





# Bearcat

QUALITY that's AFFORDABLE and EASY to use!

## Bearcat UBC 105XLT

A highly flexible Scanner with Airband & low VHF Band

With 8.33 kHz steps for AM Airband

- Covers VHF mobile phones, civil airband, marine and more!
- 100 memories (10 banks of 10)
- Frequency range: 29-54MHz, 108-174MHz, 406-512MHz
- Large backlit LCD
- Search Skip up to 20 channels
- Channel lockout
- Frequency Search
- Priority channel
- Earphone jack, BNC aerial socket
- Includes rubber duck aerial



£79.<sup>95</sup>

P&P £8

## Bearcat UBC 3300XLT



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

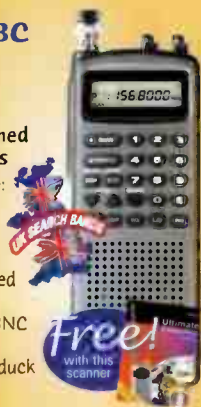
£199.<sup>95</sup> £179.<sup>95</sup>

P&P £8

## Bearcat UBC 68XLT

A very popular Scanner with 5 Pre-programmed UK Searchbands

- Frequency range: 66-88MHz, 137-174MHz, 406-512MHz
- 5 pre-programmed banks
- Earphone jack, BNC aerial socket
- Includes rubber duck aerial



£69.<sup>95</sup>

P&P £8

## Bearcat UBC 180XLT

NEW Handheld Scanner with 8.33kHz Coverage on Airband

- Bands (with gaps): 25 - 88 MHz, 108 - 174 MHz, 406 - 512 MHz, 806 - 960 MHz
- Twin Turbo Scan and Search
- 100 Memory Channels + Memory Backup
- Scan Rate: 100 Channels/second
- Power: 4.8V internal battery or external mains supply.
- 65(W) x 39.5(D) x 29.5(H) mm
- Weight: 320g
- Supplied complete with UK mains charger, Nicad battery pack, carrying strap, earphone & beltclip



£129.<sup>95</sup>

P&P £8

## Bearcat UBC 220XLT

Easy to use handheld scanner

- 66 - 88, 108 - 174, 406 - 512, 806 - 956MHz
- 200 Memories & Memory Backup
- 12 Bands, 10 Banks
- Twin Turbo, Search and Scan
- 10 Priority Channels
- Rechargeable Ni-Cd battery pack
- Power requirement: 12V DC (internal battery, AC adaptor or vehicle adaptor)
- Size: 15.3cm H x 6.7cm W x 4.5cm D
- Weight: 560g
- Supplied complete with: UK mains charger, Belt clip, earphone & flexible antenna



£119.<sup>95</sup>

P&P £8

## Uniden UBC72XLT

Handheld Scanner

- Frequency Range: 25-88MHz, 108 - 174 MHz, 400-512 MHz
- 8.33 KHz steps for Civil Airband
- 100 Channels
- Frequency Searching: Program Search, Chain Search, Direct Entry Search, Pre-Programmed Service Search for Airband and FM CB, Frequency Skip
- Priority Scan
- Complete with Charger & 2 x 1800mAh NiMh AA Batteries



£99.<sup>00</sup> £89.<sup>95</sup>

P&P £8

## Uniden Bearcat UBC30XLT

New Airband Scanner with 8.33kHz and FM broadcast

The compact new scanner from Bearcat that covers the popular air, marine and VHF public service frequencies - and includes FM broadcast as well!

Featuring 200 memory channels and selectable 8.33kHz memory steps, the UBC30XLT gives you everything you need for listening in to the action whether you're on the coast, at an airport or miles from anywhere. With Uniden Bearcat's legendary ease of use, the UBC30XLT is perfect whether you are a beginner or an advanced user.

- Modes: AM, FM, WFM
- Coverage: 875-1079 WFM, 108-136.9875 AM, 137-173.99 FM
- Memories: 200
- Frequency steps: 5, 6.25, 8.33, 10, 12.5, 15, 20, 25, 50 and 100kHz
- Scanning features: Priority, Lockout, Search Skip, programmable delay
- Scan rate: 25 channels per second
- Priority sampling rate: 2 seconds
- Backlit display
- Power requirement: 3 x AA alkaline or NiMh batteries (not supplied)
- Antenna socket: BNC
- Earphone socket: 3.5mm

new!

£69.<sup>95</sup>

P&P £8



order today - receive tomorrow!

## Uniden UBC92XLT

A brand new design that covers 25-54MHz, 108-174MHz, 406-512 MHz and 806-956 MHz - includes the most interesting "action" bands where you can hear amateur radio, public utilities, and more. With 200 memory channels in 10 banks for flexible scanning and yet compact enough to put in a shirt pocket!

£129.<sup>95</sup> £99.<sup>95</sup>

P&P £8

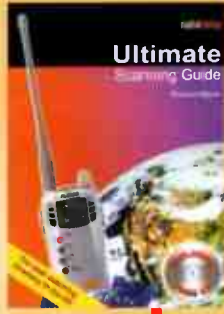


WEBSITE [www.nevada.co.uk](http://www.nevada.co.uk)

# Free!

Happy scanning with the **ULTIMATE SCANNING GUIDE** usually **£19.95** - absolutely free for this month only when you buy any scanner on these pages.

- The UK's most comprehensive scanning directory
- Lists simplex and paired frequencies 30MHz - 7.2GHz
- Details of PMR, broadcasters, Services, civil & military air and many, many more
- Includes fully searchable CD database • Over 450 data-packed pages



### Alinco DJ-X3

Ultra Modern Scanning Receiver

- 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 circuit
- 56w x 102h x 23d mm
- 120g (without batteries)
- Supplied complete with: 3 AA dry cell battery case, carrying strap & flexible antenna

#### DJ-X3 Optional extras

- EBP52N5 Ni-MH re-chargeable battery pack.....£25.95
- EDC105+EDC96 Mains Drop in charger.....£2790
- ESC37 Soft carrying case.....£14.95
- EME6 Earphone.....£10.95

£129.<sup>95</sup>

P&P £8

### Alinco DJ-C7

For the Licenced Radio Amateur!

Here's a • **Dual Band Transceiver**  
• **Airband Receiver** • **Scanner**  
• **FM Radio** - that fits comfortably in your shirt pocket!

- 2m FM, 70cm FM, Broadcast FM receive
- Optional extended receive coverage: Airband: 108 - 136 MHz (includes new 8.33kHz steps) VHF: 136.000 - 173.995 MHz UHF: 380.000 - 511.995 MHz FM & AM: on all extended frequencies
- Ultra-versatile frequency steps: 5 6.25/8.33/10 12.5/15/20/25/30/50/100/125/200KHz
- Power out: 300mW (battery), 500mW (6V DC)
- 200 memories
- VFO / Memory / Scan modes
- Full CTCSS encode and decode
- Four different tone bursts for European repeater operation
- Convenient - only 56 x 96 x 14.5 mm
- Lightweight only 102g including battery and antenna

#### Accessories Included

- Lithium-ion battery pack EBP-58N (3.7V 600mAh)
- Mains Fast Charger (100-240V)
- Dual Band Helical Antenna
- Antenna Cap

£149.<sup>00</sup>

P&P £8

### Alinco DJ-X2000

The 'Intelligent' scanning receiver

- Covers 100kHz - 2,149.99MHz
- 2000 channel memory
- Modes: AM /NFM/WFM/ LSB/USB/CW auto mode position
- Flashtone reads the frequency of a nearby transmitter and instantly takes your receiver to that frequency
- Transweeper Instantly locates hidden transmitters that may be used for eavesdropping
- Record up to 160 seconds of audio direct from the receiver with the digital memory or voice via the built in mic
- Descrambler
- Channel scope
- Bug detector
- CTCSS decoder built in
- CTCSS - Search facility
- Frequency counter
- Field strength meter
- S Meter
- FM Stereo receive
- Two level attenuator
- PC programmable
- 24 hour timer

#### Includes free:

- Mains Charger Multi voltage 110V-240VAC for easy use anywhere in the world
- Nicad battery pack 4.8V DC 700MAH
- Belt clip • Carrying strap
- Antenna Flexible, low profile

£399.<sup>00</sup>

P&P £8

### Alinco DJ-X10E

Advanced Featured Scanning Receiver

- Receives 100kHz - 2000MHz
- Multi mode reception AM - WFM - NFM - USB - LSB - CW
- 1200 memory channels
- Channel scope spectrum analyser that allows monitoring of 40 channels
- Advanced scanning features
  - Programmed scan (up to 10 groups)
  - Programmed memory scan
  - Any memory scan
  - Mode scan (not found on many scanners!)
  - VFO search
  - Dual VFO search
  - Band incursion scan
  - Priority scan
  - Any channel ship scan
- Battery save facility
- Facilities for cloning another set
- Built-in 24 hour clock
- Switchable attenuator

#### Includes free:

- Mains Charger Multi voltage 110V-240VAC for easy use anywhere in the world
- Nicad battery pack 4.8V DC 700MAH
- Belt clip • Carrying strap
- Antenna Flexible, low profile

£249.<sup>00</sup>

P&P £8

ORDER HOTLINE **023 9231 3090**

## October 2005

On Sale 22 September  
Vol.63 No. 10  
(November 2005 issue on sale 27 October)

Published by  
PW Publishing Limited  
Arrowsmith Court  
Station Approach  
BROADSTONE  
Dorset BH18 8PW  
Directors: Stephen Hunt & Roger Hall

**Editorial Department**  
☎ 0870 224 7810  
Fax: 0870 224 7850

**Editor**  
Kevin Nice G3UNR, BRS95787  
kevin.nice@pwpublishing.ltd.uk

**Production Editor**  
Donna Vincent G7TZB, M3TZZ  
donna@pwpublishing.ltd.uk

**Technical Editor**  
NG (Tex) Swann G1TEX, M3NGS  
tex@pwpublishing.ltd.uk

**Art Department**  
☎ 0870 224 7820  
Fax: 0870 224 7850

**Art Editor**  
Stephen Hunt  
steve@pwpublishing.ltd.uk

**Typesetting**  
Peter Eldrett  
peter@pwpublishing.ltd.uk

**Sales Department**  
Fax: 0870 224 7850

**Advertisements**  
Roger Hall  
roger@pwpublishing.ltd.uk  
☎ 0207 731 6222

**Advertisement Administration**  
Joan Adams  
joan@pwpublishing.ltd.uk  
☎ 0870 224 7820

**Book Orders**  
Clive Hardy G4SLU  
clive@pwpublishing.ltd.uk  
☎ 0870 224 7830

**Subscription Administration**  
Webscribe  
PO Box 464  
Berkhamsted  
Hertfordshire HP4 2UR, UK  
swm@webscribe.co.uk  
www.webscribe.co.uk  
☎ 01442 879097  
Fax: 01442 872279

**Finance Department**  
☎ 0870 224 7840  
Fax: 0870 224 7850

**Finance Manager**  
Alan Burgess  
alan@pwpublishing.ltd.uk

**Finance Assistant**  
Margaret Hasted

**PW Publishing Website**  
www.pwpublishing.ltd.uk

All our 0870 numbers are charged at the BT Standard National Rate

## Broadcast

55 LM&S - Readers' broadcast logs and news.

## Features

12 Uniden UBC72XLT - Reviewed

Dave Roberts argues that one is never enough. We agree, there really is no such thing as a radio for all reasons. You really do have to have different sets for different circumstances. Here's one that's worth adding to your collection.



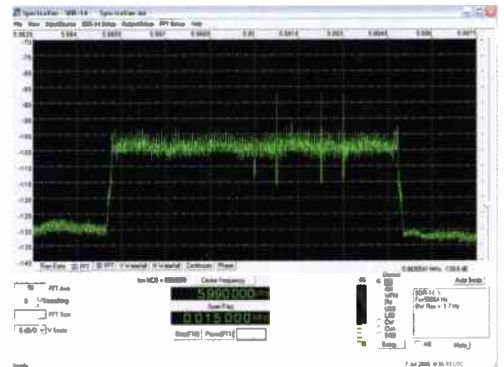
18 Cover Feature  
Kinetic Avionics SBS-1  
Real-time Virtual  
Radar

Imagine being able to identify and plot the course of aircraft as they fly around your local airspace. Peter Bond has been waiting for years for a product like this to come along. Is the solution worth the wait? Peter explains the features and facilities that new SBS-1 provides. Read his verdict on page 18.



26 Computers & Radio Part 4b -  
A Compelling Connection

Jack Weber continues his look into the many possibilities and benefits of using computers to enhance your radio listening. What are you waiting for?



56 SWM International Club  
Listing

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

55 SWM Club Listing

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. Please note this is now split into three parts running on a rotational basis.

62 Thinking of Taking up Amateur Radio?

If you're thinking of expanding your listening hobby to include Amateur Radio then you should seriously consider subscribing to *Practical Wireless* - Britain's best selling Amateur Radio magazine. Due to a change to our subscription service, you can now manage, renew and update your subscription via the Internet.



© PW PUBLISHING LTD. 2005. Copyright in all drawings, photographs and articles published in *Short Wave Magazine* is fully protected and reproduction or imitation in whole or in part is expressly forbidden. All reasonable precautions are taken by *Short Wave Magazine* to ensure that the advice and data given to our readers is reliable. We cannot, however, guarantee it and we cannot accept legal responsibility for it. Prices are those current as we go to press. *Short Wave Magazine*, USPS No. 006596, is published monthly for £36 (UK) per year by PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Printed by Holbrooks Printers Ltd. Second Class Postage paid at South Hackensack. Postmaster: Send USA address changes to Royal Mail International, c/o Yellowstone International, 2375 Pratt Boulevard, Elk Grove Village, IL 60007-5337.

DISCLAIMER. *Short Wave Magazine* wishes in no way to either condone, or encourage, listeners to monitor frequencies and services which are prohibited by law. We respectfully refer you all to both the Wireless Telegraphy Act 1949, and the Interception and Communications Act 1985. Some of the products offered for sale in advertisements in this magazine may have been obtained from abroad or from unauthorised sources. *Short Wave Magazine* advises readers contemplating mail order to enquire whether the products are suitable for use in the UK and have full after-sales back-up available. The Publishers of *Short Wave Magazine* wish to point out that it is the responsibility of readers to ascertain the legality or otherwise of items offered for sale by advertisers in this magazine.

# contents

## Regular Columns

Advertisers' Index .....	62
Amateur Bands .....	57
Communiqué .....	8
Decode .....	45
DXTV .....	54
Editorial .....	6
Info In Orbit .....	31
LM&S .....	36
Propagation Extra .....	41
Propagation Forecast .....	40
QSL .....	7
Rallies .....	11
Satellite TV News .....	52
Scanning Scene .....	16
Sky High .....	42
SSB Utilities .....	53
SWM Book Store .....	47
Trading Post .....	59



31



42



54



**Cover Subject: An air-traffic control radar console of your very own! The Kinetic Avionics SBS-1 brings you this, by enabling you to monitor and plot the on-board SSR transponders fitted to military and commercial aircraft. Now you too can see it all.**

## The wait is nearly over!

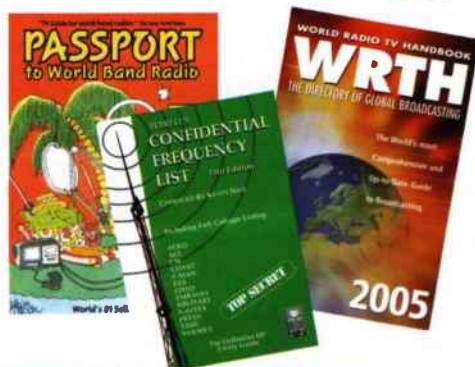
**The UK Scanning Directory - the essential book for all scanner owners and frequency collectors - is at the printers right now!**

**Copies will be available early October, so to reserve your very own copy see page 58 for full details.**

## the pwpublishing

## RADIO BOOK STORE

see page 47



## Coming Next Month

In November 2005 SWM  
\*contents subject to change

- Reviewed - WiNRADiO's latest offering - the external G313 h.f. SDR
- DRM Now - a look at the latest developments in this digital broadcast mode.
- The Compelling Connection - Computers & Radio Part 5
- Bumper Scanning Section
- Keep on top of the world of monitoring with SWM...and much more.

## SWM Author Info

To provide you with a ready reference here are the contact details of all our regular authors.

### Amateur Bands

Clive Hardy G4SLU,  
c/o SWM Editorial Offices  
E-mail: clive@pwpublishing.ltd.uk

### Attention 123!

Enigma, 17-21 Chapel Street, Bradford, West Yorkshire BD1 5DT.  
E-mail: enigma@pwpublishing.ltd.uk

### Computers & Radio

Jack Weber  
c/o SWM Editorial Offices  
E-mail: jackweber@pwpublishing.ltd.uk

### Decode

Mike Richards G4WNC,  
49 Cloughs Road,  
Ringwood,  
Hampshire BH24 1UU.  
E-mail: decode@pwpublishing.ltd.uk

### DXTV

Keith Hamer and Garry Smith,  
17 Collingham Gardens,  
Derby DE2 4FS  
E-mail: dxtv@pwpublishing.ltd.uk

### Info In Orbit

Lawrence Harris,  
55 Richville Road,  
Shirley,  
Southampton SO16 4GH.  
E-mail: info.orbit@pwpublishing.ltd.uk

### LM&S

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

### Maritime Beacons

Robert Connolly,  
21 Eleaston Park,  
Co. Down  
N.Ireland BT34 4DA  
E-mail: beacons@pwpublishing.ltd.uk

### Off The Record

Oscar,  
c/o SWM Editorial Offices  
E-mail: off.the.record@pwpublishing.ltd.uk

### Propagation

Jacques d'Avignon VE3VIA  
E-mail: jacques@pwpublishing.ltd.uk

### Satellite TV News

Roger Bunney,  
35 Grayling Mead,  
Fishlake,  
Romsey,  
Hampshire SO51 7RU.  
E-mail: roger.bunney@pwpublishing.ltd.uk

### Scanning

Dave Roberts,  
c/o SWM Editorial Offices.  
E-mail: scanning@pwpublishing.ltd.uk

### Sky High

Peter Bond,  
c/o SWM Editorial Offices.  
E-mail: skyhigh@pwpublishing.ltd.uk

### SSB Utilities

Ben Hogan,  
c/o SWM Editorial Offices.  
E-mail: ssbutils@pwpublishing.ltd.uk

## Share your thoughts

**For the latest radio news, see our website  
[www.pwpublishing.ltd.uk](http://www.pwpublishing.ltd.uk)**

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!

# ED'S

## comments



### SWM Services

#### 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 £5.00 inc P&P each and photocopies are £3.00 per article inc P&P.

Binders are also available (each binder takes one volume) for £6.50 plus £1.50 P&P for one binder, £2.75 P&P for two or more, UK or overseas. Prices include VAT where appropriate.

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

#### Placing An Order

Orders for back numbers, binders and items from our Book Store should be sent to: **PW Publishing Ltd., Post Sales Department, Arrowsmith Court, Station Approach, Broadstone Dorset BH18 8PW**, with details of your credit card or a cheque or postal order payable to PW Publishing Ltd. Cheques with overseas orders must be drawn on a London Clearing Bank and in Sterling. Credit card orders (Access, Mastercard, Eurocard, AMEX or Visa) are also welcome by telephone to Broadstone **0870 224 7830**. An answering machine will accept your order out of office hours and during busy periods in the office. You can also FAX an order, giving full details to Broadstone **0870 224 7850**.

The E-mail address is [bookstore@pwpublishing.ltd.uk](mailto:bookstore@pwpublishing.ltd.uk)

#### Technical Help

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

The launch of software defined radios continues apace. In the 'Communiqué' section of this issue of SWM, you'll find that the Italian radio manufacturer Elad have appointed **ML&S Martin Lynch and Sons** as their UK distributors. We'll be taking a close look at the new FDM77 in a future issue of SWM. WINRADIO have just launched the external version of the G313 with higher frequency versions due very soon and RF Space continues to impress with the SDR14. You can read about the G313e in next month's SWM.

The readers of SWM are, like most special interest groups, of finite means and most are therefore sometimes a little reluctant to be early adopters of new technologies. SDR appears to represent the future of radio, but the above examples, though not outrageously priced, do represent a significant investment. Those of you wondering whether to take the plunge with software defined radio, and I can personally recommend that it's well worth a doing, may need some more concrete evidence. I've recently discovered a cheap way to become familiar with the technology of SDR.

For the very reasonable sum of \$28 (about £16) you can buy a 40m amateur band multi-mode SDR kit. The SoftRock-40 is a small, low-cost, software defined radio multi-mode receiver that offers good performance that plugs into a computer USB port (only to obtain a 5V supply) and delivers I-Q audio signals to the computer's soundcard. It was designed by **Tony Parks, KB9YIG** and **Bill Tracey, KD5TFD** as an SDR sampler project for radio enthusiasts everywhere to try software defined radio easily. This way a great many listeners and amateurs to see for themselves the incredible performance that can be achieved by having just a little inexpensive hardware working in conjunction with some powerful (free) software running on the PC. Receiver performance is simply amazing. The kit supplies report that the minimum discernible signal (MDS) input level of -128dBm are typical.

For more information on the SoftRock-40 take a look at [www.amqrp.org/kits/softrock40/index.html](http://www.amqrp.org/kits/softrock40/index.html)

I'll be looking at one of these in detail in a future 'In The Ed's Shack'! This certainly looks like a good construction project for the winter months. For the programmers amongst you, the good news is that the source code is also available from the AmQRP Club website.

### Space

Last month I wrote about my experiences whilst monitoring the launch of Space Shuttle *Discovery*. As I mentioned in that piece, it is possible to monitor low orbit spacecraft without having complex antennas and low noise amplifiers. The signals from 160 - 240km orbits are still pretty strong on the surface of earth, so a simple antenna on top of a hand-held is often good enough. This is certainly true at v.h.f. and u.h.f. frequencies as **Peter Bond** notes in the SBS-1 review starting on page 18 of this issue. Peter found that 1GHz signals travel well for several hundred kilometres too, especially when the transmitter is on an aircraft flying between 20,000 and 30,000ft.

As always, the better the antenna's location, the better the results you are likely to experience. By a good location, I mean one with the least obscured outlook, a quality that generally improves with the second important attribute - height. Generally speaking, the higher you mount your antenna the better the results you will obtain. However, there are some trade-offs. Firstly, you must use low-loss coaxial cable, this is increasingly important the higher in frequency your signals of interest are. Another important issue is one of accessibility. It's no good adding a metre or two in altitude, if you can't easily (and therefore cheaply)

mount the antenna or access it later for maintenance and checking. Essential duties that are often overlooked. For instance I have noticed a problem with my disccone of late and I suspect, as I've not brought it down for inspection lately, that I must have a problem with the connector at the top of the mast. It's probable that I have corrosion problems since the whole assembly has been in place untouched for over seven years.

This reduction in performance has caused me to miss signals from the recently launched *Cosmos-2415* reconnaissance satellite, which others are hearing without difficulty, including fellow listeners only a few km away from me. This *Cosmos* satellite can be heard on both 150.3 and 400.8MHz. The first frequency is carrying telemetry data and the latter is currently just a continuous carrier. The spacecraft is in a non-geostationary orbit and so it covers much of the surface of the earth on a regular basis. Coincidentally, it is directly north of the UK right now (as I type) at a range of 1463km with an altitude of 216km. I didn't hear either frequency so I really do need to fix that antenna or just go outside with a hand-held scanner!

*Cosmos-2415* was launched 2 September at 0950. The Russian Space Forces conducted a successful launch of this military reconnaissance satellite. The launch of a Soyuz-U rocket, which delivered the satellite into orbit, was performed from the launch pad No. 6 at the launch complex No. 31 of the Baykonur launch site. According to the Space Forces, the satellite, designated *Cosmos-2415*, reached orbit eight minutes after launch.

*Cosmos-2415* received international designation 2005-034A and NORAD catalogue number 28841. According to the NORAD data, *Cosmos-2415* was deployed in an orbit with inclination of 64.8° degrees, orbital period of about 89 minutes, apogee of 307km and perigee of 207km. The satellite was earlier identified as a *Yantar-1KFT/Kometa* (11F660) wide-area optical reconnaissance satellite.

### More Space Monitoring

Recently, there was a request from **Paul Marsh** on the 'Hearsat' E-mail reflector, of which I'm a member, requesting assistance in finding some active frequencies. Paul says "The Chinese *Shenzhou-6* launch should happen a little later this year, perhaps end of September or October. What's missing is definitive frequency information, we can speculate where it may be transmitting but don't know for certain.

**Sven Grahn** lists a few frequency ranges to check, i.e. 179.95-180.01MHz, 380-400MHz and 479.97-480.02MHz. There is also a question about the use of S-band telemetry. The other interesting issue is the tracking ships, and how they are getting data back to China, a geo-sat would be most likely solution, but which one?

Is anyone reading interested in a co-ordinated effort to try to discover the frequencies in use? Ideal would be to establish stations along the ground track to be able to verify any carriers or telemetry we hear.

We'll probably use the #hearsat IRC channel for co-ordination as it operates in real-time. The IRC server used is ZIRC [www.zirc.org](http://www.zirc.org) or you can try a free web-based IRC client <http://chat.frans.org.uk/> select 'hearsat' as the channel then press the connect icon."

Join us there - it's fun and educational. You might be the one who discovers the frequencies being used.

074 73 Kevin

# QSL

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

**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.**

## Dear Ed

The 'LM&S' column in *SWM* for August lamented the loss of isobars from BBC weather charts. This Met Office link could be the answer for those with an Internet connection: [www.met-office.gov.uk/weather/charts/index.html](http://www.met-office.gov.uk/weather/charts/index.html) It gives a series of charts stepping forward at 12 hour intervals out to 84 hours ahead.

I hope this is of use to *SWM* readers.

**Dennis Pepler**  
Poynton Cheshire

## Dear Ed

I read with great interest your comments in September's 'LM&S' column concerning space and the problem of trying to include all of the readers' broadcasting tables.

I can understand why readers feel that the overall picture is being lost with the omission of some of these tables. Apart from this I can imagine the real sense of irritation felt by some contributors when they no longer see these tables included in 'LM&S'. To be honest, it feels like the broadcast section of *SWM* is gradually being squeezed. First we had the loss of 'Bandscan' and now we've lost some readers broadcasting tables.

Personally, I feel all of the listener tables should be included. If this means using an extra page - so be it! After all 'LM&S' is extremely popular with a good readership that is long established. I find that **Martin Peters**, column together with the readers broadcasting logs provide an invaluable source of broadcast information for those of us who would prefer to read *SWM* rather than surf the 'net. It is for this reason if for no other that I believe readers broadcasting tables in 'LM&S' should be kept in their entirety.  
**Freddy McGavin ('LM&S' contributor)**  
Dublin 8, Ireland.

*Freddy, I fully understand your frustration. Indeed I agree with your sentiments. All of 'LM&S' should indeed feature within the pages of SWM and*

*this month we've managed it. As for the 'Bandscan' reports, unfortunately my hand was forced as per my comments on page 6 SWM May 2005. - Ed.*

## Dear Ed

I have read with interest comments in *SWM* regarding the emergence of ex-police radio sets following the implementation of Airwaves, and have to offer the following:

I run a small communications company who hold a number of contracts to decommission Police radio systems and equipment.

Written into our contracts is a clause that states all equipment will have Police frequencies and markings removed prior to disposal. This is rigidly adhered to, as to sell operational Police radios would be a very foolhardy exercise.

There are a number of 'dealers' who have obtained Police equipment and are, as you have pointed out, selling it on the open/on-line markets without any form of frequency removal. As we are all aware, unlicensed operation is illegal, but not many may realise that should a prosecution arise from the unlicensed use of not just Police channels, then the supplier can also be prosecuted for aiding and abetting. This also applies to sellers of ex-Police radios who advertise them as being on PMR446 or UK General channels. These sets are not type approved for those services and are only suitable for radio amateur or cadet units and the like.

I should point out that we are currently selling ex-Police sets on-line, and the advert clearly states that all Police channels have been removed and that the correct licensing needs to be obtained before using the equipment.

It should also be noted that the Police have not "abandoned the frequencies" completely, and illegal users of these radios should beware!

**Steve Woodgate**

*A useful warning Steve, many thanks. - Ed.*

## topqsl

### Dear Ed

The June edition of *SWM* has been admired, read and inwardly digested. In that issue, you asked for comments on the new format: I congratulate you sincerely on the new look. You and your team are to be praised for rejuvenating a magazine, which is entirely attractive, easier to read and interesting in content, printed on paper of quality, the layout is **vastly** (repeat) vastly tidier with high-quality illustrations although a few still appear without captions. I particularly liked the following articles in the June edition.

Page 18 ARCC Kinloss Rescue. I was much amused to see the ancient NIMROD (the much modified airframe of the ill-fated COMET which first flew in the late 1940s)!

Page 27 Free Radio? A good but slightly stodgy article. There's nowt new under the sun (spots). The 'clandestines' have not ceased to ride the air waves since at least the mid-1930s! A niggler though, setting aside the aesthetic quality of a rather bad-tempered-looking Nick Grace, who is the lad in the flat 'at sprinkled with snow and muffled-up against the cold? No caption. We are not told. Hardly the right choice to illustrate an article about Short Wave Radio Africa. Unless it is to do with their London HQ? In this article you have gone back to your **worst** habits of useless illustrations: the two computer screens, which embellish the text add nothing to the content of the article. They take up space more usefully to be used for easy reading by enlarging the excellent photo of the jolly-looking staff of SW Radio Africa. Nevertheless a useful article.

Page 12 The Bearcat Review. A really first-class article by an author who combines authority with clarity of thought and expression, spiced with humour. I hope we will read more by him. It will be a pleasure.

Finally, page 36, ATC Part I. No captions to illustrations. Short but sweet! Good sub-headings but it was a pleasure to browse through the 'new' *SWM* and I look forward to the arrival of the July edition!

**Gerald Casey - Subscriber**  
Bordeaux France

*As we've unfortunately delayed the publication of Gerald's letter I'm assuming he's also pleased with the subsequent issues of SWM - Ed.*

## New Icom High Power Hand-Held!

The latest offering for the UK market from the Icom stables has just been announced - The IC-V82. The IC-V82 offers 7W - packaged in a v.h.f. hand-held transceiver with the option of digital capabilities. The introduction of an optional UT-118 digital unit provides users not only digital voice and data communication with other compatible IC-V82 and IC-2200H v.h.f. mobile units, but position exchange as well.

Icom say that the IC-V82 features a durable, modern design. They also point out that the radio is an ideal transceiver for newcomers to Amateur Radio or those users seeking an easy-to-use 144MHz hand-portable. The IC-V82 has a five character alphanumeric I.c.d. to show a variety of functions including S-meter, output power, power save, key-lock, tone and duplex.

The IC-V82 has 207 memory channels complete with the capability of programmable features for each, such as subaudible tone encoding, tone squelch, repeater offset and the ability to give channels names for easy identification.

Perhaps the most exciting new feature of the IC-V82 is its digital capability. These features include:

- Position exchange that allows the exchange of information with other stations when connected to an external GPS receiver (NMEA 0183 format) and computer.
- Callsign function that displays your callsign and the received callsign in each transmission.
- Callsign squelch giving you the option to choose an incoming call selected by callsign.

