some poor operators working with antiquated gear are still, no doubt, clambering under parked cars in the middle of the night, lying down in a puddle and clamping these big boxes under the vehicle. Good luck to you!

## Official Frequency

The frequency 75.300MHz f.m. has always been associated with British officialdom and it was recently heard in use in simplex mode apparently providing convoy communications on the M6, (info gleaned from the Internet). If an interest in vehicle-to-vehicle simplex comms is your thing then you may also wish to consider 163.9875, 409.725, 410.050, 411.250, 411.400 and 443.825MHz.

Police users have often found 147.875 and 147.9125MHz handy for simplex contacts, which despite the massive move to police digital modes are likely to be in use for some time yet. Both a.m. and f.m. modes are in use at 147MHz, depending on the geographical location of the police user.

The u.h.f. simplex frequencies may also be in



use, especially 451.325 and 451.300, but a general search around 450 and 451MHz could well prove interesting if you spot any convoy type activity. Bearing in mind that Ofcom have

now reversed the now defunct Radiocommunication Agency's decision to ban on-site simplex and paging systems on 450-470MHz, this part of the spectrum will be well worth some attention from monitors.

I am certainly not a fan of garden centres, but unfortunately I recently had to visit one at Booker near High Wycombe. I, of course, declined to enter the place and sat in the car park, well, you know, playing radio.

Apart from listening to the staff on their PMR446 sets, the main radio in my vehicle was searching around and came across 438.025MHz f.m. This channel has been in use by various government sponsored establishments for some years, but the signal strength was such that I didn't believe that I was hearing signals from what I thought was the nearest user to my location, the facility being in Hampshire. Callsigns were Romeo 1, Romeo 2, etc. They talked the usual static security staff talk about fences, locations and pizzas.

Contact with another scanner man in Egham revealed that he was also getting the signals and really strongly too! Are these signals that are so strong in southern England emanating from Hampshire? Or is there another user on the frequency now?

# Shack

Web

- **Jerry Glenwright** c/o SWM Editorial Offices, Broadstone
- **E-mail** shackweb@pwwpublishing.ltd.uk

**H**ello and a warm welcome to ShackWeb, the bi-monthly column that points you to a selection of the best Internet radio listening and resources as well as old technology, home-brew kit building and well, anything else online that interests s.w.l.s! Though I'm writing this in November and it's the January 2005 issue of SWM, I would like to wish all SWM readers in the UK and around the world a very merry Christmas and a happy and peaceful new year.

## Soap Box

If healthy debate is the stuff of democracies, SWM's QSL pages must surely be the strongest bastion of free thought! Certainly past months have seen debate raging over what constitutes 'proper listening', with the 'techies' and the 'traditionalists' on opposite sides. Perhaps fittingly, I fall somewhere between the two (or maybe I'm just a bit of a softie who likes to sit on the fence?).

True, the Internet is little short of amazing for finding vast amounts of information on virtually any subject you care to think of (and many you'd choose not to). But it's also true that a fair portion of what you find is either inaccurate or just plain rubbish.

However, if you need help, updated firmware for your receiver, a program or driver software for your computer, all you have to do is get on-line. What's more, there are countless 'radio' stations to listen to, as well as the official web pages of the world's great broadcasters and organisations such as NASA, many of which make their wares available for free download to one and all. Once you've seen what the Internet has to offer, you'll never want to be without it again.

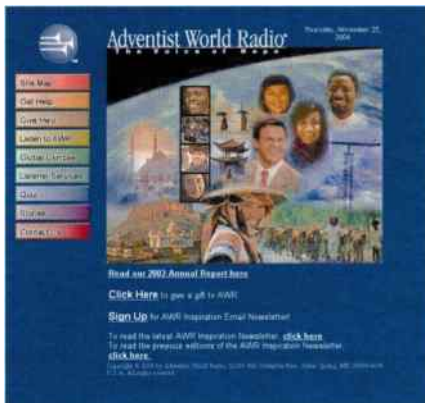
Conversely, there's nothing like the velvety glide of a weighted tuning dial on say, a well set-up Eddystone receiver. The site [www.qsl.net/eddystone/welcome.html](http://www.qsl.net/eddystone/welcome.html) is a lovely website for lovers of that most glorious of all British sets, the soft glow of the panel light and the gentle warbling of the signal as it fades in and out of the ether. I might tentatively suggest that, in one way or

another we're all listeners (or call it what you will) and that the medium of delivery is but one aspect of this fine pastime!