The suggested retail price of £176.19 (inc.VAT) of the IC-V82. The price includes a charger, rechargeable NiCd battery, antenna, belt clip, comprehensive handbook and two-year warranty. A comprehensive list of accessories is also available. You can see a full review of the IC-V82 in sister magazine *Practical Wireless* November Issue - on sale 13 October.

For more information on the IC-V82 or any of the Icom range of radios contact:  
Icom (UK) Ltd, Unit 9 Sea Street, Herne Bay, Kent CT6 8LD Website: [www.icomuk.co.uk](http://www.icomuk.co.uk)



## Sole Distributor For Elad

On the 26 August 2005 Martin Lynch & Sons were appointed sole distributor for the Italian ELAD range of communications products. One of the ELAD range includes the FDM77, an all-mode h.f. software defined radio, which has been receiving some rave reviews among the user groups.



If you want to see a FDM77 in action then you can go along to Martin Lynch & Sons' Chertsey store, where they have a unit on permanent demonstration. Alternatively see the forthcoming review in *SWM*. The receiver covers 50kHz-60MHz continuous and among many other features has user defined tuning steps down as low as 1Hz.

The FDM77 uses a USB2 connection to the host PC, which is required to perform the DSP functions in software. The user application runs under *Windows XP*. The FDM77 is available now from M L & S for £449.95 plus £10 P&P.

For more information on the FDM77 and other products in the Elad range take a look at [www.eladit.net/DRMCon.htm](http://www.eladit.net/DRMCon.htm)  
**Martin Lynch & Sons Ltd.,**  
**Outline House, 73 Guildford Street,**  
**Chertsey, Surrey KT16 9AS.**  
**Tel: (01932) 567333, FAX: (01932) 567222,**  
**Website: [www.HamRadio.co.uk](http://www.HamRadio.co.uk)**



## Mountain Goat Award

**S**teve Green G1INK from Buxton in Derbyshire, has become only the third radio amateur in the England to achieve the coveted Mountain Goat award for achieving 1000 activator points. Steve achieved the award on one of his favourite peaks, Great Gable G/LD-005 in the Lake District on 14 August 2005. At the start of the day, Steve was sat on 980 activator points but put in a mammoth 24 point expedition as he traversed between three 8-point summits in Cumbria - Pillar G/LD-006 (892m ASL), Kirk Fell G/LD-014 (802m ASL) and finally Great Gable G/LD-005 (899m ASL).

Steve began with SOTA in November 2003 and he achieved his Mountain Goat status on his 199th summit activation. He is the fifth person in the UK to achieve Mountain Goat status and only the eighth in the world.

Summits On The Air is an international scheme with 12 DXCC entities participating with their own SOTA associations. The Programme is set to grow further with several more international associations being developed, including the USA.

If you'd like to get involved with the SOTA activities take a look at [www.sota.org.uk](http://www.sota.org.uk)

Steve G1INK activating on Horse Head Moor G/NP-021.



## Unveiling Of WRN's DRM Projects

The World Radio Network (WRN) has announced its latest DRM projects including innovative local test broadcasts for London on 26MHz.

WRN, the London-based international transmission service company has revealed its plans for broadcasts to London and Europe using DRM (Digital Radio Mondiale), the digital a.m. radio system with near-f.m. quality sound. The first project will test transmission of DRM at 26MHz in London whilst the second project offers broadcasters European regional DRM coverage. It will provide important data on the penetration of the signals into various types of building and other urban situations, as well as gauge audience reaction to the broadcasts. WRN will create a full test and development schedule for submission to Ofcom and the DRM Consortium.

The transmission site is the world famous Croydon broadcast tower, situated in South London and operated by Arqiva (formerly NTL Broadcast), WRN's DRM transmission partner for this project. Arqiva provides transmission services for most UK commercial radio stations. Croatia's RIZ-Transmitters has supplied the Yagi antenna and transmitter for the duration of the project.

Tim Ashburner, WRN's Technical Director says: "The London analogue spectrum is unable to support new f.m. services and the

possibilities for more stations on DAB Digital Radio are becoming very limited. The audio quality of analogue a.m. is not up to the standard that is expected by listeners today. The answer may be local DRM services using the presently unused 26MHz band, which could support up to 50 new stereo radio services. This project will allow us to rigorously test DRM in a local setting using one of the most ethnically diverse, cosmopolitan and technically challenging cities in the world. If it works in London then local DRM can work anywhere".

The regional DRM service from WRN offers broadcasters comprehensive coverage of Europe using DRM sky-wave transmission and directional antennas. Furthermore, the service can be used to reach specific key target areas with frequencies that provide higher reliability in urban areas from the transmitter site located in South East Europe. Telefunken has supplied both the modulator and exciter for the service.

Gary Edgerton, WRN's Managing Director says, "DRM offers f.m. and stereo audio quality on the bands up to those now used by a.m. stations and it will revitalise these bands for local, national, regional and international broadcasting. We are inviting broadcasters to discuss with us their participation in all aspects of our DRM projects and to be part of the revitalisation of international broadcasting".

The WRN will encode both DRM services at its central London headquarters, providing the flexibility to generate a pre-mixed DRM stream that will then be fed to the respective transmitter sites. WRN will also add data for receiver display utilising custom created software.

The Radio Society of Great Britain (RSGB) is planning to celebrate the 50th Anniversary of the GB2RS News Service, which was launched originally on Sunday 25 September 1955.

The RSGB have obtained the agreement of Ofcom that newsreaders may use the callsign **GB50RS** immediately before and/or after they read the GB2RS news on Sunday 25 September 2005 and on the five following Sundays the 2, 9, 16, 23 and 30th October, after which the special event callsign, GB50RS will expire.



Ofcom have agreed that each operator who is reading the news on one or more of these days may use the call sign GB50RS during a pre-news or after-news net. Once the pre-news net comes up to the news reading time, the operator will change to

the regular broadcast-only callsign GB2RS in the normal way.

After the news reading the operator may then adopt the communicating callsign GB50RS in order to conduct an after-news net. If it is appropriate to conduct the after-news net on a different frequency, in order to avoid clashing with a following newsreader, then the newsreader who QSYs may continue to employ the callsign GB50RS until the after-news net terminates. Once this happens the newsreader must revert to his/her personal callsign. This is an unusual facility that the RSGB have been granted, because it means that at certain times there will be more than one newsreader using the callsign GB50RS - albeit on different frequencies. It is important that no newsreader of the day should meet up on the same frequency with another news reader - both using the callsign GB50RS.

If you would like the opportunity to use the GB50RS callsign, you must arrange with your colleagues in your news reading team that you will read the GB2RS news on one of the aforementioned Sundays. Newsreaders who are not reading the news on a given Sunday may not therefore use the callsign GB50RS on that day. It is hoped that there will be a greetings message from the RSGB patron HRH The Prince Philip, Duke of Edinburgh, KG, KT.

Shown here is the special 50th Anniversary Golden Microphone QSL card, which may be employed by news readers to acknowledge reception reports in respect of transmissions made using the GB2RS, the GB50RS or their own personal callsigns.

## UKuG Annual Meeting

The UK Microwave Group [www.microwavers.org](http://www.microwavers.org) is holding its annual microwave meeting at the BT Martlesham laboratories in November. The event is held over the weekend of the 12 and 13 November. Test equipment covering frequencies beyond 18GHz is available to measure power, noise figure, return loss and other parameters. Anyone who wishes to attend must register their interest in advance at <http://mmrt.homedns.org>



## International Lighthouse Weekend

The Dover Radio Club took part in International lighthouse weekend over the weekend of 20 and 21st August. The club members activated **GB25FL** (South Foreland Lighthouse) using a long wire antenna from the top of the lighthouse to their shack in a small building next to the lighthouse, which was used on the h.f. bands throughout the weekend.

The Club also used a small beam for 144MHz s.s.b. horizontal, as well as trying some f.m. repeater work. During the event the Dover Club made around 124 contacts over the weekend and worked 22 official 'Lighthouse' stations, and 33 different countries.

For more information on the Dover Radio Club or to join in with future activities take a look at [www.darc.org.uk](http://www.darc.org.uk)



Darren 2E1BVX with David M0DTI.



Fred G4GAN with John M3IYY.

## Looking To The Future with ARISS

**F**rank Bauer KA3HDO chief of the Guidance, Navigation and Control Centre at NASA's Goddard Space Flight Centre addressed the AMSAT-UK International Space Colloquium held in Guildford at the end of July.

Frank is also the International Chair of Amateur Radio on the International Space Station (ARISS) and he described the work being done by ARISS to promote Amateur Radio amongst youngsters. The ARISS programme enables school pupils to use Amateur Radio to talk directly to Astronauts onboard the Space Station. During the last five years over 190 schools have taken part.



Frank said that amateur radio from the Space Station should continue for another 10 or more years. This is

irrespective of the current problems with Space Shuttle. The shuttle is not the only type of vehicle that is used to maintain the station.

It's hoped to have a second Amateur Radio station on the ISS when the European Columbus module is launched. The plan is to incorporate Amateur Radio antennas for 435, 1260 and 2400MHz on the module before it is launched. They would be used for high quality TV transmissions, which would greatly enhance the schools contacts and result in much beneficial publicity for amateur radio.

Funds need to be raised from the amateur community for the Columbus antennas. AMSAT-UK and the British Amateur Television Club have already contributed substantial sums. However, more money is needed and it's hoped other National Societies will be able to contribute. A full list of organisations that have donated to the project can be seen at [www.ariss-eu.org/donations.htm](http://www.ariss-eu.org/donations.htm)

Looking ahead to 2016 and beyond Frank described how he hoped that amateur radio would be taken with the Astronauts to the Moon and possibly even Mars. A remarkably high proportion of Astronauts are Radio Amateurs. Six out of seven astronauts on the recent *Discovery* shuttle mission were licensed, so when missions to the Moon and Mars commence there are sure to be plenty of radio amateurs taking part.

A list of over 100 Astronauts who are also Radio Amateurs can be seen at: [www.patmedia.net/gjurrens/astrohams.html](http://www.patmedia.net/gjurrens/astrohams.html) so why not take a look? For information on AMSAT-UK contact the secretary: **Jim Heck G3WGM, Tel: (01258) 453959, E-mail: g3wgm@amsat.org Website: www.uk.amsat.org**

**\*September 30/October 1:** The Leicester Amateur Radio Show will be held at the Donington International Centre, Castle Donington, Leics, close to J23A and J24 of the M1. Doors will be open from 0930 to 1530 on Friday and 0930 to 1630 on Saturday. Look out for the PW Publishing Ltd stand where there will be some great offers. Contact **Geoff G4AFJ** on (01455) 823344 for more details. [www.lars.org.uk](http://www.lars.org.uk)

**October 7/9:** The RSGB HFC2005 will be held at Gatwick Worth Hotel, Crabbet Park, Turners Hill Road, Crawley, West Sussex RH10 4ST. There will be multiple lecture streams covering topics from I.f. to v.h.f. with sessions aimed at beginners, improvers as well as the more experienced. There will be a large bar and lounge area in which to mingle with the other delegates. [www.rsgb-hfc.org.uk](http://www.rsgb-hfc.org.uk)

**October 9:** The Blackwood & DARS are holding their rally at the Newport Centre, Newport. Newport Centre is 1.6km from J25A of the M4 (J26 travelling west to east). Doors open 1030 for disabled visitors and 1045 for everyone else. There will be the usual attractions, including trade stands, special interest groups, Bring & Buy, talk-in on S22, prize draw, catering and bar facilities. Entrance fee is £1.50. **George 2W1JLK** on (01495) 724942 or **Dave GW4HBK** on (01495) 228516.

**October 9:** The Exeter Amateur Radio Society are holding their Rally/Table Top Sale at the Moose Hall, Spinning Path, Blackboy Road, Exeter. Entrance is just £1 and tables are £10. Doors open 1000 till 1500. More information from **Steve Webber M3WRS** on (01392) 498934/495690.

**October 9:** Great Lumley Amateur Radio & Electronics Society Rally will be held at Great Lumley Community Centre, Front Street, Great Lumley, near Chester le Street, County Durham - just off the A1(M). Doors open 1030. There is free parking plus easy access as well as good, inexpensive food

and drink. There will be a Bring & Buy in two sections - junk and good buys. Admission £2, free of charge to under 14s accompanied by an adult. **Nancy Bone G7UUR** on 0191-477 0036.

**October 23:** The Galashiels & District ARS's Annual Open Day and Rally will be held in The Volunteer Hall, St. Johns Street, Galashiels, Scottish Borders. Doors open 1100 (1045 for disabled visitors) and admission is just £2. There will be trade stands, a Bring & Buy and refreshments. Details from **Jim GM7LUN** on (01896) 850245 or E-mail: [mail@gm7lun.co.uk](mailto:mail@gm7lun.co.uk)

**October 29:** The Rochdale & DARS Traditional Radio Rally will be held at St. Vincent de Paul Catholic Church Hall, Caldershaw Road, off the A680 Edenfield Road, approx 3km west of Rochdale. Follow the orange arrows from M62 J20. Opening time is 1015/1030 and admission is £1. There is ample free car parking, plenty of trade stands, a Bring & Buy stall and a large chat/refreshment area. Talk-in on S22. Contact via **John G7OAI**, evenings, on (01706) 376204. or E-mail [RADARS@radars.me.uk](mailto:RADARS@radars.me.uk) Full details can also be found on the website at [www.radars.me.uk](http://www.radars.me.uk)

**October 30:** The Rusty Radios Contest Group Rally will be held at Cotteder Village Hall, Hertfordshire. Doors are open from 1030 to 1400. There will be amateurs and traders selling components, surplus equipment and good old fashioned junk. Contact **Sean** on (01462) 459724 (evenings). [www.rustyradios.com](http://www.rustyradios.com)

\* PW Publishing Ltd. will be in attendance.

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.

## Summer Field Day

**M**acclesfield Wireless Society (MWS) held the second of its two summer field days on Saturday 27 August. The location was the summit of Higher Blakelow Farm (291m a.s.l.) by the trig point that is on many walkers' 'Most Wanted' list because the surrounding land is private without any Public Right of Way. The MWS was able to secure permission to use the land as one of its members is a friend of the landowner.

A variety of transceivers and antennas were used, and the power was supplied by a small generator. Many diverse contacts were made through the day, from SOTA stations worked on 144MHz f.m., to 50MHz contacts into Eastern Europe, to h.f. QSOs around the world. The club callsign **GX4MWS/P** was used on all bands and modes. The Macclesfield Wireless Society is always interested in hearing from prospective new members in the East Cheshire area, whether licensed amateur, short wave listener or anyone with a general radio interest. The club runs Foundation and Intermediate licence courses and is able to offer specially adapted Foundation licence courses to youngsters with special educational needs. You can contact the club via [www.qsl.net/gx4mws](http://www.qsl.net/gx4mws)

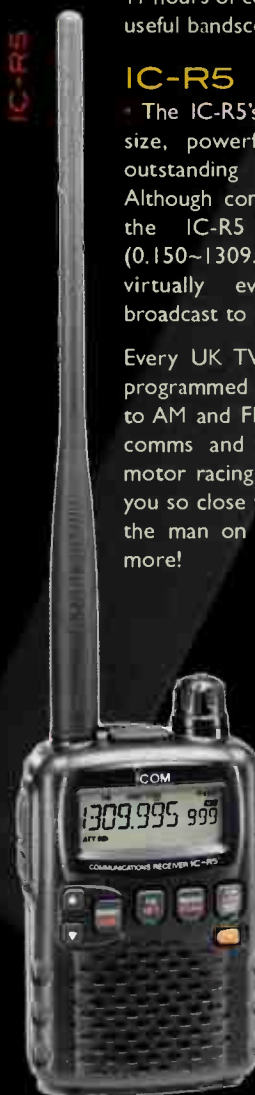
**Keith G3VKF, Alan G0JNJ, Ossie G0CSX, Ron G0WUZ, Andy 2E0LUX, Tom M1EYP and Jimmy G-20848 (Foundation licence student). Not pictured is Andrew 2E0DAD who was the photographer!**



RECEIVERS

# INNOVATIVE AND VERSATILE RADIO RECEIVERS PLUS...

40  
YEARS  
OF  
QUALITY



## IC-R3

The ICOM IC-R3 is a compact and stylish handheld radio receiver, plus... it also boasts a 2" colour screen, merging both radio and TV technologies into one product. You can watch terrestrial television, view video images or listen to broadcast bands. The Icom IC-R3 is guaranteed to open a whole new world of visual and listening pleasure.

## IC-R20

The NEW IC-R20 handheld receiver covers 150MHz~3304.999MHz in SSB, CW, AM, FM and WFM modes and boasts a built-in 32MB 260 minute IC recorder. Icom's latest dual-watch receiver also features an ultra-fast 100ch/sec. scanning speed, 1250 alphanumeric memory channels, 11 hours of continuous receive and a useful bandscope.

## IC-R5

The IC-R5's combination of small size, powerful performance and outstanding features will impress. Although compact to the extreme, the IC-R5 wideband receiver (0.150~1309.995MHz), covers virtually everything from AM broadcast to UHF TV audio.

Every UK TV broadcast channel is programmed into the IC-R5. Listen to AM and FM radio stations, utility comms and much more. For the motor racing fan, the IC-R5 can get you so close to the asphalt that only the man on the track experiences more!

VISIT YOUR LOCAL AUTHORIZED ICOM DEALER AND SEE WHY ICOM ARE TOPS!

Icom UK Ltd. Sea Street, Herne Bay, Kent CT6 8LD. Tel: 01227 741741. Fax: 01227 741742. e-mail: info@icomuk.co.uk ...or visit our website: www.icomuk.co.uk

# UBC72XLT Review

**Dave Roberts argues that one is never enough. We agree, there really is no such thing as a radio for all reasons. You really do have to have different sets for different circumstances. Here's one that's worth adding to your collection.**



**Nicely shaped to fit the hand.**

Some people don't know - do they? I mean, they assume that if you have a radio scanner it will be the only one you'll ever need. If anyone tries to tell you that fable, point out to them that they have more than one pair of shoes. Different types of footwear being required for different jobs. Simple really!

You probably have a base station scanner with DSC and CTCSS decode functions. In the car you may require something that fits in the dashboard and has many of the base station features but with larger controls. But which set do you keep in the pocket of that old jacket that you wear to walk the dog? At this point I'd like to make a suggestion.

## Ideal for the Pocket

You see Uniden, (who else?), have released onto the UK market a tough little scanner that's just ideal for bunging in a pocket and using on that hike with Fido. It's called the UBC72XLT and I've been having a great time playing with one. The UBC72XLT is small at 68 x 31.5 x 115mm high (plus the rubber jacketed antenna). Weighing in at only 165g, it's not a problem to leave in your pocket and forget.

On arrival the set was well packaged and is supplied with the all-important instruction book, a belt clip, a rubber shrouded antenna about 160mm long, two AA size rechargeable NiMh cells and a mains supply and charger. The charger/supply is a two pin device and is supplied with a 2 to 3-pin adapter so that it can be plugged into a UK BS1363 3-pin socket. The first thing to be done is charge up the AA cells. Then 16 hours later you can begin to play.

## Up & Running

The owner's manual is well written and clearly explains the features of the radio and just how to operate it.

Encouragingly, it comprises a

mere 50 pages including the usual "Thank you for purchasing this radio" type of introduction. Fifty pages is good news because it indicates to the new owner that the radio is not too complicated to drive. In fact I soon had it up and running without reference to the manual at all.

The UBC72XLT can be operated from the supplied NiMh cells, regular Alkaline batteries or the power supply. But (and this is important), there's a little sticker behind the batteries in the battery compartment. Hiding behind the sticker is a switch that must be set to NiMh BATT when running the set on rechargeable cells and REG.ALK.BATT when using Alkaline batteries or the 6V power supply.

The set is made from a black plastic that looks and feels tough.

Ergonomically the UBC72XLT is great with 17 buttons on the front panel, just above the speaker, and two rotary controls for volume and squelch on the top next to the earphone socket. Next to this is the BNC connector for the antenna. The UBC72XLT fits in the hand very nicely indeed.

In line with typical practice these days, the on/off switch isn't incorporated with the volume control but is a push button at the bottom left of the panel. This makes it very easy to find in the dark!

## Easy To Read

A word about the display - compared with the size of the radio the display is big and is easily read. The third button down on the left turns on the display back-light for about fifteen seconds. If you hit any button with the light on it starts the timer again. The display illumination makes the l.c.d. very easy indeed to read in the dark.

The loudspeaker output maximises at 490mW and the quality of recovered audio is really remarkable for the size of speaker.

As with some of the other

scanners in the Uniden range, the UBC72XLT is marketed as having more than one 'band plan'. In this case the manufacturers say that this radio has two. The UBC72XLT covers from 25-88, 108-174 and from 406-512MHz. If however, band plan one is selected, there is a 1MHz gap in coverage between 137 and 138MHz. The main difference in the plans is their default channel spacing and search features. Neither band plan is entirely suited to the British channel spacings, but overall I found plan number one to be more suited to my needs.

Having said that, if your requirements are primarily for a u.h.f. monitoring set, then plan two might be your choice, as 6.25kHz spacing is available for most of the u.h.f. coverage. Band plans are switched by holding the 0 button and turning the radio on. In either plan 8.33kHz channels are available for civil airband as is 12.5kHz. Military air enthusiasts will note that their interest is not catered for with this radio!

### Band Plans

Once you have decided on which Band Plan to use, stick with it. If you switch from one to the other most of the channels that have been programmed will be totally different when viewed in the other band plan. For instance, I loaded 156.000MHz into Ch1 whilst running band plan one. Viewing that channel when switched to Band Plan two revealed that the frequency entered had changed to 144.200MHz - very strange. Reverting to band plan one and there was 156.000 again.

### Thanks For...

There are one hundred memory channels available, these are arranged into ten banks of ten. As usual with Uniden radios, individual channels can be locked out during a search, and so can whole banks. Each of the memory banks has a priority channel that can be enabled so that it is checked every two seconds while that bank is being scanned. The scan speed is listed at an impressive 60 channels per second.

The UBC72XLT's memory management follows established



**Here are the insides...**

practice in that attempting to enter the same frequency in two channels generates an informative beep, a simple but very useful feature.

### Search Range

The UBC72XLT has ten pre-programmed search bands that between them cover the whole frequency range of the set. This is where the two band plans may come in handy. Since this is the only opportunity to select the search step during some of the search ranges. Frequency search parameters can be defined within the search ranges of the scanner and frequencies that are found can be entered into spare channels.

As for airband, it's an easy job to swap between 8.33 and 12.5kHz channel steps.

There are two pre-programmed 'service search bands'. This means that to start a search through the 25-30MHz range or through the air band

you just hit a couple of buttons. Up to 50 frequencies can be 'locked out' of a search in each search band.

It also has a handy reset facility in case you need to dump the memories quickly for any reason.

### CloseCall - But Not That Close!

Well, that's the functions sorted out, so what's it like to use? In short - it's good. Easy to hold with sensibly sized buttons. Very easy to operate with sensitivity that is on a par with other equivalent radios. It can also be hooked up to an external antenna to boost performance.

During my trials, I felt that airband operation was particularly effective. On high band v.h.f. the compact set was also very useful with the audio being particularly pleasing. I found that u.h.f. signals were also well received. In North

America the UBC72XLT is sold with a feature called 'CloseCall' - essentially a very effective reaction tuning function. A plea from the heart to Mr Bearcat! Please can we have that on our UBC72XLT? As it stands this compact little scanner is good value but with 'CloseCall' it would be a steal!

I like this scanner. It's a great companion on a walk and accompanied me each day on my regular hike. I was sorry to see it go...but wouldn't that CloseCall facility be great!

### Thanks

My thanks go to Nevada for the kind loan of the UBC72XLT, you can contact Nevada at Unit 1, Fitzherbet Spur, Farlington, Portsmouth, Hampshire PO6 1TT. Tel: 023-9231 3090 Web: [www.nevada.co.uk](http://www.nevada.co.uk) The UBC72XLT costs £99.00 plus £8 P&P.

SWM



**The large display is easy to read. Even in the dark!**

**Good spacing between the volume and squelch controls.**



# RADIOWORLD

www.radioworld.co.uk

42, Brook Lane,  
Great Wyrley,  
Walsall, WS6 6BQ.  
Tel. 01922 414796.

Fax. 01922 417829.

ALINGO AOR BHI CUSHCRAFT DIAMOND HEIL ICOM KENT-KENWOOD MEJ RADIOWORKS MATSON WEST MOUNTAIN YAESU YUPITERO

**ICOM IC-R8500**



Second Hand  
**£899.00**  
Call for BHI DSP fitting

**ICOM IC-R20**



**LATEST!** Now In stock  
150kHz to 3.3Ghz  
Multi-Mode  
Digital Recorder  
**£299.00**  
2 YEAR WARRANTY

**ICOM IC-R10**



50kHz-1.3Ghz  
All Mode  
Att & NB  
Inc. Nicads & Charger  
**£265.00**  
2 YEAR WARRANTY

**ICOM IC-R5**



495kHz-1309Mhz  
AM, FM WFM  
1250 Channels  
Inc. Nicads & Charger  
**£139.00**  
Software CS-R5 £22.49

**YAESU VR-5000**



0.1mHz-2.6Ghz  
All Mode  
Dual Receive  
Scope  
**£479.95**  
2 YEAR WARRANTY

**YAESU VR-500**



0.1Mhz-1.3Ghz  
All Mode  
1091 Channels  
**£197.00**  
2 YEAR WARRANTY

**YAESU VR120**



100kHz-1.3Ghz AM-FM  
VR-120D  
**£117.00**  
VR-120  
**£109.00**  
2 YEAR WARRANTY

**IC-PRC1000**



XP Compatible 2 YEAR WARRANTY  
PC Receiver  
0.1Mhz-1.3Ghz  
All Mode  
**£349.00**  
Optional UT-106 Plug-In DSP Unit - £84.95

www.radioworld.co.uk

**AOR AR-ONE**



Top of the Range  
10 Mhz 3.3Ghz  
Freq Coherent  
Detachable Front  
**£3,599.00**

**AOR AR-5000A**



10kHz-3Ghz  
All Mode  
2000 Memories  
TCXO Fitted  
**£1493.00**

**AOR AR-5000A+3**



10kHz-3Ghz  
Enhanced Ver,  
AFC-NB  
SYNCAM  
**£1,697.00**

**AOR AR-3000A**



100kHz-2036Mhz  
All Mode  
400 Channels  
NEW **£799.00**  
USED **£425.00**

**AOR AR-8600mkII**



0.1Mhz-3Ghz  
All Mode  
Att, Noise Limiter  
Bandscope  
**£549.00**

**AOR AR-8200mkIII**



530kHz-3Ghz  
All Mode  
Alpha Tagging  
Inc. Nicads & Charger  
**£357.00**  
Options available.

**UBC-780XLT**



25-1300 Mhz  
500 Memories  
TrunkTracker  
**£229.00**

**UBC-3000+3300XLT**



- UBC-3000XLT  
**£187.00**  
UBC-3300XLT -  
**£169.00**

www.radioworld.co.uk

**MVT-9000mkII**



530kHz-2039Mhz  
All Mode  
1000 Memories  
**£329.95**

**MVT-7100**



Most Popular Scanner EVER  
100kHz-1650Mhz  
All Mode  
1000 Memories  
**£199.00**  
Inc. Nicads & Charger

**MVT-7300**



521kHz-1320Mhz  
All Mode  
8.33kHz Airband  
Smaller than 7100  
**£219.00**  
Inc. Nicads & Charger

**MVT-3300**



66-88Mhz 108  
-170Mhz 300  
-470Mhz 806  
-1000Mhz  
**£127.00**

**GRE PSR-295**



25-88Mhz, 118-137Mhz, 137-174Mhz, 216-225Mhz, 225-501.25-400Mhz, 400.0125-512Mhz, 806-824Mhz, 824.0100-894Mhz, 894.0125-960Mhz, 1240-1300Mhz  
**£149.95**

**TRIDENT TRX-200**



100kHz to 2.1Ghz  
40 Channels  
AM, NFM, WFM, LBSB,  
USB, CW  
**£199.00**

**MAYCOM AR-108**



108-136.975Mhz  
Power saving  
99 Memory  
Channels  
Dual channel  
**£65.00**

**ICOM IC-R3**



2 YEAR WARRANTY  
0.495-2459Mhz  
FM WFM AM  
Col TFT Screen  
**£359.00**  
Inc. Lithium Pack and Charger

www.radioworld.co.uk

**01922 414796**

ORDER HOTLINE

Email: sales@radioworld.co.uk

Mon - Fri - 09:30 - 18:00  
Sat - 09:30 - 16:00



# Scanning Scene

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



**U**niden are at it again! This time it's the Uniden Mystic Marine v.h.f. hand-held radio. OK so it's a normal v.h.f. walkie-talkie on v.h.f. marine band but this one has a built in GPS with on-screen mapping and a facility that sends and receives data to indicate the location of the signal that the radio is receiving and likewise it sends data to similar equipment. I guess that this is the watery version of the Garmin Rhino Family Radio Service Radio that is in use in the USA, which I mentioned a few years ago in this very column. It does pretty much the same thing but is intended for use by hikers and the like.

Unfortunately, I've not seen anything like it on sale using PMR446 frequencies and therefore the Garmin Rhino remains illegal in the UK. A shame really as most people who get into trouble on British hills do so because they haven't a clue where they are. It makes you wonder what else the electro boffins will come up with.

## Space Shuttle Activity

The v.h.f and u.h.f. frequencies have been largely unexciting these last few weeks. Notable exceptions have been the activity from the Space Shuttle *Discovery* on its 'Return To Flight' voyage to the *International Space Station*. Clear communications were monitored at launch and also on 8 August. On both occasions Eileen Collins, the Commander, was heard. Honestly, there's no need to possess fancy gear to listen to these flights.

An outside antenna hooked-up to a receiver on 259.700 a.m. is preferable but the shuttle flights have been monitored on radios only fitted with the little rubber antenna they were supplied with. It may be that the shuttle flights are cancelled due to vast cost and the fact that bits keep falling off the things. Remember the shuttles are about twenty years old now - that's like having a C registration Austin Maestro and you wouldn't trust one of those to take you very far would you?

## Police Department Monitoring

It's also some time since I heard the USA police departments on low band f.m., as the bands are so dead. At a recent radio rally Gary, from Tetra Communications, was knocking out some very eighties looking General Electric mobile transceivers that had been converted to the 50MHz band. These have apparently come from the New York

police. I reckon that they would be New York State police sets as the NYPD have had a 400 and 800MHz trunked system for some time now.

It would appear, therefore, that the New York State Police have discarded their old system and the rumour is that they are also on an 800MHz trunked system. I used to hear them on 42.140, 42.300 and 42.360 but as the bands have not been conducive to much long distance reception of late I'd not realised that they had gone. Many of their frequencies are at 154 and 155MHz and they'll never be heard here.

I believe that New York State Fire Department frequencies are at 33, 45 and 46MHz and again, they have been monitored on this side of the Atlantic in the past. I shall be listening again if the band conditions ever improve. I'm sure they will really.