Sensibly SWM makes space for everyone whatever their listening pleasure. It matters not if you choose the old or the new method of receiving the stations, it's all about sharing knowledge, ensuring that we welcome every listener whatever their interests. You've put up with my ahem rant, so now it's time to tune some fine web-based radio stations and see what all the fuss is about.

## Broadcast

Many of us initially come to the hobby via broadcast stations and many stations make their programming available for listening on the web. One of my favourites is China Radio International at [www.chinabroadcast.cn](http://www.chinabroadcast.cn)



(click on English), a station which harks back to the 'glory' of international broadcasting during the cold war years. You'll need a *Real Player* [www.real.com](http://www.real.com) or a *Microsoft Media Player* [www.microsoft.com/downloads](http://www.microsoft.com/downloads) to listen to on-line radio stations. Both are available for PCs and Macintosh.

Radio Bulgaria at [www.bnr.bg/RadioBulgaria/Emission\\_English](http://www.bnr.bg/RadioBulgaria/Emission_English) is a very nicely designed website with RealAudio broadcasts categorised in a pick list – everything from science and nature, sport and folklore to life in Bulgaria and, of course, a programme about DXing. One broadcast service which appears to be growing, rather than receding, is fundamentalist Christian radio. At Adventist World Radio [www.awr.org](http://www.awr.org) you can choose

from a variety of Bible-oriented programmes and receive help and guidance with the Christian faith. An interesting religious station is The Voice at [www.voiceglobal.net](http://www.voiceglobal.net) Broadcasting the Christian gospel to Africa via satellite from West Bromwich in the Midlands, the station offers music and spoken word programming.

A stalwart of the international airwaves for many years is Deutsche Welle, Germany's International Broadcaster that has many of its conventional broadcasts on the web [www.dw-world.de](http://www.dw-world.de) The arguably lesser-known Iranian World Service at [www.irib.ir/worldservice](http://www.irib.ir/worldservice) features news, religious (there's a link to Radio Quran), current affairs, music and weather information from an easily navigable web site. A similar small fry in the world broadcast stakes is Radio Flanders International [www.rvi.be/html/rvi\\_web/uk/ukhome/index.html](http://www.rvi.be/html/rvi_web/uk/ukhome/index.html) a Belgian broadcaster offering wide news coverage, music from Flanders and useful information for listeners.

Not always easy to pull from the ether, Radio Australia maintains a strong web presence with news, current affairs, sport, weather and magazine items aimed mainly at Asia. Tune in at [www.abc.net.au/ra](http://www.abc.net.au/ra) Be sure to check out the cheery tunes of Radio Togo, a distinct oddity at [www.clandestineradio.com/sounds](http://www.clandestineradio.com/sounds) then follow it through. Finally, for this selection, let's not forget our very own BBC. There's the World Service of course at [www.bbc.co.uk/worldservice](http://www.bbc.co.uk/worldservice) along with all their stations on the BBC's home page at [www.bbc.co.uk](http://www.bbc.co.uk) plus all the BBC's DAB outputs too.

## Utility

If broadcast is for you, perhaps a little mainstream, try some of the marine, police, air and other services from around the world, which have web-based audio feeds. A search using one of the engines such as Google [www.google.com](http://www.google.com) will turn up lots of references. You might not always like what you'll hear here but it's always interesting (currently the site is undergoing an update so visit regularly). Another site of great interest is G4PYR's Coastal Radio Communications website [www.coastalradio.greater-peterborough.com](http://www.coastalradio.greater-peterborough.com)

Though the majority of the information here is intended for conventional listeners (using radio receivers) there's a wealth of links to further web pages featuring glorious images from the stations. If however, the thrills and spills of (mainly American) fire departments light you up aurally, point your browser at [www.radideo.com/webcasts/webscanfire.htm](http://www.radideo.com/webcasts/webscanfire.htm) for a list of those that provide live feeds to the web. Similarly, [www.radideo.com/webcasts/webscanpolice.htm](http://www.radideo.com/webcasts/webscanpolice.htm) does the same for police departments (you can while away many happy hours here listening to the conventionally inaudible - unless of course you happen to live in Alabama, Illinois, Los Angeles, Miami...et al!).

Well, that's it from me this time! Thank you all for your generous and welcome support during the past year.