## Scanning in Wales

Chris, a regular contributor, from South Wales tells of a couple of events that have taken place in his area. On 23 July there was a friendly football match at the new Swansea City Stadium. Swansea City played Fulham and Chris heard the trunked 3-channel system in use at the ground. His slick detective work revealed that the channels in use were as follows:

Base (MHz)	Hand-Helds (MHz)
453.875	459.5875
453.500	460.000
453.775	460.275

## All f.m.

Chris monitored operational staff, supervisors, security and catering personnel. The frequency of 456.3875MHz was also in use as a simplex channel. He believes that ground staff were using this one. Sound engineers were on 461.2875 simplex, checking out microphones and the like.

Chris also found the time to sort out many frequencies in use at a car rally in the South Wales forests:

Base (MHz)	Mobile (MHz)
163.925	159.425 Rally Track Control
163.900	(possibly 159.400) Rheola Control (Rheola is the name of the forestry area)

He also heard 163.925 and 163.900 in use with stations talking to different check

points and a control in Cardiff, also found The recovery crews

who attended the scene of incidents where the cars were smashed up could also be found on 163.925.

Chris monitored all this traffic by diligent searching on his PRO-2006 and his Yupiteru MVT-7100, which, like everyone who has ever used one, he considers to be a very fine and sensitive set although a bit of a tinker to program.

Thanks again Chris for your loggings it sounds like you had an interesting weekend.

## Disappearing Frequencies

Brian writes from Newcastle-upon-Tyne. As the police have disappeared he's wondering what frequencies the night clubs use in the area.

Your best bet, Brian, would be to search for the base station transmitters between 445 and 448MHz. I imagine some of the club staff will be using the licence free stuff on 446MHz but the pubwatch there is on 445.800 and there's a nightclub (called Ikon) on 446.275MHz.

There are Ikon nightclubs all over the UK from Maidstone to Dunstable, Basildon and Bolton. It could be that they all have the same frequency in use. Certainly it seems as if they get a bit lively as not so long ago two blokes were jailed for petrol bombing the foyer of the Bolton club. I expect that the monitoring was interesting that night. Do they have a good pint of bitter and a bar billiards table? - I doubt it.

Brian's also interested in the council in his region. Try the 166MHz sector. There are three channels there at 166.175, 166.1875 and 166.225. Try 440MHz as that may also reveal some council traffic.

The RSPCA is also another of Brian's interests. I can honestly say that although they sometimes had radios issued they were usually on a local community repeater and I've not heard any RSPCA radio communications since the 1980s. Like so many erstwhile radio users they have now migrated to mobile telephones. Most of the really covert police and intelligence units don't go anywhere near radio these days either as they are heavy mobile 'phone users.



## Fire Brigade Operations

Does anyone have any experience of Fire Brigade control operations? You see I wanted to visit a Fire Service control room in order to write an article about them for this magazine.

Firstly, I contacted the Oxfordshire Fire Service. I left messages on various answerphones but received no replies at all. I gave up on them and telephoned Berkshire Fire Service. I spoke with them a couple of times and they seemed quite keen to help. I pointed out that my visit would give them some positive press exposure and they asked for an E-mail outlining my intentions. I mailed them and they didn't reply either. Nothing has been heard from them since.

Oh well, I thought. Let's try Buckinghamshire Fire and Rescue based in Aylesbury. After several encouraging telephone conversations with their press officer a visit was arranged. At the appointed time I appeared at the control centre and met with the manager Ms Crothers. From then on I was obstructed and all the things that had previously been arranged were not permitted. It was obvious that I wasn't going to receive any cooperation at all. So, I left!

Subsequent E-mails to Bucks Fire have gone unanswered, they haven't even had the courtesy to answer my mail. Does anyone know why the Fire Services don't want anyone visiting their control facilities?

The MOD, Ambulance Service, Police and Coastguard are only too pleased to help. Having spoken to some insiders I've been given a clue but would be interested to hear more. I was especially brassed off as I had turned down, what promised to be, a first rate free lunch in Northamptonshire to go and see these people in Aylesbury.

Should anyone notice any 'official' type convoys on the roads it could be worthwhile scanning around almost any frequencies. The reason being that, increasingly, such movements are protected by r.f. jamming



units that guard against the remote detonation of Improvised Explosive Devices. The British have a great deal of expertise in this field and the use of such equipment is becoming much more widespread.

## British Military

For those of us who have occasionally monitored the British Military Clansman system, the end is well and truly nigh. Bowman the digital military communications system for the British Army is slowly 'rolling out'. The implementation has been slowed for several reasons, including the imposition on the contractors, General Dynamics, of extra requirements in connection with data transfer.

In particular additional data processing and command control software has been included in the service requirement. Whereas the original specification was the ability to send short 'text' type messages it seems that entire operation orders will now be distributed via the system. There's also been a problem with interfacing the Bowman system with the intercom units in Challenger tanks and Warrior infantry fighting vehicles. This seems to have been fixed but I believe trials are still ongoing and according to the Ministry of Defence "No decision about whether Challenger 2 and Warrior would deploy to Iraq with Bowman had been taken ahead of trials of a possible solution to the problem."

Trials are also being carried out with the Merlin and Chinook support helicopter fleets and some naval vessels that may operate in shore support duties (is that called a littoral deployment?) are also having the system fitted at a trial stage. Also a basic Bowman system is being sold to the Romanians, the Dutch marines have bought Bowman as well.

I recently noticed that a Bowman Personal Role Radio (PRR) was for sale on eBay. The last time I peeked at it the price had reached over £300! Now this digital system will only be of any use if you have another radio to talk to so, perhaps the buyer was hoping to get a set of at least two?

What do people do with all the kit that is bought and isn't legal to use?

There are so many illegal USA Family Radio service radios and other foreign imports that the airwaves must be buzzing with illegal activity. In particular there are always Search & Rescue Beacon Equipment (SARBE) sets about on the market. In particular I have seen quite a lot of BE310 sets that transmit on 121.5MHz a.m. (the civil air distress frequency) and ex-military type BE375s that operate on 243.000MHz and 282.800 a.m. If people are buying these, then why?

Similarly a batch of fancy aviator wristwatches were stolen a few months ago. These expensive units had a 121.5MHz a.m. transmitter built in. Presumably they were sold to pilots but if someone bought one in a pub and decided to use it to chat with his mate who bought one as well then havoc could well ensue. These watches have been available for some years to pilots with 121.5 transmitters for civilian flyers and 243.0MHz for military types.

## Toughest Scanner

I'd be very interested to hear what readers consider to be the toughest scanner available. My old AR2002 was dashed to a very unforgiving kitchen floor recently and was a bit mashed as a result. Electrically it seems to function but liberal applications of Super Glue are fighting a losing battle in holding the case together. A neighbour recently had a similar disaster with his old UBC-9000XLT.

If anyone has heard of a really tough scanner that will take serious abuse please let me know if it's available for purchase to us mere civilians, as I'm getting a bit jumpy about the gear getting beaten about these days.

I remember that years ago there were military grade hand-held CB radios made on the USA CB system. The idea was that aid agencies would hand these out in Africa and similar places in order to contact the locals and let them know when the next hand-out was due. I could use a tough scanner as my radio fleet is looking decidedly weary.



# Kinetic Avionics SBS-1

**Imagine being able to identify and plot the course of aircraft as they fly around your local airspace. Peter Bond has been waiting for years for a product like this to come along. Is the solution worth the wait? Peter explains the features and facilities that new SBS-1 provides. For a primer on Secondary Surveillance Radar (SSR) see this month's 'Sky High'**

● The carbon fibre finished receiver unit provides only l.e.d.s to look at. The interest all lies on the PC screen!

Ever fancied being able to monitor aircraft on a real time virtual radar screen? Well now is your chance you can do just that with the SBS-1!

Opening the box the SBS-1 was smaller than I had imagined at 190 x 150 x 53mm (WxDxH) and it's very light. The antenna and its 3.5m long lead took just a few seconds to assemble. There is also a USB cable which was like a piece of late 1960s psychedelic art with bright blue lights in each end. Being a bit of an insomniac, I sometimes like to operate review items in bed late at night. My wife was none too happy with the bright blue glow, emanating from the corner of the room and so the lead was soon changed for night time use!

There is a power supply with cables for both UK and European operation

and the *BaseStation* software on CD-ROM. When the Ethernet version of the SBS-1 is released, a suitable cable will be supplied. The 26-page manual was included on the CD-ROM as a PDF file. Being a member of the old school I would have preferred to see a hard copy manual included as well but you can always print your own paper version. Using the 'Read this first' sheet, it is a simple matter to ensure that you install the software and hardware in the correct order. Connection of the SBS-1 to the computer and its antenna was simple and the software loaded without a problem. You will need to enter your Latitude and Longitude. If you don't have this information to hand then a simple way to find it, if you are Internet connected, is to go to [www.multimap.com](http://www.multimap.com), enter your postcode and it will give you the co-

ordinates, (as a decimal). Of course if you have an Ordnance Survey map covering your location then the position can be obtain from the map. If you move to a different location, these co-ordinates need to be changed from the Settings menu.

When the SBS-1 is powered up, the various coloured lights on the front panel illuminate. Red indicates that the power is on, Yellow shows a valid connection via the USB lead to the computer and Green shows that the SBS-1 is talking to the *BaseStation* Software. There are also four blue lights which indicate aircraft activity, the more aircraft that are detected by the SBS-1 the more blue lights are lit. Obviously, it is subject to your location but with the antenna in the best possible position, most people should hope for two lights and possibly three. If you live on a hill halfway between Gatwick and Heathrow, then four lights should be a regular occurrence.

## Antennas

The supplied antenna is a magnetic mount type and stands just 280mm tall, consequently it is suitable for use at home or mobile. As the SBS-1 operates at 1090MHz (officially microwave) the 'line-of-sight' principle applies and so sighting of the antenna is important. Having looked around the SBS-1 related forums, I discovered that users of the SBS-1 have reported reasonable



# Real-time Virtual Radar

results with antenna sited on their bedroom window sill but as is the case with all antennas, sighting it with the best possible view with as little surrounding clutter is preferable. If you live in a city surrounded by tall buildings don't expect amazing results.

The antenna lead provided is 3.5m long and the manual recommends a maximum length of 5m although I suspect that this is to prevent people using long lengths of a low quality coaxial cable and thereby incurring dramatic signal loss. If you use good quality low-loss cable this length can be extended to 10m. I am sure that many home installations would benefit from an external antenna and if you feel it would be beneficial then a Kinetic external antenna is available - see accessories box for details.

I am fortunate to have a very good outlook as I live on the side of a hill at around 80m above sea level. With an open view to the north on an arc from the south-west around to the east north east it gives me pretty good signal reception. The hill behind me gives a dead area or null with the inevitable high signal loss, consequently the SBS-1 will lose signals from upper airspace aircraft as soon as they are 10 to 16km south of me. As my computer is located quite close to an external door, for a temporary review set-up I used the supplied USB and antenna leads fully extended which allowed me to site the antenna on a 2m pole about 3m away

from the house. It is important to note that the Magnetic mount whip antenna requires a metal ground plane to work efficiently. A size of at least 300mm square is recommended. I used an old metal food tray that was 600 x 450mm which seemed to work well.

## BaseStation Software

Throughout my time using the *BaseStation* software, it appeared to be very stable and performed without a problem. The software is still very much a work in progress, in terms of features and will evolve as time goes by. To their great credit, Kinetic are very interactive with all the end users and are making changes and improvements based on this feedback. An updated version of the software is to follow in the very near future and may have been released by the time you read this review. Existing users of the SBS-1 will be able to download the updated software free of charge from the Kinetic website. Regular software updates are planned for the future as the product further evolves. Firing up the *BaseStation* software on my computer was fast (a few seconds), on launch it immediately begins to auto-detect the presence of suitably equipped aircraft, this detection process usually takes between 40 and 70 seconds.

As you can see from the screen shots the software loads with the virtual radar screen on the left and the aircraft information listing on the right. These windows can be resized to suit your requirements and the radar map can be expanded to totally fill your screen if you wish. The columns of aircraft information are quite comprehensive and include, Aircraft Status, Country of origin and its Flag, Hex Code, Callsign, Altitude, Speed, Bearing, Latitude and Longitude, etc. By clicking on the column heading the program sorts the column in alphabetical order, for personal preference I kept the details in callsign order for ease of locating a flight. At present you can select whether these columns are switched on or off, in other words, visible or not. I would have liked to be able to swap the order of the columns so that you could place your favourite information to the left of the screen, for example you may prefer to

have the callsign as the first column. I mentioned this to Kinetic and they thought this was a good idea and I am hopeful that it will appear in the new version of the software. See what I mean about them being interactive with the end user.

By clicking on an individual aircraft entry, a box pops up which allows you to add or amend a variety of information for that aircraft, for example Registration, Operator, Construction number, previous identity, etc.

The menu buttons across the top allow you to change a variety of parameters. Two buttons and a slider control allow you to zoom the map in and out or you can select a specific range in miles centred on your position. You can pan around the map using up/down and left/right arrows on the keyboard. I found the increments of the panning arrows a little too large to position the map precisely, but a quick change of PanProportion in the settings menu to 25 soon altered the settings to suit my preference. The default setting is 5 and as you increase the setting numerically the increments reduce, I found that 25 was ideal. When you decide on the map you want, you can then save it with a filename such as 'UK-Southeast' or 'Heathrow-Approach', I set up six maps that I used regularly for monitoring different areas. If you use the SBS-1 mobile, then you can set up maps for different areas of the UK or specific airfields.

## Setting Menu

Using the settings menu you can change a variety of other items. In display settings you have the facility to change the various colours used on the radar and aircraft listings. For example, I found the colours used for aircraft climbing and descending a little too pale for me, so following the manual's suggestion I set climbing aircraft to bright blue (towards the sky) and those descending to bright green (towards the grass). Aircraft in level flight are white. In the status column of the aircraft listing, active aircraft are green, position lost aircraft are yellow and signal lost aircraft are red. There is a facility for splitting and merging the radar screen so that you can



# SHOWROOM & MAIL ORDER:

Unit 1, Purfleet Industrial Estate,  
Off Juliette Way,  
Aveley,  
South Ockendon,  
Essex RM15 4YA  
TEL: 01708 862524 FAX: 01708 868441

Open: Mon-Fri, 9.00am-4.00pm.

Sat: Closed

# HAYDON Communications



Mail order: 01708 862524



E&OE

NEXT DAY DELIVERY TO MOST AREAS, £10.00

After 25 years in the business, Mike Haydon is partially retiring and both our Thurrock and West Midlands showrooms will close on Friday 30 September.

Our business will continue mail order only by telephone or over the internet.

[www.haydon.info](http://www.haydon.info)

For September:- any customer purchasing on-line can take an extra 5% off any price (including offers - but excluding carriage)

Callers to either of our showrooms in September can expect up to 50% off showroom items and even more off clearance items

Look out for our BIG thank you to our customers "2-4-1", ie:- double your purchase for free

(additional carriages may apply)

## short wave receivers & accessories

### REALISTIC DX-394



★ Superb performance SW receiver ★ 0.2-30MHz (all mode) ★ Selectable tuning steps (down to 100Hz) ★ 240 or 12V ★ Digital S-meter ★ Attenuator ★ Key pad entry ★ 160 memories ★ Noise blanker.

OUR BEST SELLING LOW PRICED RECEIVER

Send SAE for review

£199.95 P&P £10

### ICOM IC-R75



The short wave receiver for the true enthusiast. Includes free PSU. ● 0.03-60MHz (all mode) ● Synchronous AM detection ● PC control capability ● Incl's PSU & DSP Board

WE HAVE ONE PIECE AS NEW ON A COMMISSION SALE

£499.99

Optional DSP (UT-106) fits R-75/PCR-1000 Special £59.99

### SANGEAN ATS-505



NEW! Wins Dutch "Automobile" award. Excellent small short wave receiver (digital). 105-380kHz/520kHz-30MHz/88-108MHz (AM, SSB, CW, WFM). 88-108MHz FM stereo. Includes carry case.

Includes FREE power supply

£79.95 (P&P £10)

### SANGEAN ATS-909



A superb performance all mode receiver with true SSB and 40Hz tuning for ultra clean reception. The same radio is sold under the Roberts name at nearly twice the price. Other features include RDS facility, 306 memories and WFM. Incl's case/earphones/wind-out antenna. Freq:- 150kHz-30MHz/88-108MHz

Includes FREE power supply

£139.95 P&P £10

### JRC NRD-545 DSP



The ultimate short wave receiver with DSP - for the real perfectionist. Clear, distortion free sound reproduced by digital signal processing. A truly professional receiver built primarily for the commercial markets. Features include: DSP pass-band shift, DSP all-mode detection, DSP notch filter, DSP noise reduction and much more.

Send SAE for brochure

Haydon exclusive OUR PRICE £1299.00 Del £10.00

NVA-319 Extention speaker.....£199.00  
CHE-199 VHF/UHF converter 30MHz-2GHz.....£289.00  
ST-3 Matching headphones .....£79.99

### SANGEAN QSR-1



Voice activated desktop recorder with quarter speed record. (Sold for more under Roberts name:- C-9950). Superb accessory for the radio enthusiast.

Can be used with any receiver subject to correct connection leads (some supplied).

Includes FREE power supply

OUR PRICE £69.95 Del £10

### SONY SW-100E



★ Miniature portable all mode SW receiver ★ Station presets for 50 frequencies ★ Single side band system ★ Synchronous detector ★ Tuning in 100Hz + 1kHz steps ★ Includes compact antenna/stereo earphones/carrying case. Great things can come in small packages. Superb quality receiver with fantastic SSB performance.

240V Power Supply £24.95

OUR PRICE £159.95 P&P £10

### SONY SW-30



The ideal holiday partner!  
★ Fully digital world receiver  
★ FM/MW/SW ★ Covers all short wave broadcast/MW plus FM stereo (on headphones) ★ Programmable memories ★ Sleep timer + alarm function ★ 1kHz tuning for short wave. RRP £79.95.

SPECIAL OFFER £19.99 P&P £8.50

### AT-2000 ANTENNA TUNER



Deluxe SW ATU 0-30MHz. SO239 fittings.

(Probably the best ATU around)

ONLY £89.00 P&P £7.00

PL-259 to PL-259 patch lead (0.6m).....£5.99  
PL-259 to PL-259 patch lead (4m).....£9.99  
BNC SO239 adapter .....£3.95

### LOW LOSS PATCH LEADS



Uses 5D-SFB low loss coax 2-4-1 P&P £2.50

Connectors L Price  
PL-259 - PL-259 ...0.6m...£5.99  
PL-259 - PL-259 ...1m.....£6.99  
PL-259 - PL-259 ...4m.....£9.99  
BNC - BNC.....1m.....£6.99

### WA-50 'AMP'



Broadband amplifier for 50kHz-50MHz. 10dB gain. Superb low noise amplifier. Ideal for short wave improvement. Requires 12V (150mA).

SEND SAE FOR DATA SHEET NOW £69.95

Optional AC adapter .....£16.99

### MLBA (R.F. SYSTEMS)



Ready assembled wire antenna offering low noise reception on LW, MW & SW (100kHz-40MHz) adjustable from 6mts to 20mts long. Magnetically coupled transfer system ensures static noise levels leak harmlessly to earth. (Subject to being earthed).

PRICE REDUCTION NOW £44.95 POST £5.00

World Radio History

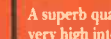
### Q-TEK STEALTH SR-60



Covers 0.2-50MHz. Superb, ready assembled wire antenna system. Not only is this end fed for ease of installation, it is also constructed from extremely high quality components. New 'plyweave' PVC coated wire makes this virtually invisible. Antenna length up to 20m. (Feeder supplied up to 10m).

PRICE REDUCTION NOW £39.95 DEL £10.00

### DX-10 (R.F. SYSTEMS)



A superb quality active antenna with a very high intercept point ideal for weak signal reception without increases in radiated noise. Freq: 100kHz-30MHz. Bomb-proof over loading figures, 90cm long, mains PSU + controller supplied (coax optional).

SEND SAE FOR DATA SHEET NOW £149.95 DEL £11.00

### DX-1 PRO (R.F. SYSTEMS)



Professional active S/W antenna constructed for commercial use. Includes indoor (low noise controller). Ideal for the serious enthusiast. (20kHz-54MHz).

SEND SAE FOR DATA SHEET NOW £359.95 DEL £15.00

# you can do some serious listening with these

## AOR AR8200MkIII

Never before has one hand portable offered so much.  
 ★ Covers 100kHz-3GHz (all mode)  
 ★ Computer control capability  
 ★ 8.33kHz steps for the new airband spacing ★ Includes nicads/charger/antenna and car lead. (Optional case £19.99)

Free in car holder **£349.99**  
 INCL'S FREE RH-770 FLEXIBLE ANTENNA

## ICOM R-20

150kHz-3.3GHz. AM/FM/WFM/SSB/CW. Features galore. Incl's L-ion battery & charger.

FREE THIS MONTH: RH-770 FLEXIBLE ANTENNAS + IN-CAR HOLDER

**£285.00**

## ALINCO DJ-X2000

100kHz-2.15GHz. All mode incl's SSB. "Flash Tune" reads frequency of nearby signal & tunes the handle for you. Amazing features include "Transweeper". 160 seconds of digital audio memory/battery pack and charger. (Optional case £16.99).

Incl's free DB-2000 telescopic antenna Free in-car holder

**£325.00** Del £10.00

## ALINCO DJ-X10

Full-featured handy. 100kHz-2GHz all mode. Includes SSB/CW band scope, alphanumeric display + loads more. (Includes battery/drop-in charger). (Optional case £16.99).

Incl's free DB-2000 telescopic antenna Free in-car holder

**£235.00** Del £10.00

## MVT-7100

Wideband hand-held scanner covers 500kHz-1650MHz. (All-mode). Includes nicad/car charger/charger/antenna. Extremely user-friendly hand-held receiver with outstanding performance. (Optional case £19.99).

OUR PRICE **£189.99**  
 Free RH-770 + in-car holder

## YAESU VR-500

Continuous coverage from 100kHz to 1299MHz. All mode (AM/FM + FM wide/USB/LSB/CW). Dual watch memories. Runs on 2AA or rechargeable battery pack (not supplied). Optional case £12.00.

OUR PRICE **£159.99**  
 Includes free telescopic antenna & in-car holder

## AOR AR8600 MkII

Extremely versatile all mode receiver (100kHz-3GHz). AORs continual strive for perfection gives you this incredibly high performance receiver at a very affordable price. Now with improved short wave performance.

INCL'S THIS MONTH FREE POWER SUPPLY  
 NOW **£549.99** Delivery £10.00  
 Optional 240V PSU.....£24.99

## YAESU VR-5000

0.1-2.6GHz all mode receiver with (optional) DSP plus bandscope/world clock and too much more to print. (Incl's power supply).

SEND SAE FOR DATA SHEET  
 OUR PRICE **£479.00** Del £10.00  
 Voice synthesizer.....Now £29.99  
 Digital recorder.....Now £29.99  
 DSP.....£89.99  
 Special package price VR-5000 + DSP unit **£549.00**

## UBC-780XLT

New comprehensive scanner (25-512MHz/806-956/1240-1300MHz) Alpha Tag, PC cloning control. Smart scanner + trunk track facility. Includes power supply, antenna, cigar lead, mobile mount.

SEND SAE FOR REVIEW  
**£219.99**  
 SPECIAL OFFER UBC-780 + SS-2000 antenna + 10m coax + plugs £269 **£235.00** del £12

## ICOM IC-R5

(0.1-1310MHz) AM/FM/WFM. Superb high-speed scanner featuring alpha tag and much more. (Optional case £17.99).

BATTERY AND CHARGER INCLUDED  
**£139.99**  
 Includes free in-car holder

## RH-770

2-4-1 (25MHz-2GHz) BNC fitting  
**£16.95** P&P £3.00

DB-2000  
 (0.1-2GHz). 2-4-1  
**£14.99** P&P £3.00

## UBC-180XLT

A brand new state-of-the-art scanner with 8.33kHz spacing on airband. Covers 25-960MHz (with gaps). Includes battery and charger. 8.33kHz tuning. Back-lit display along with alpha-numeric tagging.

RRP £129.95  
 OUR PRICE **£99.95**  
 Includes free telescopic antenna & in-car holder

# we stock a superb range of scanning antennas, etc

## M-75 SCANNER PRE-AMP

Superb BNC in-line amplifier to boost signals! Fits on top of your scanner and away you go. (Powered by PP-3 battery - not supplied). Freq: 24MHz - 2GHz. Gain (+)10dB to (+)20dB fully adjustable.

SPECIAL OFFER **£49.95** P&P £6.00  
 BNC-BNC patch lead.....£6.99  
 Optional battery.....£3.99

## Q-TEK APOLLO 3000

A brilliant new compact indoor antenna that covers 0.1-3GHz and is just 24" when collapsed. Features "horizontal or vertical" adjustable elements. Ideal for table top mounting or by the window. Patch lead with BNC plug fitted. (Frequency range: 0.1-3GHz). PL-259 converter available.....£3.99

**£59.95** P&P £7.00

## Q-TEK SS-2000

Compact - indoor/outdoor scanning antenna. (50MHz-2.6GHz). Superb glass fibre construction. Ideal in areas affected by "noisy neighbour syndrome". This antenna can be put in the loft or outside on the building. SO-239 socket (PL-259 plug needed). 1.3m long (mast clamps supplied).

50MHz-2.6GHz and under 1.3m long  
 NOW **£29.99** DEL £11.00

## Q-TEK D.C.-2500 DISCONE

A high performance wideband discone offering superb performance from 0.2-2500MHz. Transmit range: 6m, 2m, 70cm (power handling 200W). Fitted with low loss 'N' type socket. Supplied with mounting brackets. (N-plug & coax not supplied). Features 8 horizontal/8 vertical elements.

SPECIAL OFFER **£39.99** P&P £11.00  
 Comments from John Griffiths  
 Putting the DC-2000 up gave me a tremendous boost to all signals with the ancient AR-2000 coming alive! Signals were well received and I found that I wandered out of airband.

## Q-TEK INTREPID 2000

An amazing vertical (glass fibre) colinear antenna. Quality construction with incredible performance. For the serious scanner enthusiast.  
 Freq range: 0.5-2GHz. PL-259 fitting (not supplied). Length 3m. Mast clamps supplied. (Gain up to 9dB is easily obtained). Reports have shown this to be an excellent performer!

SPECIAL OFFER **£69.95** P&P £11.00

# accessories have always been our speciality

## SP-3 (PROFESSIONAL)

Two way combiner. one antenna feeds two scanners (without mismatch).  
 10-2500MHz. High isolation (BNC sockets).

SEND SAE FOR DATA SHEET  
**£64.95** P&P £5.00  
 BNC - BNC patch lead 1m.....£6.99  
 BNC plug - SO-239 socket.....£3.99  
 BNC socket - PL-259 plug.....£3.49

## SUPER-GAINER RH-9000 (BNC)

BNC 40cm flexible whip for the ultimate in gain. (Rxx: 25MHz-2.9GHz).

**£24.95** P&P £3.00  
 SUPER-GAINER RH-9090 (SMA)  
 (Rxx: 25MHz-2.9GHz)  
 SMA 40cm flexible whip that is ideal as replacement.  
**£28.95** P&P £3.00 SMA fitting

## HUNTER

Frequency counter covers 10MHz-3GHz. Incl's nicad, charger, antenna.

PRICE REDUCTION  
**£39.95** P&P £5  
 Optional padded case.....£7.50

## EP-300

2-4-1 A high quality superb 'police style' earpiece that hangs over the ear and can be worn in comfort. (3.5mm straight plug fitted).

**£9.95** P&P £2.00  
 3 for £20.00 P&P £2.00

## ICOM HP-4

Superb lightweight "mono" communications headphones. Ideal for short wave or scanners (3.5mm plug fitted, 0.25" adapter available, 50Ω impedance).

2-4-1 **£24.99** P&P £5.00

## SPECIAL BUY

## GRE PSR-225

25-550/760-1300MHz. AM/FM/SF. VFO tuning/direct frequency entry/direct-limit search/auto frequency storing/attenuator 240V or 12V. Was £199.00

NOW **£149.99** Del £10.00

# Kinetic Avionics SBS-1 - Real-time Virtual Radar

have two active radar screens side by side. Handy if, for instance, you want monitor an airfield and also keep an eye on the bigger picture. Whilst using the split screen mode, I found that it may be preferable to use 'fullscreen' to give a better overall presentation of the two radar maps. Each aircraft radar trace has an information label displayed by it

which can include various information such as Hex Code, Callsign, Bearing, Height, Squawk code, etc. To stop the radar display being too cluttered, these individual items can be turned off as required from within the Settings menu. The larger resolution monitor you have the better for optimum use of the SBS-1 screens.

You can also click on a button, which brings up a visual presentation of the comparative height of aircraft displayed on the radar screen. Further buttons allow you to select or deselect further on-screen displays such as aircraft trails - just like a real radar trace, display bearing and distance, way points, distance range rings and the map outline. A further five buttons give you direct access to different sections of the Kinetic Avionics website plus some other useful related websites. One of these sections is the Forums site and I would suggest that all interested readers go and have a look around the Discussion and other sections, here you will find a wide variety of information and screen shots relating to the SBS-1. Finally, if you don't want to miss any of the action, there is record facility. So you can nip down the shops and take the dog for a walk and then playback the recording when you return - wonderful!

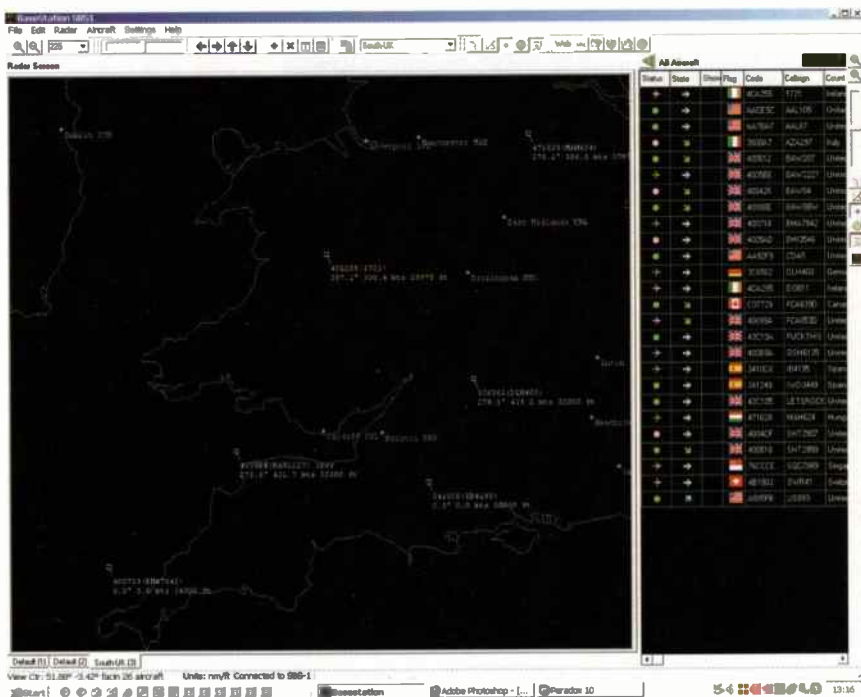
Down the right-hand side of the screen is a second set of control buttons for use when the radar is set to full screen. These duplicate some of the controls from the main tool bar which change the perspective of the radar screen. Whilst zoom controls are included, the panning arrows were not but I understand that they will be included in a future release of the software.

It is also worth noting that some third parties are already writing new way point lists and airfield layouts that can be placed in the *BaseStation* sub-directories and then used from within *BaseStation* on the radar maps. Have a look at the Forums and you will see a selection of these including a very detailed map of Heathrow. I presume that these maps will be hopefully be available for download for use by other SBS-1 users.

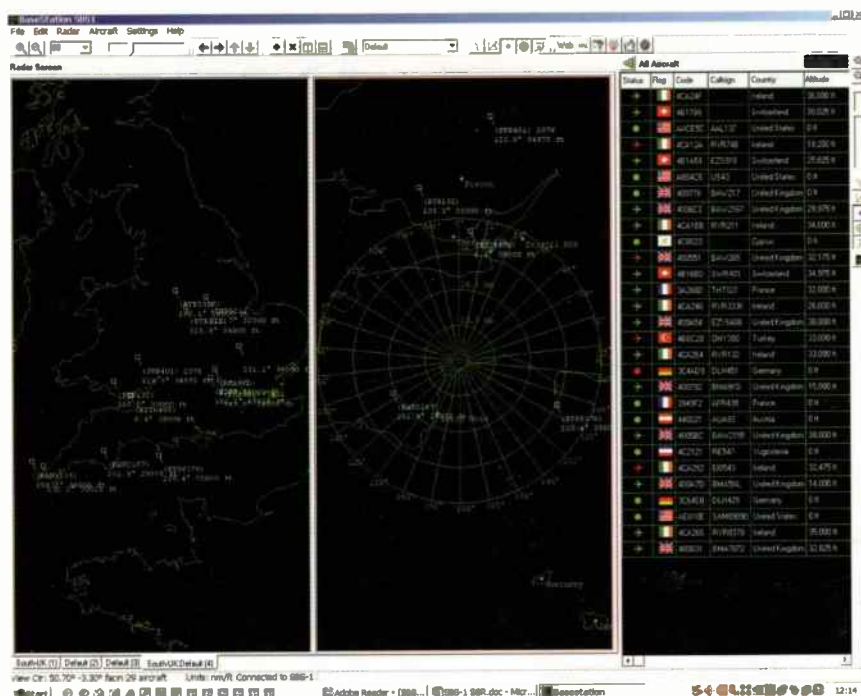
## The Hex System

Each country is allocated a block of sequential Hexadecimal Codes (Hex Codes), these blocks can then be further sub-divided for use by civil and military air traffic. Up to this point, all of the UK civil aircraft I had noted have started with 400xxx and the UK military with 43Cxxx. Some examples of the country blocks are as follows :

France	380000_3BFFFF
Germany	3C0000_3FFFFF
Italy	300000_33FFFF
Netherlands	480000_487FFF
Switzerland	4B0000_4B7FFF
United Kingdom	400000_43FFFF
USA	A00000_AFFFFF



● Mischievously programmed military aircraft transponders show up.



● Split radar screen.

These codes are then allocated to individual civilian aircraft, the code is unique to that particular airframe and is not transferable. Consequently, if an aircraft changes airline and or registration it still retains the same Hex Code. I have observed on various forums, people suggesting that Hex Codes can be transferred but as far as I am aware that is not the case with civil aircraft. The military on the other hand is a different matter. It appears that they have dispensation to swap codes presumably for security purposes. This is fine as long as you keep a close record of the Hex code allocations, this behaviour could in theory present the problem of two aircraft appearing on the screen with the same Hex Code!

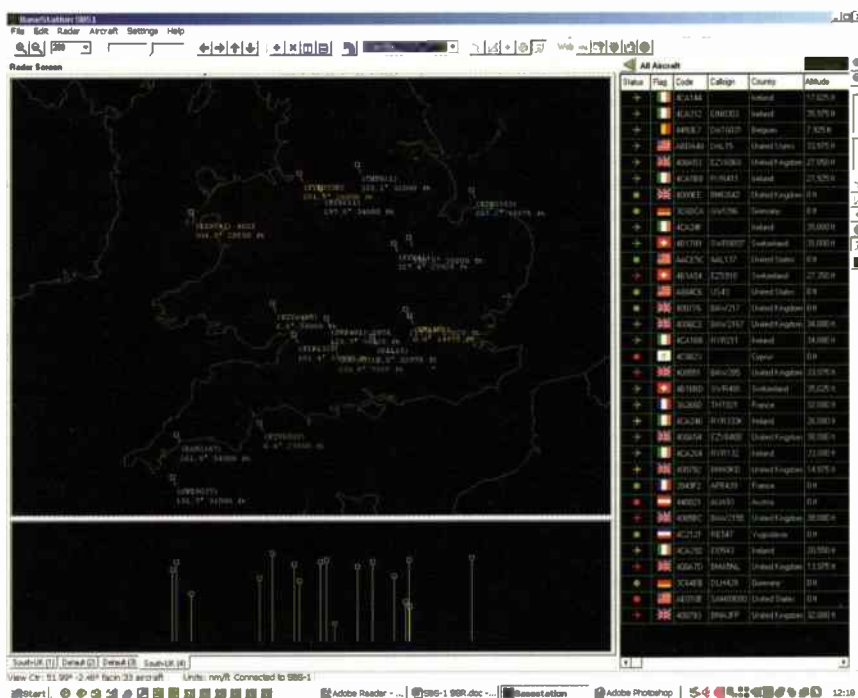
When an aircraft prepares for departure from the stand, the Squawk Code and the callsign are entered into the aircraft's Transponder, this immediately brings forth a problem or rather an anomaly. If the pilot enters the wrong callsign or no callsign at all it will be displayed as such by the SBS-1 BaseStation software. A good example is a callsign I noted a couple of days ago, BAX215 Hex code 400775 which is a British Airways B777 G-VIIX, this should of course be the callsign BAW215. It also explains why the callsign box is empty for some flights in the aircraft listing. In the end the callsign you are looking at is dependant on the aircrew entering the data correctly!

This method of setting the aircraft code also brings forth the opportunity for some people to be mischievous in particular the RAF (43C\*\*\* codes). Instead of entering a callsign, a variety of other 'comments' have been entered such as "GETALIFE", "LETSROCK" (Hex 43C105) and "F\*\*\*THIS" (Hex 43C10A). In the two weeks I was using the SBS-1, this practice seemed to become less prevalent towards the end, so perhaps someone had a polite word with the military! Others seem to have used it as a personalised registration for example Beech 200 G-CDFY has been seen a couple of times as VICK01. One thing that I found annoying was the habit of a few pilots to enter the IATA two letter code for their airline rather than the ICAO ATC three letter code.

### What Can You See?

So with the hardware and software installed, and an understanding of how it works (hopefully), lets see how the SBS-1 performed.

Because of my elevated location and



- Height display. Climbing aircraft bright blue (towards the sky) and those descending to bright green (towards the grass). Aircraft in level flight are white. In the status column of the aircraft listing, active aircraft are green, position lost aircraft are yellow and signal lost aircraft are red.

the good outlook this gives me the ability to pick up aircraft much further away than I expected. I regularly see aircraft between Manchester and Leeds, above FL330, which as the crow flies is just over 360km! I have also seen Ryanair aircraft at FL380 over the Irish Sea, north-west of Anglesey which must be close to 400km - not bad! You will see from the screen shots the null area to the east and the south caused by the hill behind me. I could also see aircraft arriving and departing from Bristol and Cardiff Airports, I generally lost the signal at between 3500 and 5000 feet, which is pretty good as they are around 120km north of me. Aircraft that are not using position reporting in their Squitter cannot be plotted and therefore do not appear on the radar screen, they do however appear in the aircraft listing and are denoted by a solid circle in the status column. Those with position reporting appear on the radar screen and are also shown in the aircraft listing by an aircraft icon.

Whilst it is primarily civil aircraft that are Mode-S equipped at present the military (RAF and USAF) also have transport aircraft converted although up until now I have not seen any with position reporting and so they only appear in the aircraft listing. A few examples noted so far are as follows: TARTAN 31 (displayed as TARTN31) hex

code 43C0A2, also TARTAN 12 as hex 43C0B2. REACH 2103 ( RCH2103 ) hex code AE1175. ASCOT 876 (RRR876) hex code 43C0A2. HOOK 03 hex code AE0945. RCH 3125 hex code AE1236 and TOES 07 hex code AE12BD. I have never heard the USAF callsign TOES before, so I am a bit dubious about that one, any comments anyone?

At my location in south Devon, I am not exactly located underneath the most densely populated airspace in the UK. However, the most aircraft I have had on the screen at once was 53 (including a few that were signal lost), which I thought was pretty good. My typical count tends to be in the mid to upper thirties.

Each time a new aircraft hex code is detected by the SBS-1 a new XML file is automatically created in the C:\Program Files\Kinetic\BaseStation\UserData sub directory. For example, 342111.xml which was generated this morning using the callsign JKK3990 which is the Spanish airline Spanair. Consequently, as you use the BaseStation software day-by-day it creates its own Hex database of aircraft it has detected. Have a look in the UserData directory and you will see the number of files increase steadily each time you use the unit. Incidentally, if you go to that directory and click on an XML file it will show you the date it

# Kinetic Avionics SBS-1 - Real-time Virtual Radar

was detected, the callsign and the various position reports for that flight. Assuming such data was available when detected.

Databases of these Hex codes are being made available via web sites by the Aviation Administrations of several countries, most notably the UK, Canada and the USA. They are not always in Hex format, some are Binary or Octal but converters can be downloaded free or for a small fee via the Internet, try a search on Google for +Hexadecimal +Converter or use a calculator should yours have the facility. This information is already being seized upon by individuals and aviation groups and is being turned into files that can be read by the base station software. I am told that the firm Aerodata [www.aerodata.biz](http://www.aerodata.biz) already has over 300,000 Hex codes in a database, note there is a charge, it's not free. The Gatwick Aviation Society have a Hex Code / Registration lookup on their website [www.gatwickaviationsociety.org.uk](http://www.gatwickaviationsociety.org.uk) although by their own admission it is by no means complete.

People are already converting these files into XML format and they can then be copied into the UserData directory, after you have backed up the original files!

I have little doubt that a world database of Aircraft, Registration, Hex Codes etc., will appear in the future in XML file format. Consequently, you can then click on an item in the aircraft listing and the details will be displayed, such as Registration, Operator, Type, Construction number, etc. Consequently, you can sit in an armchair at home by a window, watch an aircraft routing overhead click on the software, up comes all the details including the registration. And there you have it - spotting made easy. This is of course assuming that the data was input correctly in the first place! It's been over 25 years since I collected aircraft serials but in those days you had to verify it by seeing it with the Mark 1 eyeball.

## Mobile

If you have access to a laptop computer, then you must try going mobile with the SBS-1, its size and weight make it ideal for travelling. Power is not a problem since by flicking a slider switch on the back of the box towards the USB port, the unit is then powered by the laptop via the USB lead. The magnetic mount antenna sits on the roof of the car which then acts as a large ground plane. I travelled up to

the nearest headland about 110m above sea level and as expected the results were much improved with aircraft counts peaking at 71 and three blue lights on for most of the time. This also gave me the facility to watch aircraft to the south across France, which I hadn't been able to monitor from home, upper airspace aircraft could be seen right down across the Brittany coast to about 80km inland and to the east I could see a couple of aircraft over Kent.

I have seen a report on one of the aviation news groups, (not the Kinetic Forum), where an enthusiast from Newhaven in Sussex took his new SBS-1 to Ditchling Beacon on top of the South Downs. His aircraft count peaked at a remarkable 109 and four blue lights were showing. Unfortunately, there were no screen shots provided.

## Map Mode - S

Due to be introduced in the near future is the Map Mode-S Network. The theory behind this is that SBS-1 users around the world will be able to log on to a shared network. The data is consolidated and then sent back to connected users as a broadband stream. Consequently, if users are logged on you will be able to look at the live screens of other users world-wide who are also connected to the Internet. So for example, you might be able to view the Air Traffic in Los Angeles, Hong Kong or Madrid. It won't be actually live but it's about as close as you can get, it will be delayed by the time it takes to be communicated over the internet, I would guess that lag to be 8 to 10 seconds.

Originally, due in late August, the Map Mode S facility is still currently undergoing Beta testing. This is due to ongoing work to ensure that the bandwidth requirements remain sensible when a large number of users are on-line. As soon as I get a chance to try Map Mode S, I will report back to 'Sky High' readers.

## The Bottom Line

I thoroughly enjoyed my all too brief time with the SBS-1. Others have tried in the past to produce real-time radar but there were always time discrepancies, the SBS-1 is the real deal. Real-time means just that, you hear a call on the radio, look up and see a vapour trail overhead, look at the BaseStation radar and there it is. It is a bit frustrating because you can currently only see a proportion of Air

## Accessories

Available from Martin Lynch & Sons.

### External Antenna

1. BS1100 Base Station Vertical Antenna £85 inc. VAT - no cable.
2. BS100-KIT-A as above but £115, inc VAT, supplied with 10m of low-loss coaxial cable, fitted with N-Type Plug (antenna end) and BNC plug (SBS-1 end).

### USB Extender

Rather than using a long cable to a roof top antenna there is another, perhaps preferable, option. That is to use a USB Extender. For example, the SBS-1 could be located in the loft with a short lead to an external roof top antenna and the USB Extender can be used to site the unit up to 45m from the host computer. This extender is also available from the UK agent for the SBS-1, Martin Lynch, at a price of £58.63 inc. VAT.

Traffic, but the good news is that it will just get better and better as more aircraft become Mode S and ADS-B equipped. Making ADS-B mandatory in the UK would be very handy, it is already planned for introduction in other countries in the future.

The SBS-1 manufacture's, Kinetic Aviation are very helpful and user friendly. It is excellent to see that they are taking note of all the feedback from SBS-1 users and implementing suggestions whenever possible.

Having recently reported on the AOR SR2000 with its FFT search facility, I did not expect to be able to review another item of such innovative equipment so quickly. Quite simply, I can see the SBS-1 being a 'must have' item for many aircraft and airband enthusiasts. It is still early days and so as the software evolves, I hope to include a sequel to this review in the future. I understand that there are plans for to link the SBS-1 to an Icom PCR1000 scanner and a GPS receiver but a report on that will have to wait until another day.

My thanks go to the CAA and NATS websites Also the Kinetic Avionics Distributors **Martin Lynch & Sons, Outline House, 73 Guildford Street, Chertsey, Surrey KT16 9AS. Tel: 0845-2300 599 Web: [www.sbs-1.co.uk](http://www.sbs-1.co.uk)** for the loan of the review unit and especially to Derek Rowe at Kinetic Avionics [www.kineticavionics.co.uk](http://www.kineticavionics.co.uk) for his help and technical support.

The SBS-1 costs **£499.95** inc VAT plus £10 P&P (UK) please contact **ML&S Martin Lynch & Sons** for more details. **SWM**

## Contact Details

- **Martin Lynch & Sons** (Kinetic Avionics Main Distributor) [www.SBS-1.co.uk](http://www.SBS-1.co.uk)
- Kinetic Avionics [www.kineticavionics.co.uk](http://www.kineticavionics.co.uk)
- Civil Aviation Authority - CAA [www.caa.co.uk](http://www.caa.co.uk)

- National Air Traffic Services - NATS [www.nats.co.uk](http://www.nats.co.uk)
- Aerodata [www.aerodata.biz](http://www.aerodata.biz)
- The Gatwick Aviation Society Hex Code and Registration lookup [www.gatwickaviationsociety.org.uk](http://www.gatwickaviationsociety.org.uk)



Outline House, 73 Guildford Street,  
Chertsey, Surrey KT16 9AS

TEL: 0845 2300 599 FAX: 0845 2300 339

E-MAIL: sales@hamradio.co.uk

**Elad - FMD77  
SDR HF  
Receiver**

**FDM-77 all mode  
LW, MW and SW  
Software Defined  
Radio Receiver.**



ML&S are the appointed UK & Ireland distributor for the Elad-FMD77

- RF front-end with SO239 and BNC inputs (for external and indoor antenna)
- 50 KHz to 60MHz continuous coverage
- 1Hz to 1MHz tuning steps and keyboard direct frequency input
- USB 2.0 full speed interface to the PC
- 12KHz output to the PC sound card
- ELAD software radio for AM, LSB, USB, FM, CW, DRM demodulation
- Graphical User Interface for W2K/XP environment

**£449.95**

**Included Accessories:**  
A mini 1/8" 3.5mm stereo plug male to male cable (L=2m)  
A MH USB 2.0 cable A to B (L=1.8m)  
A 230 V AC/12 DC power supply

**SBS-1 Real-time Virtual Radar**

Combining state-of-the-art electronics and new technological advances has enabled Kinetic Avionic Products Limited to produce the revolutionary SBS-1.



Use SBS-1 from home

For the first time aircraft enthusiasts worldwide are able to directly monitor the skies in an unprecedented fashion. Additionally, the SBS-1 provides small and medium sized airfields with many of the safety and operational benefits previously only available to large international airports - at a fraction of current radar costs. Coupled with a Mode-S/ADS-B transponder the SBS-1 becomes an invaluable tool in flight training operations.

**Key Product Features**

- Connects to laptop/desktop PC via USB
- Track Mode-S/ADS-B equipped aircraft in real time\*
- An invaluable tool for aircraft enthusiasts
- Enhances operational efficiency at airfields
- Easy to install, portable and lightweight
- Real-Time aircraft position and identity data
- Powerful SBS-1 Basestation software included
- Package includes all necessary components to connect to your PC.

\*UK airspace from March 2005 and for all categories of flights in all other airspace from March 2008

The receiver module connects to your PC via USB (1.1 or 2.0). An external magnetic mount and DC power supply are provided for instant operation. The SBS-1 is designed for portable or base use and can be powered directly from the USB port (provided the port can supply up to 330mA). Additional tuned antennas, mounts and extension cables are also available.



Use Basestation in your car



Basestation is perfect for spotters

**SBS-1 £499.95 inc VAT**

Shipping £10.00 (UK mainland)

**BS-1100-Kit-A External Antenna**

An external Base antenna for far greater range complete with 10m low loss coax.

**£115.00 p&p £7.50. (UK Mainland)**

**SBS-1 with IBM PC & TFT Monitor**

A complete SBS-1 System including a new IBM PC, high resolution 17" monitor and SBS-1 Virtual Radar package. Ideal for those who want a plug & go set up.

**A complete system comprising:** ● SBS-1 Virtual Radar Receiver, Antenna & PSU  
● IBM Home PC, 17" Acer TFT Monitor. PC Spec: 1 x Celeron D 330 2.66 GHz - RAM 256 MB, 40GB Hard Drive, CD Rom, LAN EN, with SBS-1 Base Station Software & XP home pre-installed ● 1 year RTB warranty.

**COMPLETE SYSTEM: £999.95 inc VAT shipping: £20 (UK Mainland)**



ML&S are appointed distributors for the SBS-1 and associated products. For full details see our website: [www.MLandS.co.uk](http://www.MLandS.co.uk)  
Overseas distributors required - E-mail: [Kinetic@SBS-1.co.uk](mailto:Kinetic@SBS-1.co.uk)

**YAESU  
VR-5000**



This amazing desktop scanner is the only scanner to offer true dual receive. Coverage is from kilohertz to gigahertz offering all modes and has optional DSP for enhanced shortwave reception.

- Frequency coverage: 100 KHz-2599.99998 MHz
- Modes: CW, LSB, USB, AM, AM-N, WAM, FM-N, WFM ● Real time band scope ● DSP Bandpass, notch and noise reduction filters (optional)
- 2000 Memory Channels ● World Clock ● Digital Voice Recorder
- Case Size: 180 (W) X 70 (H) X 203 (D) mm ● Weight (approx): 1.9 kg

**ML&S Package Deal VR-5000+3**

- DSP-1 Digital Signal Processor £94.95
- DVS-4 Digital Voice Recorder £29.95
- New Ultimate Scanning Guide with Free CD £19.95

Total RRP: £844 **ML&S Only £624.95** or 36 x £22.72  
Or 'bare-bones' VR-5000....**Only £489.95**

**ARA-60 Active Antenna. £239.95**

**Frequency range** ● 40KHz-60MHz (full performance) 60-120MHz 2-3dB less gain  
**Output impedance** 50-75 ohm coaxial  
**Connector to Rx** PL type delivered as standard. Other standards can be fitted on request  
**Gain** 10dB +/-0.2dBs  
**Intercept Point** -50dBm IP 3rd order (10MHz/12V)  
**DC power supply** 11.5-13 volt DC at 80mA typ. (230V/12V DC stabilised mains adaptor is supplied with the antenna)  
**Mast diameter** 30-50mm can be fitted  
**Dimensions** 115cm total length. Antenna tube 50mm x 160mm ideal for base stations

**ARA-2100 Active Antenna. £239.95**

**Frequency range** 50-2100MHz  
**Output impedance** 50-75 ohms coaxial  
**Gain** 18dB-1000MHz  
9dB-1500MHz  
6dB-2100MHz  
**Noise figure** 1.5-2dB-1000MHz  
1.8-2.5dB-1500MHz  
2.5-4dB-2000MHz  
+38dBm typical  
**3rd order IP** PdB = +22dBm  
**Output impedance** 50-75 ohms coaxial  
**Connector standards** N type connector at the antenna. BNC male connector to the receiver  
**Power supply** 12V DC at 160mA DC. Power supply for 230V AC is delivered comes with the antenna  
**Dimensions** Length 450mm. Diameter 90mm  
**Weight** 2kg  
**Accessories** Mains wall plug adaptor (230V A/12V DC). Interface unit (remote supply unit) 12m coaxial cable and mast mounting clamps

**ICOM IC-R20**

**"DUALWATCH" RECEIVER**

Aimed as the successor to the IC-R10, the IC-R20 has many advanced features incorporated into its clean stylish design including dual watch; built in digital (audio) recorder function; wideband coverage in all modes; high speed scan capability and a standard Lithium Ion battery. The IC-R20 will appeal to such users as scanner hobbyists, security/surveillance companies, government agencies and other professional users.

Frequency range: 150KHz - 1.3GHz.  
1250 memory channels, all mode.

RRP: £499.95

PRICE MATCH

**ML&S £299.95**



**SAVE £200!**  
or only £10.91 per month x 36 months!

**NEW! Maldol  
GDx-50  
Wide-Band Discone  
TX/RX Antenna**

TX: 6/2/70. Power: 50W.  
RX: 50MHz-1500MHz  
LENGTH: 1360mm. WEIGHT: 910g. DIAMETER: 530mm  
SUITABLE MAST: 60mm



Only £69.95



- 25MHz - 3000MHz
- AM, NFM, WFM, SFM
- 1000 channels, 40 Search Banks
- CATC

**£1589**

or 36 x £57.77 p/m

Apply now for your very own ML&S Store Card



Call for details. Conditions apply.

Martin Lynch can offer finance terms up to 48 months with no deposit. We welcome your part exchange against any new (or used) product provided it is clean and in good working order, call the Sales Desk today! Usual APR: 19.9%. Payment protection is also available up to 48 months. All units are brand new and boxed and offered with full manufacturers RTB warranty. All prices quoted for cash/cheque or Switch/Delta card. No additional charges for credit cards. Martin Lynch is a licensed credit broker. Full written details are available on request. Finance is subject to status. £10 p&p on all major terms. E&OE

**LOG ON  
NOW**  
[www.hamradio.co.uk](http://www.hamradio.co.uk)

Call us 6 days a week, mon-sat 9.30-5.30

**0845 2300 599**  
local call number



# COMPUTERS & RADIO

## PART 4B

### *A Compelling Connection!*

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

● **Fig. 6: Using a spectrum analyser, carriers can be received well below the noise floor. Here, the vertical arrows mark two signals believed to be from Australian m.w. stations on 1638kHz. The horizontal arrows indicate sunrise in Brisbane (right) and Sydney (left). Both cities have broadcast stations operating on this frequency, though their power is just 400W.**

Radio technology has moved on dramatically over the years, so it's hardly surprising that most modern receivers have much better performance than their predecessors, even if they do sometimes fall short in terms of ease of use. But it's not simply that a modern receiver can do the same job better, it can also do a lot of new things that hadn't even been dreamed of when earlier generations of radio were in use. This has become increasingly true in the last few years as computer technology has begun to merge with traditional radio to create novel forms of reception.

In this feature, I'll try to offer a taste of some of the possibilities that have been opened up by the sort of analyser software that I've been discussing in this series. It's hardly a comprehensive list, but it may suggest some new and unexpected ways of using your receiver in conjunction with your computer.

One example of a transmission mode that could have been made for the software spectrum analyser is ultra-narrow bandwidth communication. This is a technique that's used for communicating with interplanetary space probes and submerged submarines and is also being used by amateurs for extreme low power (QRP) contacts. It's stunningly efficient, but it wouldn't easily be possible

without spectrum analysis software because the signals can't be heard, they have to be seen.

#### Carrier Monitoring

If conventional radio stations appeal to you rather more than the fleeting sweep of an ionosonde, there is a great deal that can be

done to study propagation by using computer-based analysers to monitor carriers that are at the very limits of reception. This has been particularly fruitful on medium wave which is very susceptible to fluctuating propagation conditions. Although primarily a local broadcast band, some North and South American stations can be heard most nights in the UK and, very occasionally, propagation will open up dramatically over great distances, even to the West Coast of America and to the Far East.

Earlier this year, Steve Whitt, Editor of the Medium Wave Circle's magazine, proposed that spectrum analysers may be able to see the carriers of Australian stations in the so called 'X-Band' (1602-1701kHz), which is an extension of medium wave that's used in Australia and America, but not in Europe. (Please note that the ITU definition of X-Band is 8-12GHz - Ed.)

At these low frequencies, there is a marked propagation enhancement for a short period around the time when the global terminator (the dividing line between night and day) passes over either the transmitter or receiver at local sunrise and sunset. At certain times of year, when the rest of the signal path is in darkness, this has the potential to provide a brief window of very long distance propagation.

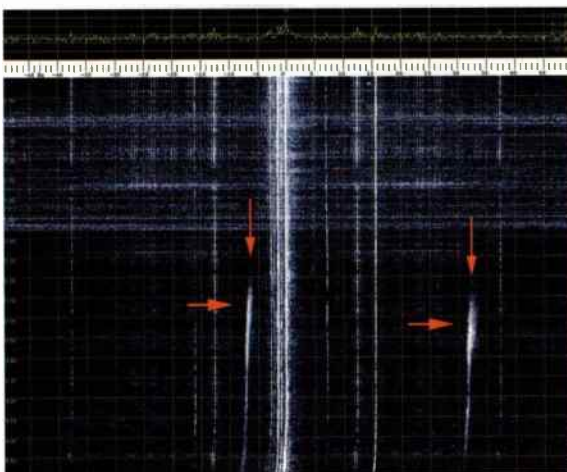
Monitoring with *Spectrum Laboratory* revealed weak signals that flared up at exactly the right time, just before sunrise reached known transmitter sites in Australia. The two signals visible in Fig. 6 both show the characteristic spectral spreading and slight frequency shift that occurs when the ionosphere is changing rapidly and causing doppler shifts. Within about ten minutes after sunrise, both signals had disappeared as D-layer absorption became established for the day.

These signals were well below the noise floor at the sort of bandwidth that would be needed for audio reception, but clearly visible within the very narrow bandwidth slices provided by an FFT spectrum analyser. Further detective work by Steve Whitt and others established that the small frequency offsets between stations sharing the same nominal frequency corresponded in several cases to offsets measured locally in Australia. That doesn't amount to absolute proof, but is pretty overwhelming evidence that these were in fact Australian medium wave stations.

Exactly the same technique can be applied on short wave where some quite low powered stations from the Pacific, Asia and South America may be observed. Even if they are not audible, observing the carriers offers a pointer to times and frequencies that would be worth checking when exceptional propagation conditions do arise.

#### Signal Analysis

Signals used to be very simple - just a carrier and some easily identifiable modulation. Today there's a lot more complexity, especially in digital transmissions, but in some analogue ones too. Multiple carriers and rapidly changing



patterns of modulation can be used to convey - or sometimes mask - what is being sent. Although you may be able to hear some of these effects, you can't really begin to tell what's going on until you see them.

Take the mysterious Squeaky Wheel for example. Having tried various frequencies, this transmission appears to have settled now on just above 3.828MHz - try listening for it in the evening using u.s.b. mode. As the name suggests, it sounds like a wheel slowly rotating and squeaking on each turn. Any type of signal that's made up of a rapidly changing mix of audio tones like this is an ideal candidate for a program that I haven't mentioned previously, but that deserves to be more widely used. It's called *Spectrogram* and, like the other software spectrum analysers that I have mentioned, it's a free download.

Applying *Spectrogram* to the Squeaky Wheel (see Fig. 7) reveals that the sound consists of a fixed tone of about 250ms duration followed by another tone about 450Hz lower that slightly rises then falls in frequency over about 120ms and then immediately repeats this move. Knowing all of this may not help to explain the signal's unknown purpose, but at least it's interesting to see what's in the strange sound.

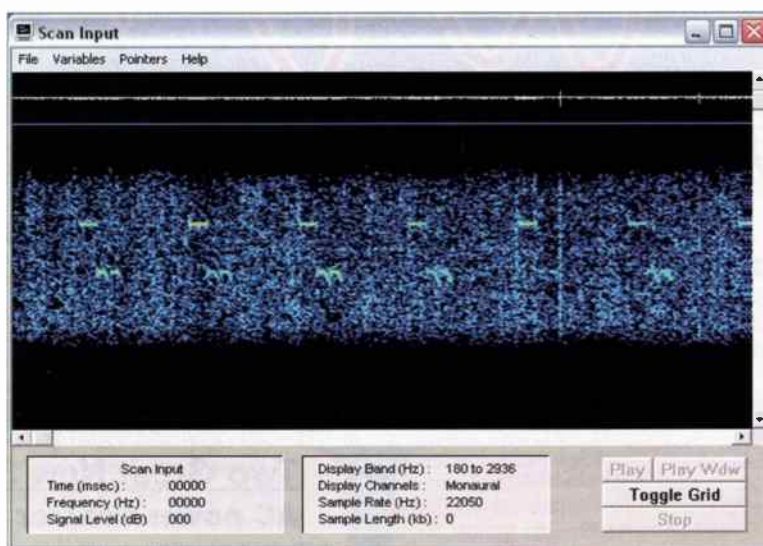
Digital signals are generally even more difficult to examine by ear, but often have a clear structure that becomes obvious when displayed graphically. For example, Fig. 8 shows a DRM transmission (RTL in Luxembourg on 5.990MHz). By averaging the spectrum plot over 50 measurements, much of the rapid variation has been smoothed out to reveal the fixed features. Notice in particular the three peaks on the right, these are the FAC (Fast Access Channel) carriers that transmit information about the overall signal to allow a DRM receiver to recognise it and demodulate it correctly.