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# Satellite

TV News

- **Roger Bunney** 35 Grayling Mead, Fishlake, Romsey, Hants SO51 7RU
- **E-mail** roger.bunney@pwwpublishing.ltd.uk

**B**BC news reporters are being equipped with 3G mobile 'phones, which will allow them to provide simple interview and straight reports from the streets into the BBC News centre. Standard one-one interviews have been already 'been filed' to the news desk with 3G equipment. Over the next 18 months about 130 BBC news reporters will be equipped with the 'phones. The 3G 'phones provide acceptable pictures and sound. As time progresses compression developments will improve the quality of the link. This may mean a fall off in satellite truck usage for the simpler live reports, though will not end the major OB operations. The first (still) TV pictures of 5 November early evening Reading rail crash that were aired on the main news originated from a mobile 'phone. A major train crash occurred on 16 October in the San Bernardino valley near Los Angeles. A freight train carrying containers hit a lorry that had careered off the main Interstate 15, the rail trucks then piled into the head of the then stopped train, some leaving the track and hitting nearby housing. Live pictures were carried over 10.972GHz-V (SR4167+FECS/6) courtesy of the KABC-TV LA news chopper feeding into the 'ABC-NEWS ONE' news. Contributor **Alan Richards** who worked in that area during 1989, notes that the rail track drops from 1300m a.s.l. along the old Route 66 and Interstate 15 to sea level in about 6.4km, an occasional coupling fails and brakes have failed in the past.

Curiously, another live disaster in the making was aired the following night on the same downlink, this time from an unknown Latin American city where a skyscraper was on fire. The local army are present to control the large crowd of onlookers. The feed was cut before any geographical identification of the city could be established.

Yet another live 'drama' unfolded night of 23 October over 10.967GHz-V (4167+5/6). The American crew onboard the *International Space Station (ISS)* were preparing to return to Earth after 188 days in space, this being the termination of the 'ISS-Soyuz-8 Expedition 9' programme. Following the *Columbia* burn-up disaster early 2003, all travel to and from the *ISS* is via Soviet Soyuz capacity and instead of landing gracefully in a Space Shuttle, the landing is a rather undignified crash landing in a metal ball on the Russian plains. NASA-TV transmitted the live proceedings as the astronauts prepared to board Soyuz and the undocking, but a dispute arose between NASA, Johnson Space Centre and the equivalent Russian control room regarding accurate timing. NASA suddenly realised that the split second timing was a 'little out' as NASA were using Central USA time whereas the Russians were using Moscow time - perhaps an eight hour difference. The astronauts returned safely so, the time differential must have resolved itself.

NASA TV appeared again over *Atlantic Bird-1* - 12.5°W on 28 October reports **Roy Carman** (Dorking) when an update on the Cassini probe voyage was transmitted. There has been radar probe surveillance of Titan, one of Saturn's moons suggesting a surface of organic materials (Hydrogen/Acetylene/Methane) - the atmosphere is Hydrogen - and white areas being of ice eruptions from the moon's interior - which wouldn't melt having a surface temperature of -179° C. The NASA briefing was carried over the Globecast bouquet on 'Channel 2' - 11.014GHz-H (20145+3/4).

There was confusion as to the real state of the Palestinian leader Yassar Arafat when he was flown from Ramallah to a Paris hospital to investigate his illness that still remained a closely guarded secret. Several satellite trucks appeared outside of his compound 26-28 October, awaiting his helicopter flight to a nearby airfield prior to the Paris flight - one being 'OO7 SNG GAZA' linking over *Eutelsat W2*, 16°E @ 12/562-H (5632+3/4). French coverage - distributed over *Eutelsat W1*, 10°E - provided pictures of his arrival in Paris and transfer into the hospital

buildings. As I type this on 10 November, a 10°E AP press statement is advised that Arafat's brain is still partially functioning but most other organs have failed, the state funeral of Yassar Arafat was due to take place in Cairo on 12 November. Live pictures out of Paris (10°E, 10.972GHz-V) show the press and TV news folk gathering outside of the hospital to take pictures as 'the expected statement' is read and Yassar Arafat's body is taken away for transportation to Egypt. Even at this time Yassar Arafat is still making big news!