## Interference

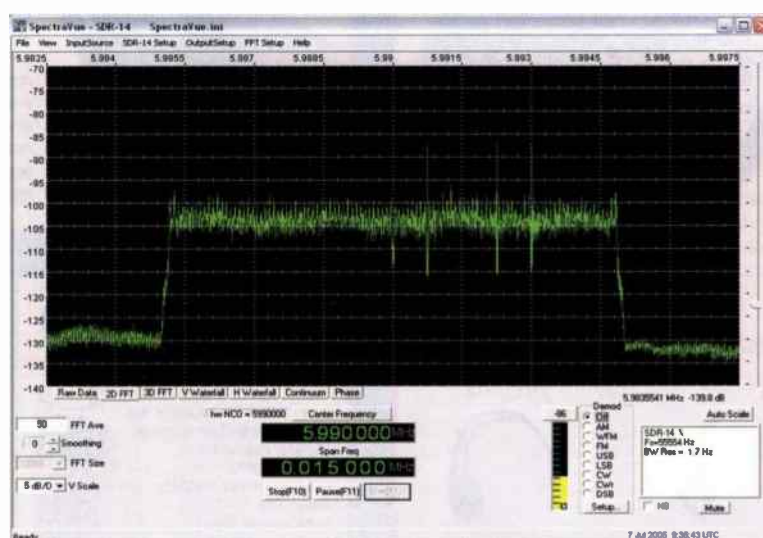
The most depressing thing about starting to use any form of spectrum analyser with your receiver is that you see just how much noise and interference you're having to contend with. Maybe you've noticed a gradual increase in background noise over the years, but when you can see it as well as hear it, the full scale of the problem becomes starkly obvious.

Computers themselves are often blamed for being the cause of r.f. interference. It's true that there's a lot of r.f. flying around inside a PC and they can potentially be a nuisance, but a faulty fluorescent light or dimmer switch will often be very much worse. Anyway, the biggest source of interference usually isn't the computer itself but the switched mode power supplies that run many computer peripherals. And some radios, for that matter. The worst example that I have ever experienced, by a very long way, was a small plug-top power supply that wiped out almost everything up to about 4MHz with a buzz that rivalled even semi-local broadcast transmitters. Ironically, and sadly, it was supplied with quite an expensive radio receiver. Replacing it with a linear power supply cured the problem completely.

I should add that not every switched-mode supply is a pest, the good ones can be very good, but when they're bad, they're horrendous. You can usually spot a rogue switched-mode p.s.u. by the characteristic comb of parallel fuzzy lines that appear on a waterfall display - Fig. 9. The affected frequencies vary - I've seen them as low as 50kHz or so and as high as about 15MHz. Sometimes the parallel bands of interference are quite stable with just a smooth drift, as in Fig. 9, but often they move quite erratically up and down. When you spot such a pattern, it's easy to switch off any suspects one by one until the culprit is found and consigned



● Fig. 7: The so-called Squeaky Wheel is a mysterious repetitive signal on 3.828MHz. It's seen here in *Spectrogram*, an a.f. spectrum analyser, which reveals that it consists of one fixed and one rapidly changing tone repeated every 1400ms.



● Fig. 8: A DRM broadcast clearly showing the three higher-powered carriers that transmit tuning and decoding information about the signal. The software being used here is *SpectraVue* connected to an RF Space SDR-14 software-defined receiver.

to the bin. Although you can certainly hear the interference they cause, it's very hard to differentiate it by ear from general electrical interference and atmospheric noise. So, even though a spectrum analyser may shock you by revealing the extent of the problem, it's also a very effective tool in helping to eliminate it.

## Propagation Monitoring

Propagation measurements and predictions have become much more reliable than they once were but, like weather forecasts, they can't always get it right. So there's still no better way to test the state of a circuit than to receive a signal and judge its quality. Schemes like the International Amateur Radio Union (IARU) HF Beacon Project offer one way of checking actual reception from various points all over the world. Another option is to use a spectrum analyser to plot gradual changes in a known constant transmission.

*Spectlab* is particularly well suited to this because it can measure both signal strength and background noise, and continuously plot them on a graph. For example, Fig. 10 shows such a plot for Canadian standard frequency station CHU on 14.670MHz. This operates 24 hours a day with constant power and usually suffers little interference, so any fluctuations in the received signal should reflect propagation changes in the ionosphere. CHU is the upper trace, shown

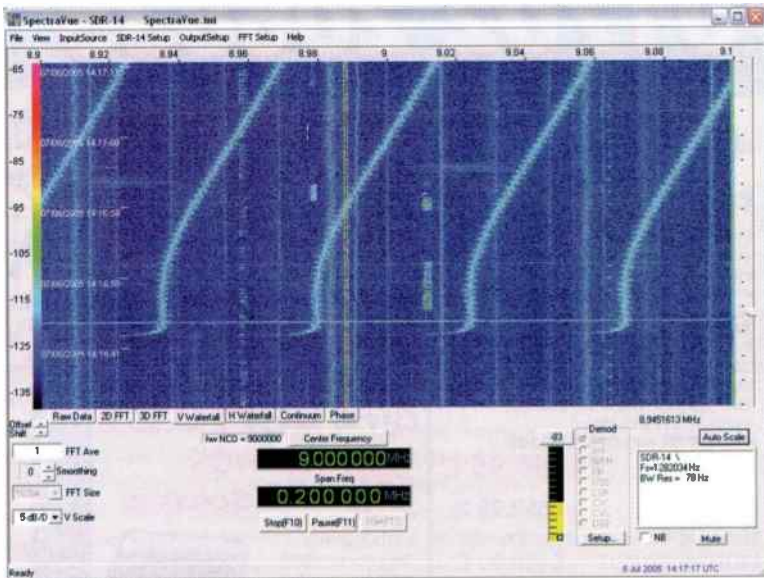






# COMPUTERS & RADIO PART 4B

## A Compelling Connection!



● Fig. 9: Multiple bands of interference at around 9MHz caused by the switched-mode power supply from an external hard disk. Here, the bands are drifting immediately after switch-on, but will stabilise and become vertical once it's warmed up. This level of noise is enough to cause serious audible interference, but is hard to identify unless you can see the pattern on a waterfall display.

scientists and some amateur monitors using computer-based analysers. Radio astronomy is another area where spectrum analysers are extensively used. You don't necessarily need a dish the size of Jodrell Bank, even a back garden dipole can reveal some of the strange drifting signals that are given off by Jupiter around 20MHz.

Finally, how about using your soundcard for direction finding? At very low frequencies, where r.f. and a.f. overlap, you can connect a suitable antenna directly to the soundcard's input and observe both the natural and transmitted signals that inhabit v.l.f. If you use a pair of antennas, such as crossed loops, connected to the left and right channels, *SpecLab* can measure the phase differences and use these to produce a plot that shows transmitter direction as well as signal strength. The same technique would work at higher frequencies too, but you'd need two receivers that were phase coherent and running from a shared reference oscillator. And there we're getting into the realms of very expensive professional monitoring.

Whether you use these computer-based techniques as an adjunct to conventional listening, or use them on their own to pursue signals of a sort that can't be received conventionally, there is a vast and still largely unexplored new field waiting out there. Do give it a try!

SWM



● Fig. 10: Spectrum Laboratory can automatically measure and plot signal levels as well as background atmospheric noise. Here, the yellow line shows signal strength of Canadian time signal station CHU on 14.670MHz, and the green line is the noise level. The difference between them - the signal-to-noise ratio - is an indication of reception quality.

in yellow, while the background noise level is the lower trace in green. The important value is the size of the gap between them - the signal-noise ratio. Notice that during the morning hours, this fell to around 10 or 12dB. Reception was impossible at this time but, a few hours earlier, the gap had been about 70dB and reception was loud and clear.

Actually seeing the changes in signal strength and noise over the course of a day is an excellent way of getting a feel for propagation on different bands. This sort of graph is also ideal if you want to study the impact of the various ionospheric and solar indices on actual propagation. If you can spare a receiver for the job, you could monitor a single station continuously for years and use *SpecLab's* automation features to save a plot at daily intervals.

Space is running out, which is a shame as there are many more novel applications to mention. For example, work at Stanford University has uncovered strange v.l.f. radio signals that seem to be caused by seismic movements and that may provide a way of predicting earthquakes. They're now actively being studied both by professional

### Useful Sources

Argo and Spectran are available as free downloads from [www.weaksignals.com](http://www.weaksignals.com)

Spectrum Laboratory (SpecLab) is available free from <http://people.freenet.de/dl4yh/spectra1.html>

Spectrogram is available free from [www.visualizationsoftware.com/gram.html](http://www.visualizationsoftware.com/gram.html)

The SDR-14 spectrum analyser is made by RF Space Inc. Details at [www.rfspace.com](http://www.rfspace.com)

G7IZU's Radio Reflections website is at [www.tvcomm.co.uk/radio](http://www.tvcomm.co.uk/radio)

The experiments with monitoring Australian medium wave carriers are described in *Medium Wave News* April 2005

# 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

**T**he return of the old weather satellite (WXSAT) NOAA-14 to near normal operations was an unexpected bonus to many amateurs.

Monitors around the world were able to decode its a.p.t. (low resolution imagery) data during the few days of testing by NOAA. Also this month, NOAA-16 h.r.p.t. (high resolution) images improve - for at least a few days! Meanwhile the next METEOSAT (MSG-2) has a further launch delay.

## NOAA-14 Returns To Life

I don't recall any previous WXSAT behaving in a manner comparable to NOAA-14. It was launched back in late December 1994, but due to a stalled scanner motor, it had long ceased providing imagery. When this somehow freed itself, NOAA re-activated the scanner and h.r.p.t. was once more transmitted. We were even treated to a few days of a.p.t. transmissions on 137.62MHz while NOAA tested this facility. The tests could only last a few days due to the footprint and frequency overlap with NOAA-17.

**Terry Jacobs** lives in Essex and recorded and identified a NOAA-14 a.p.t. pass in early August before realising that the satellite had been re-activated. He has been monitoring WXSATs for a few years. His career started in the Royal Air Force back in the 1960s, in telecommunications when he built his first s.w. receiver (a CODAR CR100 with coils! **George Newport's** image is shown in Fig. 1, and my high resolution image in Fig. 2.

**Patrick Prokop** received the a.p.t. transmission - see Fig. 3 - noting that even though it passed three hours after sunrise, the transmission included channel 3 (left side) and channel 4 (right side). The WXSAT is probably living on borrowed time, but while still with us, it continues to provide good pictures for those operating h.r.p.t. systems. I would anticipate that NOAA would not wish to regularly activate and then de-activate the 137.62MHz (a.p.t.) transponder.

## NOAA-16 Imagery Improves

During recent months NOAA-16's scanner has been showing problems resulting in poor quality imagery. For at least a few days in early August, I received near-normal quality imagery, although there was still evidence of wavy lines.

## NOAA-18 a.p.t. Changes

The anticipated NOAA-18 a.p.t. channel changes from channels 1 and 2 to channels 2

(visible) and 4 (infra-red) were made during August. I would like to have included an example of this imagery but my site suffers from extreme pager interference near 137.9125MHz!

## EUMETSAT Expands

EUMETSAT is a significant global partner in the meteorological community. The METEOSAT programmes (first and second generation satellites) are contributing to international co-operative projects such as the World Meteorological Global Observing System (GOS) and the Global Meteorological Satellite Observing System that are managed by the Co-ordination Group for Meteorological Satellites (CGMS). The EUMETSAT Polar System (EPS), Fig. 5, is currently not far off launch. It will expand its international contribution, via satellites and instrumentation developed in co-operation with the European and French space agencies ESA and CNES. The task of covering polar orbits is being shared with the USA agency NOAA. In addition, EUMETSAT is active in different international forums with the European Union, an initiative launched by the United States, and European partnerships.

EUMETSAT is also supporting partners that are still developing their meteorological



■ Fig 1: NOAA-14 a.p.t. 29 July from George Newport.



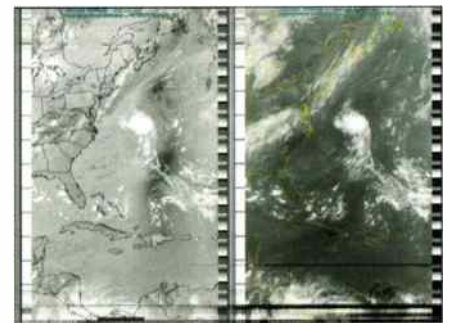
■ Fig 2: NOAA-14 h.r.p.t. from Southampton.

capacities. The PUMA (Preparation for the Use of METEOSAT Second Generation in Africa) project is an initiative supported by EUMETSAT, the European Commission and the WMO. EUMETSAT will assist a network of 53 African countries and several regional centres with the provision of equipment and training. This will allow the meteorological services to develop applications ranging from flood forecasting to food security and pest monitoring.

## MSG-2 Launch delayed

The second in the MSG series - MSG-2 - had been scheduled to be launched in late August - but on 11 August an announcement was made concerning a further delay. The launch vehicle was not offering the same level of shock protection as had been the case for the launch of MSG-1. Following new findings concerning the Ariane 5 GS vehicle, the launch date, originally foreseen for August, is now scheduled to resume no earlier than 10 October. The MSG-2 satellite has already been shipped to Kourou, French Guiana and is now being kept in storage after extensive tests confirming the functionality of the platform and instruments after transport. Detailed analyses were also successfully concluded to verify that MSG-2's sensitive instruments - like the Spinning Enhanced Visible and Infrared Imager (SEVIRI) and the Geostationary Earth Radiation Budget (GERB) - would not be damaged during launch. All is now ready for launch.

MSG-2 will be located at 10.5° longitude for commissioning. Eventually, METEOSAT-9 will become the operational satellite because it will have the full Data Collection Platform (DCP) and dissemination facilities that METEOSAT-8 does not have. At that time, METEOSAT-8 will become the back-up satellite. EUMETCast will continue as before.



■ Fig 3: NOAA-14 a.p.t. from Patrick Prokop in America.

## METEOSAT-7's life extended

Because of the launch delay for MSG-2, Meteosat-7 WEFAX (and PDUS) services originally scheduled for termination at the end of December 2005 are being extended into early 2006. This is because METEOSAT-7 is currently the back-up satellite for METEOSAT-8.

## METOP

The EUMETSAT Polar System (EPS) will be Europe's first operational system of polar orbiting meteorological satellites. The detailed



■ Fig 4: NOAA-16 h.r.p.t. 8 August 1997 from Southampton.



■ Fig 5: METOP data exchange - image courtesy ESA.

data delivered by these METOP satellites flying at an altitude of 850km will complement the global overview already received through the geostationary METEOSATs. METOP will provide precise information on many parameters, for example, atmospheric temperatures and moisture profiles that are used in a variety of climate monitoring applications. The satellite is scheduled to be launched by a Russian Soyuz rocket from Baikonur cosmodrome in April 2006.

### Three Software Updates

David Taylor has produced an upgrade to his *GeoSatSignal* program. He has processed *METEOSAT-8* imagery to illustrate the difference in the spectral response between the two visible channels to show that this can be used to emphasise the amount of near-infrared radiation reflected by chlorophyll in the vegetation, and hence provide information about seasonal and climate change. In this image, see Fig. 6, the fertile area around the river Nile and its delta in Egypt is clearly shown in a dark green colour, compared to the yellows of the surrounding desert regions.

### New Version

Ron Alblas has released an updated version of his program *xrit2pic*, that decodes *METEOSAT-8* images files received via EUMETCast. It generates high resolution, false colour pictures using the HRV channel for luminance and other channels for chrominance. The program handles both HRIT (high resolution) and LRIT (low resolution) data and can produce standard



■ Fig 6: *METEOSAT-8* image 1000 6 August showing seasonal change. (courtesy David Taylor). Image © EUMETSAT

image formats for further applications. To produce the original *METEOSAT-8* files you require a fully operational EUMETCast reception station. Version 2005.08 of the program comes complete with an on-line manual.

[www.alblas.demon.nl/wsats/software/soft\\_msg.html](http://www.alblas.demon.nl/wsats/software/soft_msg.html)

### Google-earth - New Mapping Software

Thanks to John Parkins who spotted a new mapping facility of interest. This program is called *Google-earth* and comes in the form of a freeware program that can be upgraded, if required, to the advanced versions. I checked out the freeware version.

<http://earth.google.com>

*Google-earth* is a 10MB program that combines satellite imagery, maps and Google search to bring geographical maps to the screen - with the advantage of full computer software adjustments. The program starts with



■ Fig 7: *Google-earth* opening screen.

an opening screen showing North America - see Fig. 7 - but you can use an option to click and drag the location around to Europe. I personally found the program very impressive - even being almost tempted to pay for the first level of registration! There are various enhancements available at increasing cost.

The lower section of the screen is the control area where you can drive the map display. Having dragged the display around to show Europe - the left-hand slider can be dragged slowly towards + to zoom in. If you allow a significant amount of zoom, more and more details - such as motorway names - appear on the map. The direction can be rotated as required, using either N (for instant north) or for an intermediate direction using the turn symbols. The ultimate zoom level

shows street names and selected local features. Many other facilities are available on this program. I had a look at Iceland; it really does show the appearance much as we see it by satellite. Finally, I zoomed in on New York. That was a revelation; it actually shows the level of detail that I recognised in the Southampton map, including shops and many categories of public buildings.

My interest in seeing *Google-earth* was its ability to identify regions observed via the WXSATs. All land features recorded in an image can be compared with the program display and identified. As mentioned, all this was done using the freeware version.

### Transmission Formats

In the column I frequently use the well-known abbreviations - PDUS, WEFAX, HRIT, LRIT, DVB, a.p.t., h.r.p.t., that are used by polar orbiting and geostationary WXSATs. More formats are planned for the future. Beginners might wonder about the nature of these transmissions. A brief summary could reduce any confusion.

### Formats a.p.t. & h.r.p.t.

These are the two signal transmission formats that carry image data from the polar orbiting WXSATs. The 137MHz band signal is called automatic picture transmission - a.p.t. Equipment to receive and decode it is relatively economical to set up. It is therefore popular, and was often the first choice for the beginner. Not every polar WXSAT transmits a.p.t. The frequency list at the end of this column each month summarises the current status of the WXSATs.

High resolution picture transmission



■ Fig 8: *Google-earth* mapping software showing Southampton suburbs.



■ Fig 9: On 29 July David Simmons (left) helps Francis Bell at the exhibition. (courtesy David Taylor)





■ Fig 10: David addresses the Conference. (courtesy Cecilia Taylor)

(h.r.p.t.) is perhaps the most expensive of the main signal formats transmitted from polar and geostationary WXSATs because it carries the highest quality imagery. For this, it requires an S-band (1700MHz) reception system. At these frequencies the source (the polar orbiting satellite) must be tracked across the sky using a high gain antenna. This adds considerably to the cost and is the reason that it is used mostly by professionals, being originally designed for them. A number of amateurs have set up systems, either by building units of their own design or by buying lower cost commercial systems. The actual cost of such systems has dropped dramatically during the last 20 years, but is still well outside the pocket of most amateurs.

Two of the remaining formats listed - PDUS and WEFAX - are soon to be terminated in the European area of reception. Primary Data User Stations receive the higher resolution imagery from METEOSATs up to and including METEOSAT-7, but they have been surpassed by the image stream originating from METEOSAT-8. WEFAX (weather facsimile) is the low cost, low resolution image transmission from METEOSATs prior to 8 and was an economical system to set up. Other formats will be described in future months.

### My h.r.p.t. Station

Last month I mentioned that the azimuth-elevation motor that controls my h.r.p.t. system had failed and had been diagnosed - with help from the Internet WXSATs forums - as having a faulty (elevation) potentiometer. I was able to buy a replacement component from the manufacturer, and this was fitted into the motor housing by Robert Finnis - excellent job Robert! After completing the usual calibration runs I tested the tracking on the sun and found it was perfect. Unfortunately, during the period in which the dish was dismantled and cables carefully covered up to protect from the weather, we had some very heavy rain. The first few passes that I took, quickly indicated that something was wrong with the signal. Closer examination showed that there had been some corrosion of the end of the cable, within the connector. I cut this back by 1m and then back by a further half-metre and then re-installed the connector. Despite performing the other essential checks, the satellites'

signals remained stubbornly noisy - leaving only the pre-amp to be checked. More next time!

### WXSAT Groups Update

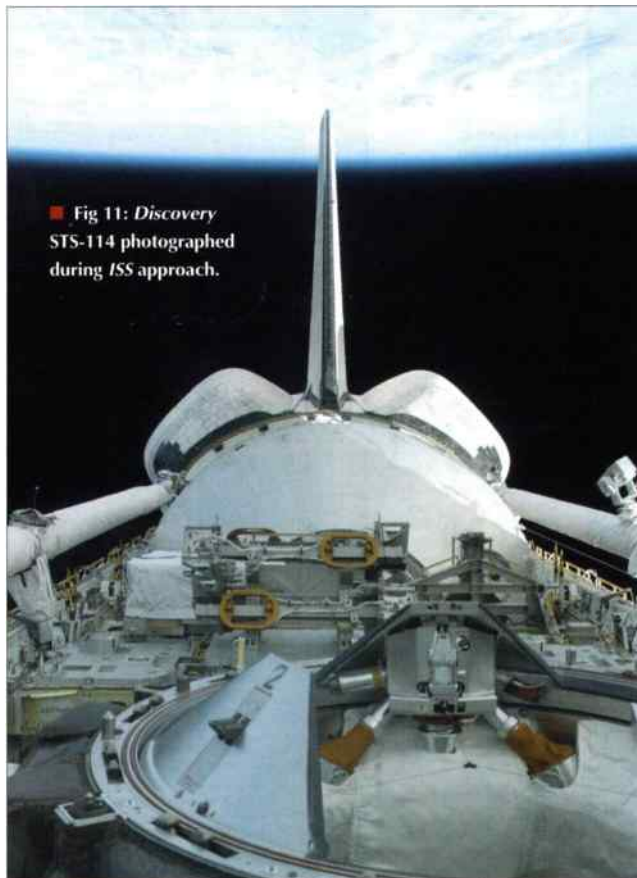
The AMSAT UK Colloquium was held in Guildford in July. GEO attended to stage an exhibition that included EUMETCast reception. Fig. 9 shows David Simmons (left) using a signal strength meter to help Francis Bell align the dish antenna on HotBird-6 for EUMETCast reception. Despite being located behind metal handrails, good reception was had throughout the three days of the colloquium, and many AMSAT members and visitors enjoyed seeing the real-time animations on the big screen inside the conference venue.

Part of David Taylor's presentation to the AMSAT UK Colloquium included an improvised demonstration of how the NOAA N-prime satellite was dropped from its perch during handling. David commented "I'm sure the same thing would never happen at the facilities of Surrey Satellite Technology Limited", which delegates had the chance to tour during the colloquium.

Clive Finnis is the shop manager for GEO and has advised me that, following assistance from Dartcom, the shop has stocks of the GEO EPROM V1.3 which adds the two new NOAA-18 frequencies to the scan list in the Dartcom APT Receiver. The EPROM is only suitable for the Dartcom 136-138 MHz synthesised satellite receiver module. The cost is £10.00 including postage to UK addresses, or E-mail [shop@geo-web.org.uk](mailto:shop@geo-web.org.uk) for information.

### Shuttle and International Space Station

The Return-to-Flight mission STS-114 was highly successful, despite several unexpected hitches. After the landing, the Shuttle was examined and the engineering team are



■ Fig 11: Discovery STS-114 photographed during ISS approach.

studying the causes of the loss of foam during launch. There is currently no date set for the next flight. Fig. 11 shows Discovery's cargo bay over Earth's horizon, photographed by one of the crew members as the Shuttle approached the International Space Station.

### Frequencies

a.p.t. MHz	WXSAT
137.50	NOAA-12
137.50	NOAA-15
137.62	NOAA-17
137.9125	NOAA-18

During overlap periods with NOAA-15, NOAA-12's a.p.t. may be switched off.

h.r.p.t. GHz	WXSAT
1.6980	NOAA-12
1.6980	NOAA-16
1.707	NOAA-14
1.7025	NOAA-15
1.707	NOAA-17
1.698	NOAA-18
1.707	NOAA-18
1.7005	FENGYUN-1D

One of the two frequencies in use.

**WEFAX**  
 METEOSAT-7 (geostationary) transmits WEFAX on 1.691 and 1.6945GHz, and Primary Data on 1.691GHz until the end of 2005.  
 METEOSAT-8 HRIT, HRIT and other formats transmitted via HotBird-6 at 13°E on transponder 117 - 10.85344GHz as EUMETCast data.

**MAYCOM FR100**  
Scanning Receiver

**Low Cost Pocket Scanner!**

- Airband • Marine
- UHF FM Broadcast
- Public services
- Frequency range 66-88, 88-108, 108-136, 136-174, 420-470MHz
- Receive modes AM-FM & WFM
- Memories 150 channels in 5 banks
- Meter Bargraph 'S' meter
- Power 3 x 'AA' cells or 6V DC
- Size 58w x 103h x 36.5d m/m
- Weight Just 97.5gm (excl bat.)
- Supplied complete with: SMA antenna belt clip & hand strap.

**£89.95** P&P £8

**MAYCOM AR108**

- Airband: 108-136.975MHz
- VHF: 136-180MHz
- Selective Channel Steps: 5, 10, 12.5, 15, 25, 1MHz
- Modes: AM or FM
- Memories: 99
- Supplied c/w Belt Clip, Carrying Strap

**Mains Charger £8.95 £2.75 ppb**

**£69.95** P&P £8

**ICOM IC-R3**

**Wideband Scanner + TV**

- 495kHz - 2451MHz
- 450 memories
- FM, AM, WFM, AM-TV, FM-TV
- Supplied c/w
  - Telescopic antenna
  - Belt clip
  - Charger
  - LI/IDN battery pack

**SPECIAL PRICE**

**£440 £349.95** P&P £10

**AOR AR-3600 MK II**

**All Mode Wideband Base Receiver**

- Now 100kHz-3GHz
- Increased RX sensitivity
- New Bandpass filter
- 12V DC or optional internal NiCad pack

**SAVE £20**

**OPTIONAL PSU AVAILABLE**

**NEW MK II VERSION**

**£600 £599** P&P £10

**ARS200A+**

- 10KHz - 2.6GHz
- Modes AM, FM, USB, LSB, CW
- 1000 memories
- 45 ch/sec scan
- 20 search banks
- DTMF decoder
- RS232 port
- N type & SO239 sockets
- Audio 1.7W (8Ω)
- 12V DC @ 1A

**SPECIAL PRICE**

**£1,000 £1,799** P&P £10

**CABLE DEALS at WHOLESALE PRICES!**

**HIGH QUALITY MILITARY SPEC**

**50Ω Coax per 100 metre drums (ADD P&P £10)**

RG58 C/U Mil spec ..... ~~£39~~ **£25**

RG213U Mil spec low loss ..... ~~£76~~ **£55**

H100 Semi Airspaced ..... ~~£86~~ **£65**

Westflex 103 Ultra Low Loss ..... ~~£99~~ **£90**

300 Ohm Twin feeder (slotted) ..... ~~£99~~ **£69**

450 Ohm Twin feeder (slotted) ..... ~~£99~~ **£79**

**FLEXWEAVE (style) ANTENNA WIRE**  
**HIGH QUALITY VERY FLEXIBLE**

- 168 strands of 14 AWG copper wire.
- Ideal for all your antenna projects

**FLEXWEAVE**  
per metre ..... **55p** £2.75 + 10p/metre P&P  
per 100 mtr Drum ..... **£40** ..... **£6.50 P&P**

**SHORTWAVE RADIO'S BEST KEPT SECRET**

**NEW PALSTAR R30C**  
**PORTABLE**  
**Communications Receiver**

**UNTIL NOW!**

**W.R.T.H. HANDBOOK BEST HF DESIGN 2002**

**The R30C is a compact portable high performance shortwave radio (capable of running from internal batteries or 12V DC) providing excellent strong signal handling, high sensitivity and dynamic range. Now includes Collins mechanical filter.**

- 100kHz - 30MHz AM, SSB, SW
- 20Hz, 500Hz tuning steps, synthesized
- (low phase noise performance)
- 500kHz up/down
- 45MHz 1st IF, 455 kHz 2nd IF
- RF derived AGC, fast/slow
- 4-pole crystal filter at 45 MHz
- Ceramic filters fitted
- Bandwidth, 4kHz AM and 2.5 kHz SSB
- 6-digit LCD display
- Analog S-Meter
- 100 channel memory
- 5W low distortion full fidelity audio amp
- External soft muting
- Line Audio output
- +18dBm 3rd order intercept
- 455kHz IF output
- Switchable 7 pole input filters
- Power source either: Internal batteries (not included) or 12V DC
- Ultra miniature size 8"(w) x 2.5"(h) x 9"(d)
- Weight: 7 lbs

**Great SWL RX... 'Best I have used!'... 'Wow-that audio!'... 'Amazing Radio - Exceptional Value!'**

**£449** P&P £10

**PALSTAR MW550P**

**High Performance preselector for MW & 160 metres**

- Range: 510 KHz to 2.5 MHz
- Covers AM broadcast & 160m
- Broadband Pre-amp to 30 MHz, for SW reception
- Vastly improves reception for Medium Wave Dx'ing
- Suitable for all types of antenna
- Special input socket for Beverage antennas
- Variable selectivity control (down to 4 kHz bandwidth for broadcast)
- Switchable "low noise" preamp to 30 MHz
- Switchable 15 dB attenuator
- Bypass switch
- Vernier tuning for "super smooth" action
- Designed for the R30 receiver but may be used with any Receiver (with 12V supply)
- Size 8.25"W x 4.24"H x 9"D

**£245** P&P £8

**PALSTAR AA30**

**Active Antenna and/or Matcher for Receiver use only. A low loss antenna tuner suitable for random long wire, dipoles, Beveridges, Delta loops, inverted V's, Verticals, G5RV and most receiving antennas. Or use as a standalone active antenna.**

- Frequency: 100kHz-30MHz

**£69.95** P&P £8

**YAESU VR500**

**Yaesu's Flagship Desktop "Ultra Wideband" Scanning Receiver**

- 0.1 to 2600 MHz
- Tons of features!

**£600 £599** P&P £10

**YAESU VR500**

**Compact all mode wideband handheld, PC Programmable with ADMS-3 Software\***

\*£44.95 not supplied as standard

- 100 kHz to 1300 MHz
- AM/FM/WFM/SSB/CW
- 1,000 Channel Memories

**£199.95** P&P £10

**YAESU VR1200**

**VERY SPECIAL OFFER**

**New D model with:**

- NEW! Charge Socket
- 0.1 - 1299.995MHz
- AM, FM, Wide FM
- Auto select channel steps
- 12 preset memories
- 89 channel Memory Bank
- 640 channel memory system
- Slot machine game!