Bad news in that the APTN (UP4) European distribution feeder over *Eutelsat W1*, 10°E has hit the encryption button during major parts of the day, the NBC NY feed frequency on *Telstar 12*, 15°W - identifying as 'DAD-5' - has also gone dark full-time and over on *Intelsat 10-02*, 1°W the 'ABC SCOPUS' news feed seems to be encrypted as images fail to lock - though the downlink isn't transmitting full-time. 'ABC SCOPUS' usually feed live pictures out of Baghdad running NTSC. But, for those mourning the loss of these signals, new ones appear. An Arabic channel out of Tunisia signing as 'Hannibal TV Channel' has been testing over *ArabSat*, 26°E @ 11.740GHz-VB (27500+3/4) and will also downlink via *Hot Bird* capacity, 13°E @ 12.051GHz-V (27500+3/4). Also, (early November), 26°E test transmissions of the 'Arab Tourism Channel' at 12.597GHz-V (27500+3/4).

Over on *Atlantic Bird-1*, 12.5°W, there's a Russian national TV network channel running 525-lines NTSC on a 24-hour basis - probably for an American TV cable system - see 11.130GHz-H (3667+3/4). During the American election run-up, the Globecast 3 channel bouquet on *Atlantic Bird-1* changed to a 5-channel bouquet for more sports carriage into Europe, this a favoured slot for NASCAR car racing and PGA golf.

No more do the 'BT TES-42' and 'TES-43' sat trucks appear during the early evenings offering inserts for the regional news programmes of Anglia and Meridian on 8°W. However, 'TES-43' is still alive, well and made an appearance evening of 6 November providing coverage of the Leeds v. Preston football match plus interviews. 'TES-43' used *Intelsat 801* @ 31.5°W for the match - 10.999GHz-V (5632+3/4) on-screen ident over colour bars 'SSN BT TES 43' [Sky Sports News] and the service ident 'AUTO 8Mbit/s'. One local insert however seen was linked over *Intelsat 10-02*, 1°W for the BBC-TV Northern Ireland evening programme and this featured the planned changes to Armagh city centre. 'BBC - UKI\_847A' provided the MPEG 4:2:2 content, 11.475GHz-V (5632+3/4), off-air at 1900.

Noting 1°W as above, Alan Richards (Skegness) watched a programme circuit for the Scandinavian programme 'CASINO', based on a gambling theme for children! The feed showed young kids 'fidgeting' in the gloomy studio ready to start the show. The centre of action was a spot-lit green baize roulette table. The programme recording was slated as "CASINO' Season 3 Programme # 308 ", service id 'Norkring Occ'. Gambling enthusiasts can check future programme on a Thursday night at 1830 - *Intelsat 10-02*, 1°W

Election day across the USA was 2 November. The Iraqi situation ongoing with increased interest evident in the UK and Europe. This was well reflected in the satellite contribution circuits established over the Atlantic. A quick 'blind search' scan over the low Ku-band segment of *NSS-7*, 21.5°W revealed some 26 video circuits from broadcasters and facility companies running in straight MPEG-2 and MPEG 4:2:2. One example of a 9-ch multiplex at 11.675GHz-H (SR33000+5/6). Another circuit - 'Ch.3-SZM' - carried a permanent picture of the White House - intended as a video backdrop, but clearly seen were black uniformed security guards moving around the roof and in the garden bushes around the White House.



NASA-TV reports on the Cassini probe flypast of Titan (12.5°W).



Turkey celebrates Gamal Attaturk, founder of Turkey (42°E).



Sat trucks and onlookers gather outside of Yassar's Ramallah bunker.



Towering Inferno-2, fire in a high rise, Latin America.



Train crash, San Bernardino Valley, LA, Cal.



Unknown promotion over Atlantic Bird-1.



Ramattan News Agency, Gaza.



Test card over Eutelsat W1, 10°E.









# International Radio Clubs

## AMSAT-UK (G0AUK)

Information from Jim Heck G3WGM, Badgers, Letton Close, Blandford, Dorset BH11 7SS. E-mail: g3wgm@amsat.org or visit [www.uk.amsat.org](http://www.uk.amsat.org)

## British Amateur Radio Teledata Group (BARTG - G4ATG, GB2ATG)

Contact Membership Secretary Andrew Thomas G8GNI, M5AEX, Dame School House, 103 High Street, Stony Stratford, Buckinghamshire MK11 1AT, E-mail: [members@bartg.demon.co.uk](mailto:members@bartg.demon.co.uk) or visit [www.bartg.demon.co.uk](http://www.bartg.demon.co.uk)

## British Amateur Television Club (BATC - RS38114)

Enquiries to Dave Lawton G0ANQ, 'Grenehurst', Pinewood Road, High Wymcombe, Bucks HP12 4DD. Tel: (01494) 528899. E-mail: [memsec@batc.org.uk](mailto:memsec@batc.org.uk) or visit [www.batc.org.uk](http://www.batc.org.uk)

## British DX Club (BDXC-UK)

Enquiries to Club Secretary Colin Wright, 126 Bargery Road, London SE6 2LR. E-mail: [secretary@bdxc.org.uk](mailto:secretary@bdxc.org.uk) or visit [www.bdxcl.org.uk](http://www.bdxcl.org.uk)

## Danish Shortwave Club

Information from Treasurer Bent Nielsen, Egekrogen 14, DK-3500 Værløse, Denmark or visit [www.dswci.org](http://www.dswci.org)

## International Listeners' Association (RS88763)

Details from Trevor Morgan GW4OXB, 1 Jersey Street, Haford, Swansea SA1 2HF. E-mail: [gw4oxb@net.nfl.com](mailto:gw4oxb@net.nfl.com)

## International Short Wave League (ISWL - G4BJC)



Information from Honorary Secretary Bill Mackie G-9137/G4AIE, 23 College Park, Horncastle, Lincs LN9 6RE. E-mail: [bill.mackie@zetnet.co.uk](mailto:bill.mackie@zetnet.co.uk) or visit [www.iswl.org.uk](http://www.iswl.org.uk)

## Military Wireless Amateur Radio Society (G0PTZ)

Further details from John Taylor-Cram, 7 Hart Plain Avenue, Cowplain, Waterlooville, Hampshire PO8 8RP. Tel: 0239-225 0463.

## Radio Amateurs Invalid and Blind Club (RAIBC - G4IBC, G8OIBC, GB1IBC)

Enquiries to Honorary

Treasurer/Membership Secretary Mrs Shelagh Chambers, 78 Durlay Avenue, Pinner, Middlesex HA5 1JH. Tel: 0208-868 2516.

## Radio Amateur Old Timers' Association

Enquiries to Membership Secretary Ted Rule, G3FEW, 15 Norwich Road, Lenwade, Norwich NR9 5SH. Tel: (01603) 872309, E-mail: [edit@raota.fsnet.co.uk](mailto:edit@raota.fsnet.co.uk) or visit [www.raota.supanet.com](http://www.raota.supanet.com)

## Remote Imaging Group (RS88803)

Further details from the Membership Secretary John Din, 59 Woodend Road, Coalpit Heath, Bristol BS36 2LH. FAX: (01454) 887880. E-mail: [memberships@rig.org.uk](mailto:memberships@rig.org.uk)

## Royal Air Force Amateur Radio Society (RAFARS - G8FC, G8RAF)

Details from the Administrator, HQ RAFARS, RAF Cosford, Wolverhampton WV7 3EX. Tel: (01902) 372722, E-mail: [administrator@rafars.org](mailto:administrator@rafars.org)



## Royal Navy Amateur Radio Society (RNARS - GB3RN, G3CRS, G1BZU)

Enquiries to Secretary Philip Manning G1LKJ/M3LKJ, 1 Waverley Gardens, Ash Vale, Surrey GU12 5JP. Tel: (01252) 334929, E-mail: [g1lkj@amsat.org](mailto:g1lkj@amsat.org) or visit [www.rnars.org.uk](http://www.rnars.org.uk)



## Royal Signals Amateur Radio Society (RSARS - G4RS)

More information from General Secretary, HQ RSARS, Cole Block, Blandford Camp, Dorset DT1 8RH. Tel: (01258) 482814, E-mail: [gensec@rsars.org.uk](mailto:gensec@rsars.org.uk) or visit [www.rsars.org.uk](http://www.rsars.org.uk)

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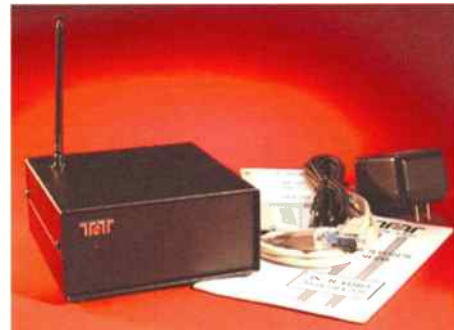
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