**£430 £115** P&P £10

**YUPITERU MVT 7100**

**All mode, wideband handheld**

**Our No.1 Seller**

- 530kHz-1650MHz
- 1000 memories
- AM/FM/WFM/SSB/CW
- Comes complete with: NiCads, mains charger, 12VDC cigar lead, belt clip, carry strap

**£240 £199** P&P £10

**YUPITERU MVT 3300**

**200 Channels with Switchable AM/FM**

**SPECIAL OFFER**

- 66 - 88MHz, 108 - 170MHz, 300 - 470MHz, 806 - 1000MHz
- Modes: AM/NFM
- Memories: 200

**£460 £129.95** P&P £10

**Used Equipment**

**ALL SAFETY TESTED & GUARANTEED for 3 MONTHS**

QJX10E.....H/hold Scanner A. Mod.....	199.00
AOR LA350.....Receive Loops.....	149.00
AOR CT8200.....CTCSS Slot Card.....	49.00
AOR AR7030.....HF RX with Remote Control.....	499.00
Commтел COM213...100 Channel Scanner.....	75.00
Fairmate HP2000....Wideband H/H Scanner - Boxed.....	99.00
Icom R8500.....Wideband Comms Receiver.....	899.00
Icom R3.....TV Screen Scanner.....	225.00
Icom R5.....Handheld Wideband receiver.....	119.00
Icom CSR20.....Software package suit Icom R20.....	35.00
Icom R75.....1-60MHz All Mode Receiver.....	499.00
Maycom FR100.....H/H AM/FM Compact Scan RX.....	50.00
Perstel Bluenote.....Personal DAB Radio.....	59.00
Sangean ATS818.....RX with Cassette Player.....	125.00
Grundig Sat800.....HF + Airband Receiver.....	349.00
Yaesu FRG100.....HF 1-30MHz Receiver.....	275.00
Yaesu VR1200.....Handheld Scanner.....	115.00
Yaesu VR500.....All Mode Handheld Scanner.....	149.00
Yupiteru MVT9000...All mode Scan RX + case.....	275.00

**ULTIMATE SCANNING GUIDE**

The BEST Scanning Directory in the UK!  
Comprehensive frequency guide with FREE CD

**£19.99** P&P £7

**ICOM R20**

**NEW ICOM R20 Ultra Wideband Scanning receiver**

**With:**

- "Twin Band" receive
- Record facility
- RF gain control
- freq: 150kHz to 3.3 GHz
- Memories: 1050
- Modes AM/FM/SSB/CW
- plus lots more features

**NOW ONLY £299**

**£400 £299** P&P £10

**ICOM IC-R5**

- 495 kHz-1309.995MHz
- AM, FM, WFM modes
- PC programmable
- 1250 memory channels
- Dynamic Memory Scan
- CTCSS & DCS
- Auto Squelch

**SAVE £20**

**£470 £149.95** P&P £10

**BEARCAT UBC780CXT**

**SPECIAL OFFER**

**Desktop with trunktracking & PC programming (via 3rd party software) - a MUST HAVE for enthusiasts**

- 500 channels
- 25-1300 MHz (with gaps)
- AM, FM, WFM

**£340 £299.95** P&P £10

**BEARCAT UBC2780CXT**

**Base Scanner with MW/FM Radio & Alarm Clock**

- 25-956 MHz (with gaps)
- VHF Radio: 88-108MHz
- 100 Memories
- 20 Radio Presets

**£159.95** P&P £10

**BEARCAT UBC280CXT**

**SPORTCAT Twin Turbo Handheld**

- Triple conversion RX
- 25-956MHz (with gaps)
- 200 memories
- Comes complete with: Antenna, Earphone, Belt Clip, Nicad battery, 240V UK Mains adaptor

**£179.95** P&P £10

**YUPITERU MVT 7300**

**Top of the range airband handheld with 8.33 kHz steps**

- 520kHz - 1.32GHz
- 1000 Memories
- 8.33kHz Airband
- Duplex reception
- Descramble function
- Supplied c/w: Mains adaptor, 12V DC lead, NiCads, Belt clip

**£200 £239** P&P £10



# LM&S

Long, Medium & Short Wave Bands

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

**A** number of you noticed variable conditions on short wave during July. **Eddie McKeown** observed good signals from Radio Australia on 13.620MHz one day, only to be met with silence a few days later. Meanwhile **Bernard Curtis** notes that this frequency has been heard best in the evening with the morning transmission virtually inaudible. Bernard also noted a complete wipe-out of the short wave bands at around midday 14 July. Even the powerhouse 5.955MHz from Radio Nederland's Flevo site disappeared for a while. Signals began to return a couple of hours later. This was almost certainly due to a Sudden Ionospheric Disturbance (SID). Following a solar flare from the Sun, the D-layer in the ionosphere becomes abnormally absorptive resulting in the disappearance of all but ground wave signals. It's quite spooky to hear an SID in progress. Those switching on after fade-out are would not be blamed for thinking that their antenna had become disconnected or that the receiver front-end had blown.

**Simon Hockenull** notes the weaker signal now coming from Beromunster on 531kHz and attributes this to their reduction in power (according to *WRTH*) From 600 to 160kW. Simon has also suggests that the 846kHz Rome transmitter along with the 189kHz 10kW outlet has now closed.

**R Frost** writes from Felixstowe. At the time of writing he had not yet heard the eagerly awaited Radio Seagull on 1602kHz. From his vantage point near mainland Europe, Mr Frost is a regular listener to Arrow Classic Rock on 675kHz and recently launched Big L Radio London on 1395kHz.

## DRM

The other Big L, Radio Luxembourg, is poised to relaunch their English service to Europe. The bad news is that this is a Digital Radio Mondiale (DRM) and Internet-only event. The service was due to come on stream on 12 September on 7.145MHz. The station has been testing there for some weeks, much to the consternation of the Amateur Radio community, who also have rights to this part of the band. Reception reports are welcome and can be sent to [drm@rtl.com](mailto:drm@rtl.com) The associated website for on-line listeners can be found at [www.radioluxembourg.co.uk](http://www.radioluxembourg.co.uk)

Sticking with DRM, World Radio Network (WRN), the London-based international transmission service company, announced plans for broadcasts to London and Europe using DRM. The first test transmissions will go out on 26MHz for London whilst the second phase of the project offers broadcasters European regional DRM coverage.

The 26MHz tests from Croydon will provide data on the potential coverage of DRM transmissions at these frequencies. The analogue a.m. and f.m. bands are now full to bursting in the London area, and even the v.h.f. DAB spectrum is pretty much accounted for. DRM services using the presently unused 26MHz band offer the tantalising possibility of supporting up to 50 new stereo radio services.

WRN also intends to offer regional DRM services to broadcasters from a transmitter site in South East Europe and looks forward to its partnerships which will form part of the "revitalisation of international broadcasting".

Finally, on the DRM front, 30 August saw the BBC beginning a trial service to Europe, with 12 hours-a-day from Rampisham, 16 (soon to be 18) hours-a-day from Orfordness and 12 hours-a-day from Kvitsoy, Norway. All this activity has been timed to coincide with the unveiling of the first affordable, consumer-friendly DRM radios at the Internationale Funkausstellung (IFA) fair in Berlin and the International Broadcasting Convention (IBC) in Amsterdam. I'll

DXers:-

- A Vic Prier, Seaton
- B L Jesson, Aberdeen
- C Bernard Curtis, Stalbridge
- D Eddie McKeown, Newry
- E Freddy McGavin, Dublin
- F Simon Hockenull, Bristol
- G Mike Casey, Manchester
- H David Bullock, Derbyshire

## Tropical Band Table

MHz	UTC	Service	Country	Listener
3.210	0115	WVCR, Nashville	USA	G
3.255	2130	BBC World Service	G/AFS	A D F
3.320	2114	Radio Sonder Grense	AFS	D G
3.345	2135	Channel Africa	AFS	A D G
3.350	0311	Radio Exterior de Espana	E/CTR	F
3.910	1909	Reflections Europe	IRI	G
3.915	2145	BBC World Service	G/SNG	A B D F F G H
3.955	2109	KBS World	KOR/G	D E F G
3.955	2230	WYFR	USA/G	B C D E G
3.965	1822	Radio Taiwan	TWN/F	D E G
3.965	2253	RFF/RI	USA/D	D
3.975	2052	Radio Budapest	HNG	B D E G H
3.985	2051	VIRI	IRN	B F
4.005	2140	Vatican Radio	CVA	A B D E G H
4.025	2048	Laser Hot Hits (pirate)	IRI	B F
4.635	2255	Radio Tajikistan	TJK	B G H
4.760	2107	ELWA, Monrovia	LBR	E
4.780	1910	RTD Djibouti	DJI	E G
4.783	2225	RTM Bampko	MLI	E
4.800	2002	CNR1 Shijiazhuang	CHN	F G
4.800	2115	CPBS 2 Beijing	CHN	D H
4.805	0031	Radio dif do Amazonas, Manaus	B	F
4.810	1855	Voice of Armenia	ARM	E G
4.815	0348	Radio Nacional	B	H
4.819	0217	La Voz Evangelica, Tegucigalpa	HND	G H
4.820	2255	Xizang Lhasa	CHN	D E F G H
4.820	0346	Radio Botswana	BOT	H
4.825	2325	Radio Cancao Nova, Cachoeira Paulista	B	E G
4.830	0034	All India Radio, Jammu	IND	G
4.835	2132	VIRA Alice Springs	AUS	E
4.840	0036	All India Radio, Mumbai	IND	G
4.845	2305	ORTM Nouakchott	MTN	B F G H
4.860	1840	All India Radio, Delhi	IND	E
4.880	2201	All India Radio, Lucknow	IND	H
4.885	2319	Radio Clube Do Para	B	E G
4.905	2115	Xizang Lhasa	CHN	E G H
4.910	2030	ZNBC Radio 1	ZMB	D E F G H
4.915	2257	GBC 1 Accra	GHA	D E F G
4.920	0026	Xizang Lhasa	CHN	D E F G H
4.920	0043	All India Radio, Chennai	IND	G
4.925	2315	Radio Educacao Rural, Tefe	B	F
4.930	2030	Voice of America	USA/STP	D E F G
4.930	2202	Turkmen Radio	TKM	G H
4.940	2035	Voice of America	USA/STP	B D E G
4.950	1915	Radio Nacional de Angola, Mulenvos	AGL	F
4.960	0421	Voice of America	USA/STP	G
4.976	2002	Radio Uganda, Kampala	UGA	F
4.982	0400	BRT Minsk	BLR	G
4.985	0028	Radio Brasil Central	B	D E F G H
5.005	2119	RNGE Malabo	GNE	D E F G H
5.010	0030	All India Radio, Thiruvapuram	IND	D
5.015	0029	Turkmen Radio	TKM	D E
5.025	1954	Radio Tashkent	UZB	F F G
5.025	2356	Radio Rebelde	CUB	D G
5.030	2300	Radio Burkina	BFA	D E
5.030	0049	University Network	USA	G H
5.050	2052	Radio Tanzania, Dar es Salaam	TZA	E G
5.060	2315	Xinjiang Urumqi	CHN	B
5.070	0540	WVCR, Nashville	USA	C G H
5.085	0141	WVCR, Manchester	USA	G H
5.105	0353	WBCQ, Maine	USA	H
5.240	2156	Xizang Lhasa	CHN	G

## Long Wave Table

kHz	Service	TX Location	Country	Power (kW)	Listener
153	Deutschlandfunk	Donebach	D	500/250	A C D* F G
162	France Inter	Allouis	F	2000/1000	A B C D* F G
171	Radio Rossii	Bolsakovo	RUS	600	A E
177	Deutschlandradio Berlin	Zehlendorf	D	500	A D* E G*
183	Europe 1	SaarLouis	D	2000	A B C D* F G
189	Rikisutvarpid	Gufuskalar	ISL	150	D* G
198	BBC Radio 4	Droitwich	G	500	A C D F G
207	Deutschlandfunk	Aholmung	D	500	A C D E
216	Radio Monte Carlo	Roumoules	F	1400	A B C D* E G
225	Polish Radio 1	Solec Kujawski	POL	1000	C D* E G
234	RTL	Beidweiler	LUX	2000	A B C D* F 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
261	Radio Rossi	Taldom	RUS	2500	C D* E*
270	Czech Radio 1	Uherske-Hradiste	CZE	650	A B D E* G*
279	Belarussian Radio 1	Sasnovy	BLR	500	C D* E*
279	Radio Rossii	Many	RUS	50-500	G*

\* = dark

Listeners:-

- A Phil Townsend, London
- B Thomas Williams, Truro
- C L Jesson, Aberdeen

- D Eddie McKeown, Newry
- E Simon Hockenull, Bristol
- F Mike Casey, Manchester
- G David Bullock, Derbyshire







# Propagation

Forecasts

- Jacques D'Avignon VE3VJA
- E-mail: [jacques@pwpublishing.ltd.uk](mailto:jacques@pwpublishing.ltd.uk)

## How to use the Propagation Charts

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

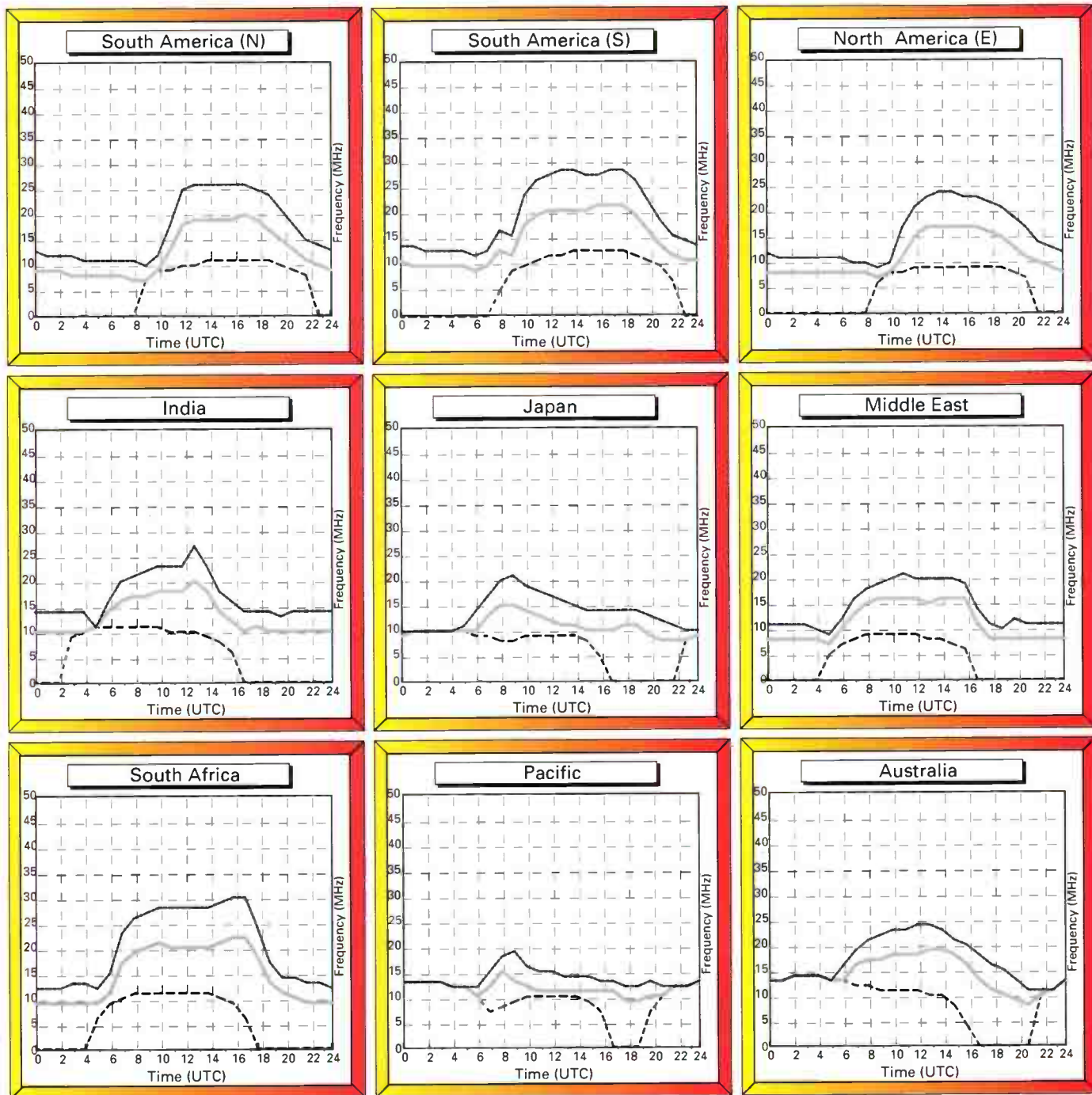
The middle line indicates the optimum working frequency (OWF) with a 90% probability of success for the particular path and time.

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

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

Good luck and happy listening.

October 2005  
Circuits to London



SK10103

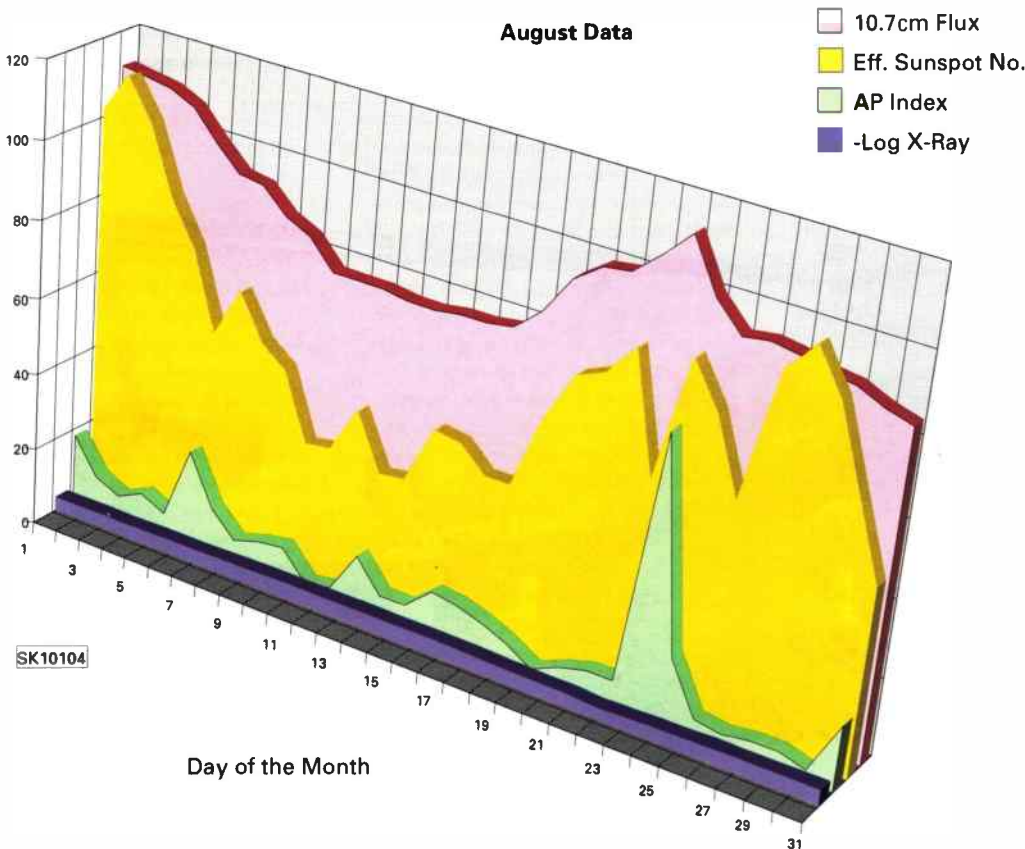
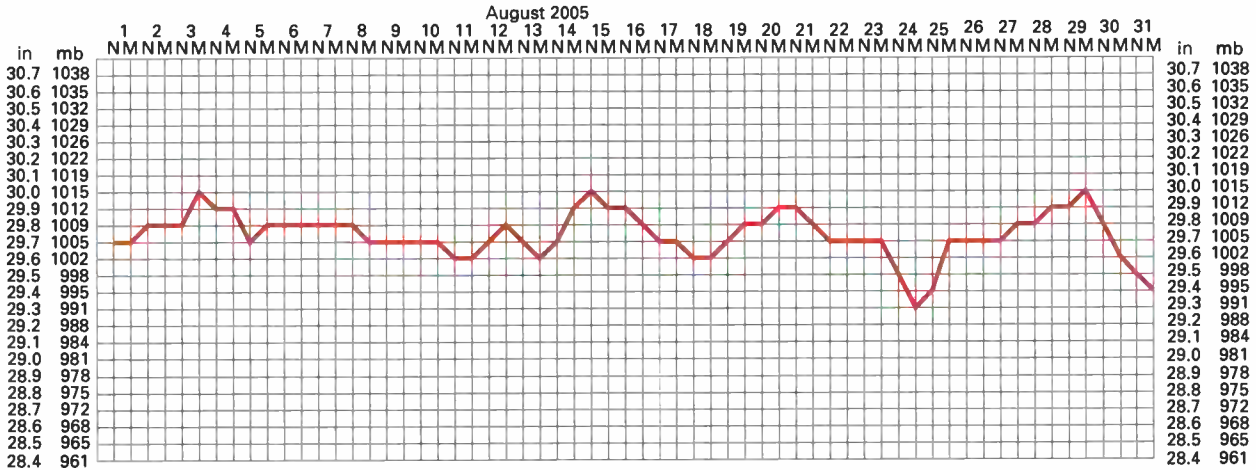


# Propagation

Extra

- **Kevin Nice** G3UNR, BR95787  
SWM Editorial Offices, Broadstone
- **E-mail** kevin.nice@pwpublishing.ltd.uk

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



## guide to the chart

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

The K and AP indices are measures of geomagnetic activity.

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

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

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

# Sky High

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

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

**T**his month the 'Sky High' column is effectively an introduction to the SBS-1 review and is also shorter than usual. This is mainly because I wanted to include an overview of the workings SSR and Squawk codes and also because there was so much to describe, the review was longer than expected!

## SSR Mode A and C - SQUAWK Codes

Unlike primary radar that provides a return on a radar screen to indicate the presence of an aircraft, the blip, a different form of radar is used for squawk codes. Basically, Secondary Surveillance Radar (SSR) Mode A/C, works by the interaction of two main components. A signal is transmitted from a ground radar station, which activates a device in the aircraft called a transponder. With the pilot having entered the squawk code allocated by Air Traffic, the ground radar interrogates the transponder and it transmits the four figure squawk code back to the ground station. This code can then be displayed on the radar screen and can be used to identify the radar return of each aircraft which is transponder equipped. This returned code is then processed by the Air

Traffic computer via code callsign conversion. Using this system, much more information than just the squawk code can be displayed on the radar screen, providing the controller many more parameters. These can include such information as the aircraft callsign, height readout and the destination airfield.

Air Traffic Control will ask an aircraft to squawk a four figure code, for example, 5101. The four figure codes are allocated either singly or in blocks to most of the primary civil and military Air Traffic Control units around the UK. They can also be issued for a variety of special tasks purposes such as by Police Helicopters or the Red Arrows. The largest batches are allocated to the UK area radar units, London Control, London Military, Scottish Control and so on. There are currently around 240 code allocations available to UK operators including those used by surrounding European Airspace. There can be fairly regular changes to these allocations especially to the single codes or smaller blocks.

Due to the workings of the binary system only the numbers from 0 to 7 are available, 8 and 9 are redundant and are not used. The first two digits in the squawk code indicate

the operator to which it is assigned, the 51 (01) code given as an example is used by London Control. The second two digits within a block identify each different aircraft to which they have a code allocated. The example given comes from a London Control block of codes 5101 - 5177.

An understanding of the principals of SSR is in my opinion quite relevant especially to Military aircraft monitoring. Whenever you hear an aircraft allocated a new code then you can be fairly certain that a change of Sector or ATC unit is about to take place and consequently a change of frequency. With an advance knowledge of the code allocations you can predict which ATC unit the aircraft is about to be transferred to and thereby make an educated guess at the next frequency before it is passed by ATC.

## NATS Radar - Mode S

As part of the National Air Traffic Services nine year, £127 million plan, the first of the new UK Air Traffic Radars has become operational at Burrington in North Devon. This Primary Surveillance Radar returned to full Primary and Secondary (SSR) status in December 2003. This new radar replaces the old equipment which in some cases has been in operation for well over



● Lithuanian Mil-B at RIAT 2005.

- A welcome return to the RIAT for the USA Coast Guard with this C-130J.



20 years, it encompasses much advanced technology which will be much more reliable and includes the latest monopulse Mode S (MSSR) radar capability. It is planned that 20 radar sites will be renewed by the year 2012, with the plan being to complete two radar sites per year.

Secondary Surveillance Radar (SSR) Mode Select (Mode S) is a civil aviation initiative to overcome deficiencies associated with SSR Mode A and Mode C, currently in use by Air Traffic Services (ATS) within European States. SSR Mode S is a co-operative radar surveillance system that employs ground-based interrogators and airborne transponders.

Mode S has been designed as an evolutionary improvement to the existing SSR system operating in Modes 3 A and C. It will provide the necessary improved surveillance capability required to overcome the limitations of existing SSR and meet future traffic demands. Both ground and airborne Mode S installations will be backwards compatible and Mode S interrogators will provide surveillance of aircraft equipped with Mode S, Mode 3/A and Mode C transponders. Mode S transponders will also reply to existing Mode 3/A SSR interrogators.

It will also remove the limitation on available Mode A codes which can be used up in very busy airspace and will therefore provide capacity in the system for the expected increases in aircraft movements within the UK and Europe. At present, the system can easily become saturated by the increasing level of signals on the 1030 and 1090MHz frequencies. This leads to interference and a degradation of the "probability of detection" together with "label swaps", where information, presented to the

controller on flight A is erroneously attached to the position indicator of flight B.

Mode S surveillance affords improved position determination of SSR targets and improved functionality while reducing the number of required replies by transponders. This reduction of SSR replies is extremely beneficial to the radio frequency (r.f.) environment. This means that the full safety and effective airspace management benefits can be realised in a sustainable environment.

### MODE-S & ADS-B

It was the plan for Mode-S SSR to be a mandatory fit to General IFR Air Traffic, (mainly Airliners, Biz-Jets and military transports), within the UK TMA and *En-Route* airspace by the 31 March 2005. For IFR and VFR aircraft in other types of airspace the target date is the 31 March 2008, (this will include all Air Traffic, right down to microlights). Effectively the March 2005 date became the start of a transition period with completion being expected by 31 March 2007. During this a Transition Period exemptions will be granted to aircraft operators who despite best endeavours, are unable to equip their aircraft by the required implementation dates. Quite a fair proportion of aircraft have already been converted and of course all new build aircraft will automatically be fitted with Mode S.

If you read the review starting on page 18, you will see that I've just been familiarising myself with the SBS-1 SSR receiver and decoder from Kinetic Avionics. In common with a number of other new users of the SBS-1, I initially thought that it could receive and display any aircraft with Mode-S, but I was mistaken and this is not the case. This soon became obvious when aircraft on airways

routing overhead which were clearly visible to the eye, were not being recognised by the SBS-1. Although the SBS-1 can receive all SSR Mode Select (Mode-S) transmissions it is only those which are equipped with Automatic Dependant Surveillance - Broadcast (ADS-B), which are recognised and displayed by the unit. Mode-S Transponders are capable of providing Mode-S 1090 Extended Squitter. This is a technique that combines the capabilities of the SSR Mode-S system with those of ADS-B. The Kinetic SBS-1 seeks to detect these Mode-S ADS-B 'squitters', which with the aid of GPS derived position information, i.e. latitude, longitude and height. therefore provides the location and height information shown by the SBS-1 *BaseStation* software. These 'Squitter' broadcasts are made at intervals between 0.5 and 1 second and consequently explains the rapid position updates.

At present it is estimated that about 40% of Mode-S equipped aircraft are fitted with the optional ADS-B and are therefore broadcasting 'squitters'. It is not currently mandatory for aircraft to be ADS-B equipped within the UK, unfortunately! It will however shortly become so in some parts of the world such as across the Pacific Rim and Australia. To quote the CAA, "Aircraft operators should note that future requirements for ADS-B operations have yet to be determined. Nevertheless, Mode-S Enhanced Surveillance is seen as a migratory path to ADS-B implementation". In other words we are going to see a rapid increase of the number of aircraft that can be received and recognised by the SBS-1. It is estimated that three to four times as many aircraft will be picked up by the SBS-1 in less than three years.

# Donington Park Friday 30 September & Saturday 1 October 2005

The Leicester Amateur Radio Show Committee is proud to present the 34th

# LEICESTER AMATEUR RADIO SHOW & CONVENTION

COMPUTERS, RADIOS and ELECTRONICS at  
**THE CASTLE DONINGTON INTERNATIONAL EXHIBITION CENTRE  
DONINGTON PARK NW LEICESTERSHIRE**

LESS THAN 5 MINUTES FROM J23A & J24 M1 MOTORWAY

**Friday 30 September & Saturday 1 October 2005**

**OPENING TIMES 9.30am to 5.30pm Friday, 9.30am to 4.30pm Saturday**

★ ★ **ALL MAJOR DEALERS, AOR, ICOM, KENWOOD, YAESU** ★ ★

FLEA MARKET, BRING and BUY, Large RSGB stand, LOCAL & NATIONAL CLUBS & SOCIETIES

Morse Proficiency tests, demonstration amateur radio station GB0LS, camping and caravanning on site

**CONVENTION**

Including Rob Mannion PW editor, Radio Astronomy for radio amateurs, the secret listeners of Beaumanor Hall, RSGB Forum and RAIBC AGM

**BRING YOUR CARD FOR THE QSL BOARD SO YOUR FRIENDS CAN LOOK OUT FOR YOU**

Drop and Swap Table for data books and catalogues

TALK IN 145.550 & 433.550MHz by GB0LS

**ADMISSION PRICES**

**1 day ticket £3.50, OAPs & under 16 £3, 2 DAY TICKET £6, OAPs & Under 16 £5**

Under 12 free when accompanied by an adult

DISCOUNT ADMISSION to The Donington Racing Car Collection

FOR FURTHER DETAILS AND THE MOST UP-TO-DATE INFORMATION SEE OUR INTERNET SITE at <http://www.lars.org.uk>

STAND BOOKINGS contact John Theodorson, G4MTP tel 01604 790966, fax 0870 762 0840, E-mail [g4mtp@lars.org.uk](mailto:g4mtp@lars.org.uk)

FLEA MARKET BOOKINGS contact John Senior, G7RXS on 0116 284 1517, E-mail [SENIORJA@aol.com](mailto:SENIORJA@aol.com)

All other enquiries to Geoff Dover, G4AFJ, on tel: 01455 823344, fax: 01455 828273, E-mail: [geoffj4afj@aol.com](mailto:geoffj4afj@aol.com)

# Celebrity Communications

To get the best out of your receiver, use one of these. Also good for DAB.

**ACTIVE ANTENNAS - THE NEW ARA RANGE**

ASK ABOUT OUR SW ARA-100 HDX AND NOW THE ARA-2000 HDX - BOTH HIGH PERFORMANCE ACTIVE ANTENNAS

The world famous active antennas

**Dressler**

SOLE IMPORTERS AND DISTRIBUTORS WITH SALES AND SERVICE

E-mail:

[celcomms@btinternet.com](mailto:celcomms@btinternet.com)

Internet:

[www.dressler.com](http://www.dressler.com)

## ARA 60

Also, high performance model **ARA 100 HDX** available now.

### TECHNICAL PERFORMANCE

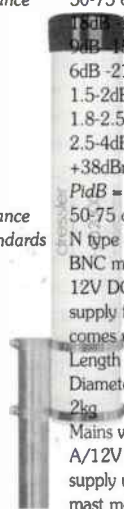
Frequency range	40kHz-60MHz (full performance) 60-120MHz 2-3dB less gain
Output impedance	50-75 ohm coaxial
Connector to Rx	PL type delivered as standard. Other standards can be fitted on request
Gain	10dB +/-0.2dBs
Intercept Point	+50dBm IP 3rd order (10MHz/12V)
DC power supply	11.5-13 volt DC at 80mA typ. (230V/12V DC stabilised mains adaptor is supplied with the antenna)
Mast diameter	30-50mm can be fitted
Dimensions	115cm total length. Antenna tube 50mm x 160mm
	<b>Ideal for base stations</b>



## ARA 2100 (NEW MODEL)

### TECHNICAL PERFORMANCE

Frequency range	50-2100MHz
Output impedance	50-75 ohms coaxial
Gain	10dB -1000MHz 9dB -1500MHz 6dB -2100MHz
Noise figure	1.5-2dB -1000MHz 1.8-2.5dB -1500MHz 2.5-4dB -2000MHz
3rd order IP	+38dBm typical P1dB = +22dBm
Output impedance	50-75 ohms coaxial
Connector standards	N type connector at the antenna. BNC male connector to the receiver
Power supply	12V DC at 160mA DC. Power supply for 230V AC is delivered comes with the antenna
Dimensions	Length 450mm. Diameter 90mm
Weight	2kg
Accessories	Mains wall plug adaptor (230V A/12V DC). Interface unit (remote supply unit) 12m coaxial cable and mast mounting clamps

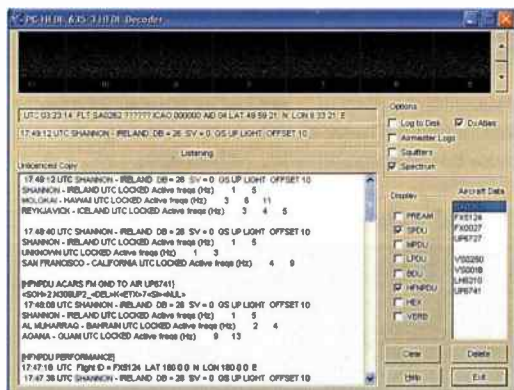


**11 Mulberry Close, Gidea Park, Essex RM2 6DX**

**Tel/Fax: 01708 782079** Visa, Mastercard, Switch, Amex, etc. accepted

# Decode

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



● The decoder from Charles Brain - PC-HFDL - in action.



● Two programs, DXAtlas and PC-HFDL working together.

## Table 1:

Stations and frequencies used for the worldwide network of HF DL stations.

Station	Frequencies (MHz)
Auckland	5.583, 10.084, 13.352
Bahrain	8.885, 10.045, 11.312, 17.967, 21.982
Barrow	6.646, 8.936
Bolivia	11.318, 13.315, 21.997
California	4.672, 8.559, 10.081, 11.327, 13.276, 21.934
Guam	8.927, 11.306
Hat Yai	13.270, 17.928
Hawaii	8.912, 10.075, 11.312, 11.348, 17.936
Johannesburg	4.681, 8.834, 21.949
Krasnoyarsk	10.087, 13.321
New York	5.523, 8.912, 11.315, 13.275, 17.919, 21.934
Reykjavik	5.720, 6.712, 8.977, 11.184, 15.025
Shannon	5.547, 6.532, 8.843, 8.942, 11.384

For some time now ACARS has proved a popular source of information for aircraft and radio enthusiasts alike. But I see that, recently I haven't taken a look at the h.f. counterpart of ACARS, the HF Data Link (HF DL) mode. Whilst the v.h.f. ACARS system provides an excellent messaging system for aircraft whilst they're within range of land, it's of no use for the longer haul flights where much of their route is over the oceans. One of the solutions to this communications black spot is to make use of the short wave h.f. network to carry the brief, but essential messages from aircraft.

Using h.f. links for data communications is something of an art form. The transmission medium is highly variable and subject to a wide range of interference sources, such as simple noise bursts through to complex fading and phase distortions as the signal bounces and mixes its way through a variety of transmission paths. Creating a reliable communication system that's good enough for aircraft communications is certainly a challenge. However, the significant advancement in the use of complex digital modulation systems has revolutionised the use of h.f. for critical communications systems. As computer processing power is cheap, readily available and very compact these days, its immense power can be used to realise message systems that would have been unachievable even just a few years ago.

To support HF DL, a modulation system very similar to that used for mobile 'phones is employed. This uses Phase Shift Keying along

with a system known as half-rate convolutional coding. This is an ingenious method that provides a very effective forward error correction (FEC) system for modern data systems. By forward error correction, I mean a system where additional data is sent along with the wanted signal to help ensure that the wanted signal can be resolved with minimal errors.

The simplest example of FEC is to be found in the Simplex Teletype Over Radio (SITOR) system where each character is sent twice, but delayed by three characters. If a character is damaged by interference the decoder will automatically use the repeated character to keep the overall message intact. The convolutional code and associated 'Viterbi decoder' is a somewhat more complex system that produces a superior result. It's a system that's used extensively for both mobile phones and satellite systems, so it's well proven. For the aeronautical HF DL system (ARINC 635-3) the bit rates employed depend on propagation conditions but can be 300, 600, 1200 or 1800b.p.s.

## Making the System Work

Whilst the encoding and decoding system is fascinating, building and making a practical system for aeronautical h.f. communications requires an infrastructure of interconnected ground stations. These are provided internationally with coverage designed for all the worlds' major oceans. Each of these stations has its own dedicated range of frequencies as listed later in Table 1. When the system is idling, each station will send an identification signal, known as a 'Squitter', every 32 seconds. As well as providing confirmation of the stations that can be heard the Squitter gives details of the station ID and a timing reference. To enable aircraft to tune around to find the best ground station, each of the ground stations has a different time offset for its own transmission.

When an aircraft wants to initiate a transmission it first monitors all the available frequencies to find one with a good signal strength, minimal multi-path distortions and free slots to accept messages. When such a station has been identified the aircraft sends a log-on message that includes the aircraft's 24-bit ICAO address. The ground station then replies with the air address that the aircraft is to use. To start sending traffic, the aircraft's system then selects a free time slot and inserts the information.

On receiving this initial information, the ground station allocates more time slots so that the remaining aircraft information can be sent. There's no log-off as such. The decoding of the HF DL mode is included in a number of modern decoding systems, but Charles Brain has made an excellent decoder PC-HFDL available as freeware. This can be found at the following site: [www.chbrain.dircon.co.uk/pchfdl.html](http://www.chbrain.dircon.co.uk/pchfdl.html) Also to be found on Charles' site, is a new commercial version of the decoder with a number of useful additions. The price of the commercial version is just \$35 so

represents very good value for a well proven decoding system.

## Tuning In

Assuming you have the necessary software installed and ready to go, you need to set your receiver for u.s.b. mode with a bandwidth of 2.5kHz (or wider if possible). Run through the frequencies I've listed to listen-out for the ground station Squitter - remember these are sent every 32 seconds, so you will need to be patient. Another point to note - when using the *PC-HFDL* package, you don't have to offset the tuning by -1.8kHz as you would when tuning a RTTY or SITOR signal. When you've found the station with the strongest signal, you can start monitoring for aircraft. One point to note is that the tuning is quite critical with the *PC-HFDL* decoder.

If you appear to have everything setup properly but you're not getting any decodes, it's probably the tuning. To fix this you just need to tune around (no more than 100Hz at a time) allowing time for the decoder to respond. On my system I found I needed to tune 100 to 200Hz lower than the indicated frequency. Once you've found the correct tuning point, the decoder is very reliable. If your decoder gives you the option to choose the received data, you probably ought to start with most boxes ticked. However, once you are sure the system is working you will find there only a small amount of the data you actually want to see (probably HFNPDU) and the rest can be left suppressed. There's an example of a typical typical HFDL decode screen shown. If you have any interesting decodes or tips on how to improve reception please drop me an E-mail.

## Maps Too

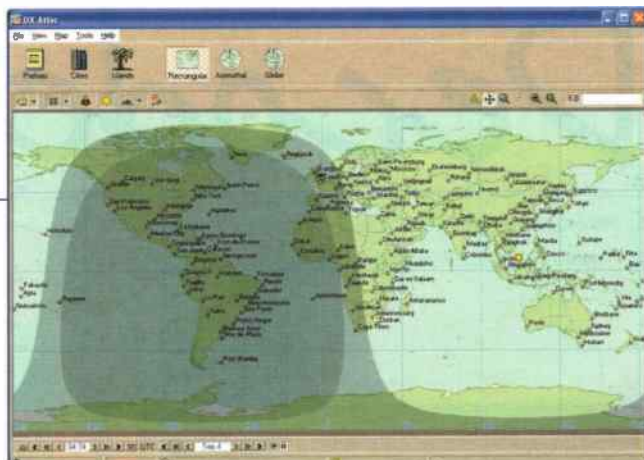
There seems to be a growing trend to extract positional information from all manner of data decoders, and to plot the results using one of the many mapping programs that are available via the Internet. This has transformed a number of decoding packages and the extra dimension certainly helps add extra interest to the decodes. So, *PC-HFDL* is no exception and the commercial version includes a link to the *DXAtlas* software. *DXAtlas* is a specialist mapping program that has been designed primarily for use by Radio Amateurs - hence the 'DX' in the name.

However, *DXAtlas* has developed into a very capable system and now has lots of support available as well as some very useful tools built-in. The program can be downloaded from the following site:

[www.dxatlas.com](http://www.dxatlas.com)

The program can be tried-out for free and registration for the full versions costs around £17 at the time of writing. Using *DXAtlas* with the *PC-HFDL* could hardly be easier. With *PC-HFDL* running all you have to do is tick the *DX-Atlas* box on the main screen and *PC-HFDL* automatically starts *DXAtlas* and will begin plotting anything with positional information in the message. As you can see from the screenshot, each aircraft is shown as a pale blue rectangle overprinted with the flight number. In addition to providing a useful link with *PC-HFDL*, *DXAtlas* can also help with your listening with some useful propagation tools.

One of the most obvious propagation tool is the Grey-Line projection. This superimposes the daylight/night time plot on the map, very clearly showing the parts of the World that are experiencing dusk or dawn. These two transitions are important, because h.f. propagation is significantly affected by the Sun so, special things happen during the transition from day to night and vice versa. The net result of these transitions is that you will normally experience enhanced propagation between any two stations that are both in what's known as the Grey Line. So, by setting *DXAtlas* to show this state, you can spot the good paths in advance and be ready to take advantage when the band opens-up.



● GreyLine DX with DX Atlas.

## Free Spectrum Analyser

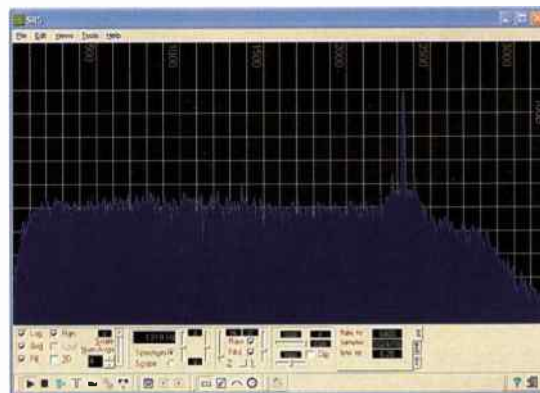
Spectrum analysers and filter systems are always useful tools to have around and I spotted this latest one whilst reading the latest WUN Club's newsletter to be found at [www.wunclub.com/](http://www.wunclub.com/) The new *SR5* spectrum analyser has been released free of charge and is available for download from the following site:

[www.ar5.ndo.co.uk/index.html](http://www.ar5.ndo.co.uk/index.html) Like many of the simpler, self-contained packages, *SR5* is delivered as a basic '.zip' file and installation is just a question of 'unzipping' the files into a directory of your choice.

Although you can put *SR5* just about anywhere, I suggest you stick with *Windows* convention and put it in a new directory within C:\Program Files. In most cases the program should run straight away with no further adjustments. To start the processing you do have to remember to press the Play arrow on the bottom-left of the main panel! In its default state the display will average the input over four samples to help smooth the display and take out the confusing flickering.

If you want to change the averaging function, it's easy done using the 'Num Avgs' arrows on the *AR5* control panel. One adjustment that's not so obvious is the frequency range of the main display. To adjust this you have to stop the display and hit F9 - bringing-up the FFT adjustment window. From here you can select a number of options for the highest frequency. I'd suggest that 3.2kHz is probably best for Decode work, but please feel free to try other options.

Well that's where I'll leave it, for this issue, but the excellent little *AR5* program has some excellent filtering options included that I'll cover in a future 'Decode' column.



● The free spectrum analyser program AR5.

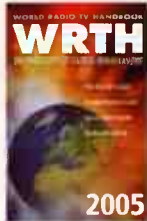
# RADIO BOOK STORE

**Ferrell's Confidential Frequency List**  
The 13th Edition of 'The Definitive HF Utility Guide' has been updated and includes MIL-STD-PSK modes, high speed HF E-mail services, extensive callsign listing, international call allocations, utility abbreviations and much more. £21.50



**World Radio TV Handbook 2005**

A handy reference book that contains the names, addresses, programmes and frequency details of radio stations all round the world. Radio stations are listed under the country and all countries are split up into continents making it much easier to turn to the station you need. Also included are articles on HF broadcasting conditions, radio reviews and a section on how to use the book. £22.50



**Klingenfuss 2005 Guide to Utility Radio Stations**

One of the most comprehensive, reliable and up-to-date manuals containing over 11,200 frequencies, 1900 stations, meteo radiofax, radiotelex and NAVTEX schedules, abbreviations, frequency allocations and radio regulations. £31.50



**Klingenfuss Shortwave Frequency Guide**

This 2005 edition contains a new, clearly arranged alphabetical list of stations and user friendly listings in convenient frequency order. There are over 10,000 entries covering broadcast stations world-wide and 11,000 entries covering utility stations world-wide. £24.50



**Passport to World Band Radio 2005**  
This book includes what's on world band radio, what to buy, how to get started and is written to make interesting reading. It contains a mix of articles, from an idiot's guide, to a five-minute start and ten easy catches to best times to listen. It also has a channel by channel guide to what's on the air. Everything the short wave broadcast listener needs to know. £17.50

**Radio Listeners Guide**

This handy annual publication contains radio product reviews and general information for listeners. Frequencies and locations of radio stations all over the UK and Ireland are given for BBC and commercial radio stations, as well as DAB services. All-in-all a very handy reference guide. £5.45

**25 Simple Tropical & MW Band Aerials**

This concise book describes how to build 25 simple and inexpensive antennas for operation on the medium wave broadcast band (550 - 1600kHz) and on the 60, 75, 90 and 120 metre tropical bands. There are also designs for the 49m band. £1.75



**An Introduction to Radio Wave Propagation**

This book provides a broad, yet clear picture of radio wave propagation in a concise way without the use of too much technical language or mathematics. Included are explanations of the phenomena that is propagation dealing with everything from the Sun, through the ionosphere to noise. £3.95

**ARRL Handbook**

Radio amateurs and professionals rely on The ARRL Handbook for current antenna theory and a

wealth of practical, how-to construction projects. This 20th edition is extensively revised and includes contributions from leading antenna experts. Many designs are the result of the latest advances in computer modelling. £32.00



**Antenna Toolkit**

This book acts as a miniature antenna manual with very good technical explanations without ever over-doing the maths for the not-so-keen mathematicians! The drawings and illustrations are very clear and the section on instrumentation is very helpful. £25.00

**RSGB Yearbook**

There are almost 500 pages in the 2005 Yearbook, eight more than last year, but only a

## Airband

	Pages	Price	Code
AIRBAND RADIO GUIDE (abc) 6th Edition	122	£8.99	ABRG6
AIRBAND RADIO HANDBOOK (Sutton) David Smith	190	£12.95	ABRHB
AIR TRAFFIC CONTROL		£8.99	ATC9
AIRWAVES 2005 (Photavia)	144	£10.95	AIR25
AIRWAVES SELCAL - CIVIL & MILITARY DIRECTORY (Photavia)	176	£11.95	AIRSEL
CALLSIGN 2005 (Photavia)	2005	£10.95	CAL25
CIVIL AIRCRAFT MARKINGS 2005 (abc) Alan Wright	368	£7.99	CIVAIR
FLIGHT ROUTINGS 2005 Williams	180	£10.00	FR25
MILITARY AIRCRAFT MARKINGS 2005 (abc)			
March & Curtis		£7.99	MILAIR
BRITISH ISLES ATLANTIC TRANSITION CHART (AERAD)	1020x520mm	£9.00	UKH6
BRITISH ISLES LOW ALTITUDE CHART (AERAD)	1020x520mm	£9.00	UKL2
NORTH ATLANTIC ROUTE CHART (AERAD)	1020x520mm	£9.00	NATHL1

## Frequency Guides

FERRELLS CONFIDENTIAL FREQUENCY LIST 13th Ed.	540	£21.50	FERR13
KLINGENFUSS GUIDE TO UTILITY STATIONS 2005	552	£31.50	KFUTIL
KLINGENFUSS SHORTWAVE FREQUENCY GUIDE 2005	504	£24.50	KFSWFG
KLINGENFUSS SHORTWAVE FREQUENCIES CD 2005		£17.70	KFSWCD
PASSPORT TO WORLD BAND RADIO 2005 (IBS)	592	£17.50	PASS25
RADIO LISTENERS GUIDE 2005	160	£5.45	RLG25
ULTIMATE SCANNING GUIDE & CD Richard Allport	464	£19.99	USG
WORLD RADIO TV HANDBOOK 2005 (WRTH)	688	£22.50	WRTH25

## Scanning & Short Wave

BUYING A USED SHORT WAVE RECEIVER - 4th Edition F. Osterman	78	£5.95	BUSWRX
RECEIVING (VALUE) STATION LOGBOOK (RSGB)	80	£4.95	RXLOG
SCANNERS 4 SCANNING INTO THE FUTURE Bill Robertson	245	£9.95	SCAN4
THE ESSENTIAL GUIDE TO SCANNING Martin Peters	108	£6.00	EGTS
THE SUPERHET RADIO HANDBOOK I.D. Poole (Babani)	104	£4.95	BP370

## Antennas/Transmission Lines/Propagation

25 SIMPLE INDOOR & WINDOW AERIALS E.M. Noll (Babani)	50	£1.75	BPI36
25 SIMPLE TROPICAL & MW BAND AERIALS E.M. Noll (Babani)	54	£1.75	BPI45
AN INTRODUCTION TO RADIO WAVE PROPAGATION J.G. Lee (Babani)	116	£3.95	BP293
ANTENNA FILE (RSGB)	285	£18.99	ANTFIL
ANTENNA TOOLKIT (inc. CD-ROM) Joseph J. Carr	214	£25.00	ANTOOL
ARRL ANTENNA BOOK (inc. CD ROM) 20th Edition	944	£32.00	RRAB20
BACKYARD ANTENNAS Peter Dodd G3LDO (RSGB)	200	£18.95	BYANTS
BASIC RADIO PRINCIPLES & TECHNOLOGY Ian Poole G3YWX	262	£15.99	BRPRIN
EXPERIMENTAL ANTENNA TOPICS H.C. Wright	70	£3.50	BP278
HF ANTENNA COLLECTION Edited by Erwin David G4LQI (RSGB)	233	£19.95	HFANTC
INTERNATIONAL ANTENNA COLLECTION G. Brown M5ACN (RSGB)	250	£11.95	IANTC
INTERNATIONAL ANTENNA COLLECTION 2 G. Brown M5ACN (RSGB)	200	£11.95	IANTC2
MORE WIRE ANTENNA CLASSICS (ARRL)	200	£10.50	MWANTC
PHYSICAL DESIGN OF YAGI ANTENNAS (Hardback) David B. Leeson W6QHS (ARRL)	200	£15.50	PDYAGI
RADIO PROPAGATION PRINCIPLES & DESIGN Ian Poole G3YWX	102	£14.95	PROPPR
RECEIVING ANTENNA HANDBOOK Joe Carr (HighText)	189	£17.50	RXANHB
UNDERSTANDING BUILDING & USING BALUNS (CQ Publications) Jerry Sevic	125	£18.95	BUBALS
VHF UHF ANTENNAS Ian Poole G3YWX (RSGB)	128	£13.99	VUANTS
WIRE ANTENNA CLASSICS (ARRL)	200	£10.50	WANTC

very small handful are the same. Everything you need is covered within its pages: contact names, addresses, phone numbers, websites and E-mail addresses. A major new feature for this Yearbook is the RSGB Contesting Guide, which was formerly published in *RadCom*. £16.95

**Receiving Antenna Handbook**

Your receiver is only as good as your antenna or so says the author of this book. It is a complete guide to high performance receiving antennas for long wave all the way to the upper end of the short wave spectrum. The designs aren't slightly modified amateur transmitting antennas but ones intended specifically for receiving purposes. £17.50



licensing changes and the ubiquity of PCs and the internet. To deal with these, the author has taken a completely new look at the content and approach. For example, some of the traditional demarcations between HF and VHF and between the various operating modes have been overturned, but new and comprehensive chapters on topics such as PCs in the shack and Operating Modes added. £19.95

**VHF/UHF Antennas**

With both the basic theory and constructional details for many antenna designs, the reader is taken through the essentials in an easy-to-understand way. All kinds of antennas are described from dipoles to Yagis and verticals to log periodic designs. £13.99



**The Amateur Radio Operating Manual**

This new edition of the RSGB Operating Manual reflects the huge impact in the past few years of

mail order...huge range in stock...fast delivery...

## Beginners/Licence/Manuals

ADVANCE! THE FULL LICENCE MANUAL Alan Betts G0HIQ & Steve Hartley G0FUW (RSGB) . . . . .104	£11.99	ADCFLM
AMATEUR RADIO EXPLAINED. Ian Poole G3YWX (RSGB) . . . . .150	£9.90	AREXP
AN INTRODUCTION TO AMATEUR RADIO I.D. Poole (Babani) . . . . .150	£4.99	BP257
FOUNDATION LICENCE NOW! Alan Betts G0HIQ (RSGB) . . . . .32	£4.99	FLNOW
HF AMATEUR RADIO Ian Poole G3YWX (RSGB) . . . . .120	£13.99	HFAR
INTERMEDIATE LICENCE - BUILDING ON THE FOUNDATION Steve Hartley G0FUW (RSGB) . . . . .76	£6.99	INTLIC
SECRET OF LEARNING MORSE CODE Mark Francis (Spa) . 84	£6.95	SOLMC

**Foundation Licence Now!**  
A 32-page soft-covered book that takes you through the syllabus, reinforcing what you will learn on the foundation course. The course has been designed and introduced for people of all ages and abilities. To take the course you need no formal qualifications. £4.99

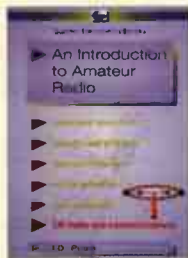


### HF Amateur Radio

This could be considered as the natural 'follow-on' volume to accompany Basic Radio Principles & Technology. Aimed at the more active radio amateur who is just beginning to get to grips with their new HF transmitting station, it will also appeal to the newcomer. £13.99

### An Introduction to Amateur Radio

Amateur radio can be a fascinating hobby that has attracted many people all around the world. It encompasses a wide range of subjects from the historical to the latest technology and from operating to construction. Perfect for the fledgling enthusiast. £4.99



### Intermediate Licence Building on the Foundation

The second course book in the RSGB's series, which is structured to progressively obtaining an Amateur Intermediate Licence, this book contains practical exercises, broken down into half-hour worksheets. The ideal companion book for all Amateur Radio Intermediate Licence students. £6.99



### Advance! The Full Licence Manual

This is the third course structured to obtain an Amateur Radio Licence. Advance is the final stage in gaining the full licence and has been updated to suit the new syllabus structure. Broken down into

logical sections, it's presented in an easy-to-understand way, making it perfect for home study. £11.99



### Secret of Learning Morse Code

Don't be fooled, the requirement for Morse may have been removed, but Morse code still has a place in the scheme of things for the radio amateur. It can consistently be used to 'talk' to others around the world, you don't even need to speak their language to hold a conversation. £6.95

## Binders

Practical Wireless . . . . .	£6.50	BINDPW
Short Wave Magazine . . . . .	£6.50	BINDSW

## Design & Construction

COIL DESIGN & CONSTRUCTION MANUAL (Babani) . . . . .106	£3.95	BP160
LF EXPERIMENTERS HANDBOOK (RSGB) . . . . .112	£18.99	LFEXHB
PRACTICAL PROJECTS G. Brown M5ACN (RSGB) . . . . .208	£13.95	PRPROJ
PROJECTS FOR RADIO AMATEURS & SWL. R.A. Penfold (Babani) . . . . .92	£3.95	BP304
RADIO & ELECTRONICS COOKBOOK (RSGB-Newnes) . . . . .319	£16.99	RECOOK
RF COMPONENTS & CIRCUITS Joe Carr (RSGB-Newnes) . . . . .398	£22.50	RFCOMP
TECHNICAL COMPENDIUM (RSGB) . . . . .288	£17.99	RSTECO
THE ART OF SOLDERING R. Brewster (Babani) . . . . .84	£3.99	BP324
UNDERSTANDING BASIC ELECTRONICS (ARRL) . . . . .314	£15.50	UNDBEL

### Buying a Used Shortwave Receiver

Buying a second-hand radio can provide great savings if you have the facts. This book provides the information you need to intelligently select the right short wave receiver at the right price. It contains information on the 100 most commonly traded short wave radios both portable and table top models. £5.95



available. The book also contains a free searchable frequency CD. If you are a long standing scanning enthusiast or new to the hobby then you will find this book a 'must have' for your book shelf. £19.95

### Scanners 4

**Scanning into the Future**  
Scanners 4 includes radio spectrum changes and frequency allocations so you know exactly where to listen. Chapters are devoted to Low-Earth Orbiting satellites, the use of personal computers digital and computer-controlled radio communications, as well as a comprehensive section on available scanners and accessories. £9.95



### Ultimate Scanning Guide & CD

For those not familiar with Scanning directories, this book provides a simple way to work out exactly who is broadcasting on a given frequency. The reader is provided with clear guidance as to what is available to listen to and what should be avoided. This makes the Radio Today Ultimate Scanning Guide the most accurate and useable directory



### The Essential Guide To Scanning

Aimed at beginners to scanning this 108 page publication should help you to get the most out of hobby listening. Topics covered include: Choosing a scanner and understanding its features, antennas, accessories, what to listen for and where and much more. £6.00



to order, telephone:

0870 224 7830

BY FAX -

0870 224 7850

### BY FAX -

Send cheque, credit card details, or POs made payable to: PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.

### POSTAL CHARGES:

UK: £1.75 for one item, £2.75 for two or more items.  
Overseas surface: £2.75 for one item, £4.25 for two items, three or more add an additional 75p per item. Airmail prices on application.

If it's ordered before midday and it's in stock, we'll post it that day.\* (Royal Mail 2nd class - enquire about 1st class prices).

\*UK only

THE QUICKEST  
AND MOST  
COMPREHENSIVE  
RADIO BOOK  
SERVICE  
IN THE UK!

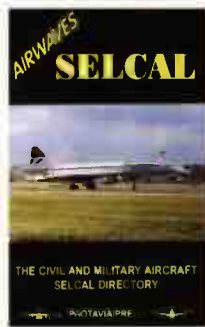


## Shack Essentials

AMATEUR RADIO MOBILE HB. P. Dodd. (RSGB) . . . . .	.114	£14.99	MOBHB
AMATEUR RADIO (VALUE) LOGBOOK (RSGB) . . . . .	80	£4.95	TXLOG
ARRL HANDBOOK 2005 inc CD . . . . .	1152	£32.00	RRHB25
ARRL OPERATING MANUAL 7th Edition (WSL) . . . . .	420	£18.50	RRPOP
<b>DIGITAL MODES FOR ALL OCCASIONS</b>			
M. Greenman. (RSGB) . . . . .	.208	£16.95	DMFAO
GREAT CIRCLE MAP (PWP) . . . . .	400 x 400mm	£1.50	GCMAP
<b>LF TODAY - GUIDE TO SUCCESS 136kHz</b>			
M Dennison (RSGB) . . . . .	.128	£11.95	LFTOD
RADIO AMATEURS MAP OF THE WORLD . . . . .	-	£8.00	ARMAPW
RADIO AMATEURS WORLD ATLAS (A4 size) (DARC) . . . . .	20	£8.00	ARWAT
RSGB AMATEUR RADIO OPERATING MANUAL (RSGB) . . . . .	.224	£19.95	OPMAN
RSGB PREFIX GUIDE (RSGB) . . . . .	34	£8.95	PFXGDE
RSGB YEARBOOK, 2006 Edition (RSGB) . . . . .	TBA	£18.95	RSYB26
CALLSEEKER GB AMATEUR CALLSIGN LISTING CD 2006 . . . . .	-	£14.95	CALLCD

### Air Traffic Control 9th edition

Apart from visits to airports, the only contact point between the enthusiast and the actual world of air traffic control is through an airband radio. This book has been written to give the reader an understanding of the voice messages you hear. £8.99



### Airwaves Selcal

Containing over 13000 civil and military aircraft Selcals this publication is a must for all aviation listening enthusiasts. The information is provided in three different ways: Selcal order, Airline/Operator then registration order and airline or Operator Decode. A handy reference book that should be sitting next to your h.f. receiver - order yours today! £11.95

### Air Band Radio Guide 6th Edition

Fully updated, this is a comprehensive handbook for the well-informed aviation enthusiast on the subject of air to ground radio. The subjects covered include the legal position of the listener, airband receivers, antenna systems, HF radio, an airfield directory, en route frequencies weather broadcasts and 8.33kHz channel spacing. £8.99

### Military Aircraft Markings 2005

This annual pocket favourite has been revised with a huge number of changes that have affected military serials over the past year. If you can see it or hear it, MAR 2005 will tell you who runs it or owns it! The accuracy of the contents can be relied on. £7.99

### Callsign 2005 9th Edition

Civil and military aviation callsign directory, fully updated with over 3000 additions and changes. It's A5 and spiral bound for ease of use and contains over 8000 aviation callsigns. £10.95

### Civil Aircraft Markings 2005

Now fully revised for 2005 this book lists the UK civil aircraft callsigns alphabetically as well as overseas aircraft too. Details such as the callsign, type of aircraft, the owner or operator and any extra notes that are applicable. £7.99



### Airwaves 2005 11th Edition

This A5, spiral bound book has been updated with all the latest airband information for the civil and military aviation enthusiast. It contains frequency information, airfield information as well as military frequencies and VOLMET information. £10.95



### Air Band Radio Handbook

For over 15 years The Air Band Radio Handbook has been regarded as the essential reference source for ground-based air band listeners and flyers. Now fully updated this book is an indispensable guide to every air band enthusiast. £12.95

### Flight Routings 2005

The A to Z guide to airline flights within the UK. Now in its 15th edition, this book continues to pack its pages with all the information air band listeners could ever wish for. Flight details for airlines including schedules, charter and freight flights. £10.00

## Back Issues & Photocopies

We have a limited selection of back issues. However, if you are looking for an article or review that you missed first time around and we don't have the whole issue, we can supply a photocopy of the article.

### Getting The Most From Your Multimeter

- ▶ Tests just resistance
- ▶ Continuity and grounds
- ▶ AC and DC voltage
- ▶ AC and DC current
- ▶ Test equipment
- ▶ 12 tests and communications

▶ R.A. Pentoid

### Getting the Most from Your Multimeter

The multimeter's capabilities are often overlooked by many owners, there's much they can do other than continuity testing! The

book discusses how you can choose a meter, the advantages and disadvantages of analogue and digital types and then leads you through the many tests they can perform. £4.99



### Pop Went the Pirates

This book sets out to produce the definitive

history of pirate radio ships, with a comprehensive account from the earliest pirates in the 1930s to the present day. The text is illustrated with 230 black and white photographs, many of which have never been published before. You can find out about the ships and forts that played such important roles in changing radio broadcasting into the format that exists today. £14.99

### Crystal Receiving Sets

This handbook deals, in a simple, straightforward manner, with the making of a number of different kinds of crystal sets representative of those in present-day use. Basically, everything you need to know regarding valve and crystal sets and how to make components. £7.95



## Microwaves

### AN INTRODUCTION TO MICROWAVES

F.A. Wilson (Babani) . . . . .	.134	£3.95	BP312
<b>INTERNATIONAL MICROWAVE HANDBOOK</b>			
A. Barter (RSGB-ARRL) . . . . .	.474	£24.95	IMWHB

## QRP

LOW POWER COMMUNICATIONS (ARRL) . . . . .	.240	£19.95	LPCOM
LOW POWER SCRAPBOOK (RSGB) . . . . .	.320	£12.99	LPSCRA
QRP BASICS. George Dobbs G3RJV (RSGB) . . . . .	.204	£14.95	QRPBAS

## VHF & Higher

ALL ABOUT VHF AMATEUR RADIO W. I. Orr W6SAI. (ARRL) . . . . .	.163	£8.95	AAVHF
GUIDE TO VHF/UHF AMATEUR RADIO			
Ian Poole G3YWX (RSGB) . . . . .	.180	£8.99	GTVUHF
VHF/UHF HANDBOOK Dick Bidduph G8DPS (RSGB) . . . . .	.180	£22.00	VUHFHB

## Crystal Sets

THE XTAL SET SOCIETY NEWSLETTER			
Volume 1 & 2 Combined. Phil Anderson WOXI . . . . .	.96	£14.00	XTNL12
THE XTAL SET SOCIETY NEWSLETTER			
Volume 4. Phil Anderson WOXI . . . . .	.88	£7.00	XTNL4
CRYSTAL RECEIVING SETS & HOW TO MAKE THEM (Lindsay) . . . . .	.124	£7.95	XTHTM
CRYSTAL SETS. The Xtal Set Society Newsletter.			
Volume 5. Phil Anderson WOXI . . . . .	.88	£7.00	XTNL5
CRYSTAL SET BONANZA Vol 9, 10 & 11			
Xtal Set Society Newsletter . . . . .	.226	£15.00	XTBONZ
CRYSTAL SET LOOPERS. A THREE TUBER & MORE			
Volume 8 Xtal Set Society Newsletter . . . . .	.128	£10.50	XTLOOP

## Historical

100 RADIO HOOK UPS 2nd Edition (reprinted) . . . . .	.48	£3.35	10ORHU
1934 OFFICIAL SHORT WAVE RADIO MANUAL			
Edited by Hugo Gernsback (Lindsay Publications)			
(WSL) . . . . .	.260	£11.85	1934SW
AMATEUR RADIO - A BEGINNERS GUIDE (1940 REPRINT)			
(Lindsay Publications) Douglas Fortune W9UVC . . . . .	.156	£7.70	ARABG
COMMUNICATIONS RECEIVERS -			
THE VACUUM TUBE ERA R.S. Moore . . . . .	.141	£17.95	COMRXV
MARCONI'S ATLANTIC LEAP (H/B) Gordon Bussey			
(Marconi) . . . . .	.96	£6.99	MALEAP
POP WENT THE PIRATES Keith Skues . . . . .	.568	£14.99	POPPIR
SAGA OF MARCONI OSRAM VALVE (Paperback)			
B.Vyse & George Jessop . . . . .	.346	£25.00	SMOV

## Valves

HOW TO BUILD THE TWINPLEX			
REGENERATIVE RECEIVER T.J. Lindsay . . . . .	.63	£6.75	HTBTRR
HOW TO BUILD YOUR FIRST VACUUM TUBE			
REGENERATIVE RECEIVER T.J. Lindsay . . . . .	.127	£8.25	HTBFVA
HOW TO BUILD YOUR RADIO RECEIVER (A4)			
(Popular Radio Handbook No. 1) . . . . .	.100	£6.70	HTBYRR
HOW TO MAKE A NEUTRODYNE RECEIVER			
Webb . . . . .	.63	£5.95	HTMNRX
SECRETS OF HOMEBUILT REGENERATIVE RECEIVERS			
C.P. Rockey . . . . .	.127	£8.75	SHBRRX

# QSL COMMUNICATIONS

TELEPHONE 01934 512757  
E-mail: jayne@qslcomms.f9.co.uk

[www.qsl-comms.co.uk](http://www.qsl-comms.co.uk)

## QSL CARDS

FOR SAMPLES AND PRICES SEND LARGE STAMP ADDRESSED ENVELOPE

**KENWOOD, YAESU, ICOM, AOR**  
PHONE FOR LATEST PRICES

**NEW**  
**QAP SPEAKER**  
112 x 92 x 43mm  
8Ω, 3.5mm plug  
noise filter and mute.



£12.99 P&P £3.00.

## MISCELLANEOUS

Long wire magnetic balun.....£24.99  
Mobile airband with mag mount.....£13.99  
Base station antenna discone.....£49.95  
Self amalgamating tape.....£6.99  
Enamelled copper wire 50m.....£9.99  
Plastic coated stranded wire 50m.....£12.50  
SWL QSL cards matt pack (100).....£4.50  
24" T&K brackets.....£24.99  
18" T&K brackets.....£19.99  
12" T&K brackets.....£14.99  
9" Wall brackets.....£8.99  
6" Wall brackets.....£5.50  
2" Mast clamp.....£9.50  
1.5" Mast clamp.....£8.99

Various plugs and adaptors MUCH, MUCH MORE

Carriage charge dependent on items

**UNIT 6, WORLE INDUSTRIAL CENTRE, COKER ROAD,  
WORLE, WESTON-SUPER-MARE BS22 6BX**

## SECONDHAND

**Icom IC-R8500**  
Base receiver boxed  
complete + tcxo fitted  
£899.00

**Kenwood R-5000**  
Base receiver with power  
lead and book  
£390.00

**JRC NRD-525**  
Base receiver with power  
lead and book  
£399.00

**FERRITE RINGS**  
PACK OF 10  
£10.00  
Inc P&P



# SHORTWAVE SHOP Ltd

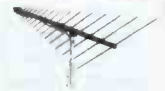
18 FAIRMILE ROAD, CHRISTCHURCH, DORSET BH23 2LJ  
Phone/Fax 01202 490099 Website: <http://www.shortwave.co.uk>

**COMMUNICATION SOLUTIONS FROM**  
*The SHORTWAVE Shop*

MARINE & SECURITY  
RADIO EQUIPMENT



LATEST RANGE OF HF  
TRANSCIVERS AVAILABLE



WORLDWIDE DISTRIBUTORS FOR  
WELBROOK RECEIVING  
ANTENNAS

COMPREHENSIVE RANGE OF  
ANTENNAS FOR MOBILE  
AND FIXED LOCATIONS



HF/VHF/UHF  
RECEIVERS FROM ICOM,  
YAESU & KENWOOD



DAB & WORLDSPACE  
RECEIVERS



VISIT: [www.shortwave.co.uk](http://www.shortwave.co.uk)  
FOR OUR LATEST USED  
EQUIPMENT LISTING

ALINCO, AOR, AKD, BEARCAT, COMTEL, DRAKE, FAIRHAVEN, ICOM,  
KENWOOD, JRC, LOWE, MAYCOM, MFJ, OPTO, WELBROOK, YUPITERU, YAESU

## THE COMMUNICATION SPECIALISTS

Receivers - Scanners - Transceivers

Call & discuss which part of the radio spectrum you wish to operate and we will advise you on the most cost effective way achieving it.

- Full range of new & secondhand equipment available.
- We stock all leading brands: Airband Amateur CB, Marine Shortwave Licence-exempt transceivers ● Business and Security Radios

4 MILES FROM BOURNEMOUTH INTERNATIONAL AIRPORT ON B3073

300 YARDS FROM CHRISTCHURCH RAILWAY STATION, FORECOURT PARKING FOR DISABLED

# Timestep



PROsat for Windows is used by most leading weather satellite enthusiasts. They have grown up using Timestep products and now rely on the superior image quality and ease of use provided by PROsat for Windows. Features such as real time reception, auto-scheduling, temperature readout, totally automatic reception of all NOAA's and Soviet satellites and automatic animation have made PROsat the preferred package. For weather satellite systems contact :

**Timestep PO Box 2001 Dartmouth TQ6 9QN England**  
Tel: 01803 833366 Fax: 01803 839498  
[www.time-step.com](http://www.time-step.com) email [information@time-step.com](mailto:information@time-step.com)

Please mention  
*Short Wave Magazine*  
when replying to  
advertisements

# Electrovalue

B.S.I. Regd. stockist  
ISO 9002 RS33906

## We supply

Capacitors  
Resistors  
Thermistors  
EMC filters  
Inductors  
Suppressors  
Varistors  
Potentiometers  
Knobs  
Ferrites  
Fuses  
Spark gaps  
Batteries  
Terminals

Epcos (formerly Siemens) franchised distributor

Diodes & rectifiers  
Transistors  
Integrated Circuits  
Semiconductors  
Lamps & LEDs  
Power supplies  
Regulators  
Thyristors  
Sensors  
Crystals  
Panel meters  
Test gear  
Valves  
Flash tubes

Books  
Boxes & Cases  
Breadboards  
Connectors  
Cable  
Fans  
Switches  
Relays  
Transformers  
Hardware  
Headphones  
Soldering equip  
PCB materials  
Service aids

**Electrovalue Ltd.** See us at web site: [www.electrovalue.co.uk](http://www.electrovalue.co.uk)

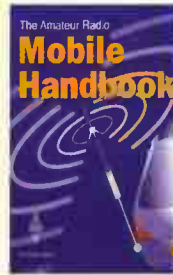
Mail order: Tel: 01784 433604. Fax: 01784 433605. E-mail: [sales@electrovalue.co.uk](mailto:sales@electrovalue.co.uk)  
Unit 5, Beta Way, Thorpe Industrial Park, Egham, Surrey TW20 8RE

mail order...huge range in stock...fast delivery...

## Electronics

ELECTRONIC PROJECT BUILDING FOR BEGINNERS R.A. Penfold (Babani) .....	110	£4.95	BP392
GETTING THE MOST FROM YOUR MULTIMETER R.A. Penfold (Babani) .....	102	£4.99	BP239

WSL - While Stocks Last -  
please call to check availability  
before ordering



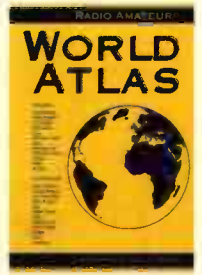
diagrams and charts. £14.99

**Great Circle Map**  
A Great Circle map centred on London, UK.

**The Amateur Radio Mobile Handbook**  
Every aspect of mobile working is covered from basic bicycle mobile to the maritime operations for the keen sailors who abound in amateur radio. Extremely well illustrated with many photographs,

Find direction and distances to any part of the world quickly and efficiently via the shortest hop. Invaluable shack aid. £1.50

**Radio Amateurs World Atlas**  
Each country has the respective prefix shown on both the map and in an alphabetical list. Sixteen pages of maps from the North to the South Pole!  
£8.00



## how to order

**By Post:** Write to the Book Store, remembering to include your name, address, daytime telephone number and payment details (Sterling, cash not accepted), at:

Book Store, PW Publishing Ltd., Broadstone, Dorset BH18 8PW.

**By Telephone:** Call Clive G4SLU in the Book Store, Monday to Friday 9am to 4pm. Outside these hours your order will be recorded on an answerphone. Call: 0870 224 7830

**By Fax:** If you wish to FAX your order to us please mark it for the attention of the Book Store and send it to: FAX: 0870 224 7850

**By E-mail:** clive@pwpublishing.ltd.uk

**Photocopies & Back Issues:** To order a Back Issue please call the Order

Line to check availability. We can photocopy articles from issues that are not available and we have a Review List going back years!

**Back Issues (non-current):** SWM @ £5.00 (£5.50), PW @ £4.75 (£5.25), RA @ £4.60 (£5.10).

**Postal Charges:** (UK) one item £1.75 / Two or more items £2.75.

**EUR/RoW:** One item £2.75 / two or more items add 75p for every item.

**Review List:** £2\* (\* includes P&P - add a further £1 for EUR/RoW)

**Photocopies / Reprints:** (Articles over 3 years old) £3.00, UK £4.00 overseas

E&OE

# order form

Photocopies are acceptable

Please send me the following books:

.....Code .....	Price (£) .....
.....Code .....	Price (£) .....
.....Code .....	Price (£) .....
.....Code .....	Price (£) .....
.....Code .....	Price (£) .....
.....Code .....	Price (£) .....
.....Code .....	Price (£) .....
.....Code .....	Price (£) .....

**Total cost of Books Ordered:** .....Price (£) .....

### Postage Charges

Please remember to add postage to your order. (£) .....

### UK

£1.75 P&P for one item, £2.75 for two or more (UK)

### Airmail

£2.75 P&P for one, £4.25 for two, 75p extra per item for three or more

**Total cost of order including postage** .....Price (£) .....

Send this completed form to:

PW Publishing Ltd., Arrowsmith Court, Station Approach,  
Broadstone, Dorset BH18 8PW

### Payment Details

Name .....

Address.....

Telephone (Daytime) .....

Postcode.....

I enclose my Cheque/Postal Order for £ .....

**(Cheques MUST be made payable to PW Publishing Ltd.)**



or please debit my Access/Visa/Amex

□□□□ □□□□ □□□□ □□□□

Expiry Date ..... Security No. □□□□

or please debit my Maestro/Solo



□□□□ □□□□ □□□□ □□□□ □□□□

Expiry Date ..... Security No. □□□□

Start date ..... Issue No (if on card).....

Signature.....

Orders are normally despatched by return of post but please allow 28 days for delivery. Prices correct at the time of going to press. Please note: all payments must be made in Sterling, cash not accepted.

# Satellite

TV News

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

Following the terrorist attacks on the London Underground of 7 July a second attempt at multiple explosions failed on 21 July. The unsuccessful bombers became the centre of a nation-wide hunt.

As the net spread and the terrorists were gradually apprehended in the UK, Italy and an associate in Zambia. Others were implicated by evidence found in 'safe' houses. On 25 July the BBC sat-truck 'UKI-690 ELSTREE' was outside Curtis House, Shepherds Bush where bomb suspects were thought to have hidden. A flat was searched, evidence taken and in a nearby garage contained bomb making materials and chemicals. A live report into BBC News via *Atlantic Bird-1* (AB-1, 12.5°W) - 11.098GHz-Vertical (Symbol Rate-SR 4226; Forward Error Correction-FEC 5/6) took place from the street outside the flats. The following night - 'GLOBECAST UKI-366' was feeding into 'Shepherds Bush BBC News'. Another feed discovered was a live CNN evening report from outside Scotland Yard, feeding into the Atlanta news room (via their London bureau) with a news update on *Eutelsat W2*, 16°E on 'UKI-149.1' 11.100GHz-H (5632+3/4) Horizontal. **Alan Richards** (Skegness) 'found' an American reporter in the street outside Westminster all morning of 24 July providing updates back to the Stateside networks, interestingly the UK operator 'Links n Things' were on the street with their truck, using *Intelsat 10-02* @ 1°W, 11.487GHz-V with an unusual SR3476+5/6. Alan notes that the permanent ABC feed channel 'ABC SCOPUS' is still present on 1°W @ 11.627GHz-V (5632+3/4 in NTSC) usually showing the backyard from the small news bureau that ABC operate in Baghdad. Their downlink frequency does vary however, but is usually within ±10MHz of this frequency. Dramatic pictures on 28 July via *UP4* - APTN - European distributor, 10.972GHz-V (4167+5/6) on *W1*, 10°E with a transmission of a live breaking news story of a major industrial plant ablaze somewhere in the USA.

Once again *UP4* provided the month's most dramatic news story. An Air France Airbus 340, possibly struck by lightning on its final approach at Toronto Pearson airport, slid off the runway into a ravine, where it burst into flames. Luckily, passengers and crew, numbering over 300 were able to escape before flames engulfed the aircraft. Dramatic pictures came from 'onlookers' videos' with higher quality images including one showing the tail section before it too was covered in flames. But, *UP4* went dark as *Eutelsat W1* made news, 10 August p.m. saw intermittent downlinks and by late afternoon *W1* had died. APTN announced a satellite failure and frantic efforts were made to switch carriage onto other birds. The loss of *W1* will create problems in the short term.

A sea drama unfolded on 4 August when a Russian miniature sub became stranded in 100 fathoms of water in the NW Pacific Ocean off the Siberian coast. The Russians quickly sought help from both the UK and America. A CBS transmission over *W2*, 12.564GHz-H (5632+3/4) captioned '514044' carried NTSC video of the Russian 1st TV network which was transmitting footage of the actual sub on the surface, graphics of how the sub was tangled in sea bed cables - apparently monitoring antennas. By Saturday, British Naval equipment had arrived at Petreapavlovsk, loaded on board a local ship ready to reach the area of the lost sub. Sunday arrived, the submersible rescue craft *Scorpio* had located and freed the mini sub. The crew and passengers all saved. An 'APTN MOSCOW' circuit for Fox News on the 6th provided footage and the latest news from the Russian Far East as to the successful rescue - carried over *Eutelsat W1*, 10°E @ 10.967GHz-V (4167+5/6) in PAL.

Football is back. The Chelsea v Portugal match in the Algarve on the 16th, saw the local broadcaster 'SIC' providing the OB and sat-truck facilities, linked over *W2*,

16°E, 12.548GHz-H. Earlier 'SKY NEWS SCOTLAND' had been linking golfing action and personality interviews from St. Andrews into Sky's Isleworth HQ over 16°E by SISLink-9 - 11.137GHz-H (both 5632+3/4) - service identification '9MHZ PAL 2'. More football was carried by an old friend - 'BT TES-43 SSN'. TES-43 was at Wrexham football club using 16°E and also using 11.137GHz-H, (5632) This seems to be a popular slot for Sky Sports. Also that same evening was the TNS v Liverpool game with all satellite linkage via AB-1, 21.5°W with 'GIGATEL' running three slots in both MPEG-2 and 4:2:2\* at 11.045, 11.154 and 11.062GHz-V (first @ 4226+5/6, rest @ 6140+3/4). No commentary was carried on any audio track over these circuits, only match audio FX.

The Gaza Strip was being emptied of Jewish residents for the area to be handed over to the Palestinians. News footage has clearly illustrated the resulting problems. *UP4* provided coverage of late evening crowds being encouraged back along busy roads with military in attendance with surveillance helicopters overhead. An unpleasant situation was apparent between 2 and 3 August - 10.972GHz-V (4167+5/6).

PanAmSat have purchased the *Europe\*Star-1* satellite @ 45°E hereafter known as *PAS-12*. Hopefully PanAm will market this craft more aggressively and we'll see more action on this bird, it can 'see' across Indonesia and the NW tip of Australia and may provide enthusiasts with some excellent DX! Speaking of the PAS satellites...

## Interesting E-mails

I've received several interesting E-mails from **David Tong** (Southampton), a retired teleport engineer who comments on his low elevation reception from the *PAS-10* satellite on the low UK South East horizon, or to be accurate 4° elevation at Southampton + polarisation slew @ -35°. For the record *PAS-10* elevates 5.5° at Dover; 4.5° London and 2.7° Manchester. David notes that a finance programme *Blue Wave* is transmitted Thursdays between 0430 and 0830, fortnightly. *Blue Wave* is a looped 30 minutes programme, uplinked out of the Telemedia Teleport, Jo'burg - a strong signal at 12.695GHz-V (6620+3/4). A 1m Gregorian dish with 0.5dB noise LNB is in use. Noting that another reader has been receiving the Russian *LMI-1* near Hove at 75°E, David calculates that *LMI* is 0.6° above the horizon, the signals skating in at sea level.

Dutch satellite enthusiast **Rini de Weijtz** captured classic images as the latest Shuttle launched on 26 July and relayed courtesy of NASA TV over *W1*. Two weeks after launch the Shuttle *Discovery* returned safely to earth, landing in darkness at the Edwards base in California. **Roy Carman**, Dorking, witnessed the safe landing of the Shuttle at UK lunch time courtesy of NASA-TV via *W1*.

There's an increasing number of HDTV transmissions being carried over satellite, **Hugh Cocks** (Algarve) has viewed the German 'Premiere' PAY-TV channel with HDTV tests on the *Astra-1*, 19.2°E slot. Check 11.915GHz-H (27500+3/4) in an MPEG-4 variation running 1920x1080 lines - you'll need a powerful computer to display pictures though. Roy also notes that a Japanese content HD transmission was sent over *W2*, 16°E end July in 16:9 widescreen - video in 1920x1080 lines showing beautiful countryside, this was an occasional rather than regular transmission - 11.162GHz-H (27489+3/4). Hugh advises that HDTV tests are being carried over *Eutelsat W6*, 21.5°E, the 'HD FORUM' images are impressive and recently were transmitting with MPEG-4:2:2 at 12.520GHz-H (21700+3/4) @ 1080 lines. A further source of HD pictures are from the *Astra 1D* slot @ 23.5°E where the Euro 1080 HD-1 and Euro 1080 HD-5 transmissions can be found at 10.757GHz-V (22000+7/8). These are 1920x1080 line, 16:9 aspect ratio.



Company promotional images via *Eutelsat W2*.



Bombs in London, another street's cordoned off, note the satellite dish on top of the large police wagon - *Eutelsat W1*.



At night a bomb blasted and wrapped London Transport underground carriage is taken away - *W1*.



A major industrial fire rages in the USA - *W1*.



A road traffic camera witnesses the end of an Air France Airbus at Toronto (*W1*).



Public protests as Israel attempts to clear the Gaza Strip (*W1*).



High Definition TV is on the way, Euro 1080 HDTV tests (23.5°E).



The *Discovery* launches - picture **Rini de Weijtz**.

- Ben Hogan, c/o SWM Editorial Offices
- E-mail [ssb.utilities@pwpublishing.ltd.uk](mailto:ssb.utilities@pwpublishing.ltd.uk)

**T**he motto of the Tanzania Electric Supply Company is "We Light Up Your Life". Yes, they supply electricity to Tanzania. Most of the electricity is generated via hydro schemes but they have diesel generators in isolated areas. They also have h.f. radios and they aren't too bothered about where they use them, so they tend to light up S-meters as well!

As you can imagine they are not too concerned about interfering with other users of the frequency spectrum and their preferred frequency is 7.045MHz, slap bang in the 40m amateur allocation. The country is generally host to people who prefer to pirate frequencies with occasional use by farmers in the north of the country on 7.0225MHz.

The biggest users of the band in Tanzania are a hunting and safari outfit that seem to have three skeds and nets on 7.056MHz at 0800, 1200 and a big general net at 1800UTC that can go on for ages. The languages in use are English, Afrikaans and Swahili and they talk about transport, stores, foodstuffs and pretty much anything connected with their business and personal lives.

## Clock Changes

The song goes, "When it's night time in Italy, it's Wednesday over here". I don't know about you but time zones and the twice yearly change in local time in the UK rather confuses me. Since this column is in the October issue of SWM it is worth noting that on the 30th the clock time will revert to UTC at 0100.

I receive information of radio nets and skeds all the time and they are presented in a variety of time formats. Some s.s.b. stalwarts are the ocean cruising community who are often travelling without the financial resources that commercial mariners enjoy.

Therefore, s.s.b. using basic equipment is their preferred means of communication. There are many such radio nets on the amateur band allocations but here are a few more that operate outside the amateur bands.

There's the Northeast Caribbean Cruisers net on 8.188MHz at 1400. The area of operation is from Mexico to San Andreas Island, Colombia. Another 8MHz is the Cruiseheimer's net on 8.152MHz at 0830 Eastern USA time. These people carry on

with their contacts way after their start time.

There's a net controlled from Ontario, Canada on 12.359MHz from about 1930 that covers the USA East Coast and eventually covers the Pacific as propagation allows. Another one is Radio Peri-Peri with an East African emphasis on 8.101MHz at 0500. Their area of operations is the Indian Ocean and South Atlantic. After the weather has been broadcast the net shifts to 12.353MHz. At 1500 both frequencies are active.

Finally, should you be able to receive traffic from New Zealand you can try and hear the net at 0830 and 1630 on 12.359MHz that operates for vessels sailing in the region from Bora Bora to Australia. All the above run on u.s.b.

## Antennas

Antennas, I've tried them all with varying degrees of success. When I had homes that were devoid of space I would erect folded dipoles, folded long wires and almost every combination for receiving.

I am now in the fortunate position that I have a lot of space in which to play with wires and I've come to the conclusion that a simple long wire antenna suits me best. Long doesn't necessarily have to mean very long.

Anything over 10m will probably suit the average listener quite well. Try and get the wire as high up as possible and bear in mind that the longer the wire the more directional it will become for a given frequency. This means that a receiver operating on a higher frequency will tend to receive signals more strongly that are in the general direction of the end of that wire antenna. Reception of lower frequencies will not be as directional.

Long wires, however, do tend to suffer from noise and if you live in an urban environment, which is the case for over 80% of the UK population, then you may find that noise is a problem. As most hobbyists seem to run computers and other gear these days it may be that most of the unwanted hash that you are receiving is generated within your radio room. In this case there is a simple and effective remedy.

- You may well be listening to one of these Barrett 950 commercial s.s.b. transceivers.



Run a length of coaxial cable from the antenna connection on the radio (or tuner), outside the radio room and then connect the long wire to the centre of the coaxial outside the building. This should cut down the amount of noise collected within your own radio shack. I find that a little antenna tuner is of great help as well, not only can it increase the received signal strength but in can also be used to attenuate signals or background noise when necessary.

## Black Hat Calling

During the late evening of the 9 August 5.2045MHz was active with Black Hat calling several players. Black Hat is a callsign of the 352nd Special Operations Group of the USA Air Force, with a base at Mildenhall, their h.f. transmissions are easily heard here in Europe.

On the 9th there was much traffic regarding parachute operations and references to static and High Altitude Low Opening (HALO) operations. Exciting stuff. They were on air again on the night of the 11 August. Operations centred around the Stanford Training Area at Watton. RAF Watton is pretty much derelict but the runway, hangars and the tower are still there. It is now operated by the army with regular training visits from helicopters and C130 aircraft that use the 6000ft runway.

While 5.2045MHz u.s.b. is their primary frequency, others that they may use for air-to-ground communications include 3.044, 4.450, 5.349, 9.026 and 9.161.5MHz All are u.s.b. and 5.204.5 is quite often busy and can provide amusement during the evening hours if there is little else to occupy the mind.

## French Pirate

Finally, there's a regular French speaking pirate type operation on 6.660MHz most evenings. He's on l.s.b. and seems just to jabber on a lot, has anyone else heard him?



# DX

## Television

- **Keith Hamer & Garry Smith** 17 Collingham Gardens, Derby DE22 4JS
- **E-mail** [dxtv@pwpublishing.ltd.uk](mailto:dxtv@pwpublishing.ltd.uk) ● **Website** [www.test-cards.fsnet.co.uk](http://www.test-cards.fsnet.co.uk)

July was another remarkable month for Sporadic-E reception in both Band I and Band II with the 6 and 7th being the most fruitful days. Italy has been the star performer this season making an almost daily appearance.

### Reception Reports

High m.u.f.s have been the norm this season, extending well into the f.m. band. On 6 July, **Simon Hockenhull** (Bristol) heard Radio 2 being drowned out by strong Scandinavian signals as he drove home from work. At 1853, **Peter Barber** (Coventry) resolved Belarus (BT) video on Channel R5 (93.25 MHz). Peter comments that he finds the 'Best Day' logs with service abbreviations useful when identifying countries. Earlier at 1318, **Tom Crane** (Hawkwell)

(Channel E4), 340km away, is present about 80% of the time. Italy and Slovenia were the first signals to be identified on the 17th using the new antenna.

### Exotics

On 11 July, **Niels van der Linden** (Belgium) identified Morocco E4 with its 'RTM' logo in bottom-right of the screen. At 1710 on E2 an unidentified weak signal from the south gradually emerged, with an empty sync-bar, possibly African, with scenes of dark people. The following afternoon at 1645, Jordan (JTV-1) from the Suweileh E3 outlet was visible, followed by Tunisia (RTT) on E4 at 1700 from Remada.

Transatlantic DX was achieved more than once by **Hugh Cocks** (Algarve). On the 15 at 2200, a Channel A2 signal was identified as WLBZ from Maine by a 'sound-bite' forwarded by **Roger Bunney** (Romsey). On the following day at around midday, the band was jammed with lots of Canadian signals up to Channel A4. CBC were airing their breakfast programme on A2 but the audio on A4 was different, with a long series of adverts. Reception had faded by 1300. On the 17th, unidentified Channel A2 pictures were

present for about an hour from 2100.

**Rana Roy** (India) tells us that the much awaited monsoon arrived in July which put the dampers on Sporadic-E reception with just a few openings, on R1 and R2, mainly Russian stations one of them sporting a '5' logo in the top-right. Towards the end of the month, Dubai on E2 and Abu Dhabi on E3 were encountered with sound and colour.

### Tropospheric DX

Tom Crane is disillusioned by the new, heavily 'dumbed-down' BBC weather forecasts (aren't we all!). With the lack of atmospheric pressures or any information about the movement of weather fronts, there is no advanced warning of potentially good tropospheric conditions. It seems that other broadcasters are using similar systems and are little better either.

Despite this Tom managed to capture various Belgian, Dutch and German UHF stations on the 11th. Three days earlier, on the 8th, **George Garden** (Edinburgh) received Norwegian FM and TV signals at times blotting out local broadcasts.

### Best Day - 6 July

0530 to 0900

Sweden (SVT-1) E2, E3 and E4; Estonia (ETV) R2; Italy (RAI UNO) A and B; Italy (TVA shopping channel) A; Switzerland (SF-1 German-language network) E2 and E3; Hungary (RTL KLUB) R2; Norway (NRK-1) E2, E3 and E4.

0900 to 1500

Italy (Tele A+ shopping channel) E2; Rumania (TVR-1) R3; Spain TVE-1) E2 and E3; Lithuania (L1) R2; Hungary (RTL KLUB) R2; Slovakia (STV-1) R2; Switzerland (SF-1) E2; Czech Republic (NOVA) R1; Slovenia (SLO-1) E3; France (Canal Plus) L3; Denmark (DR-1) E3; Portugal (RTP-1) E3; Austria (ORF-1) E2a; Lithuania (L1) R2; Norway E4; Switzerland (TSR-1 French-language network) E4; Croatia (HRT-1) E4; Hungary (MTV-1) R1; Germany (ARD) E2; Spain E2 and E3; Hungary (RTL KLUB) R2; Corsica (Canal Plus) L2; Portugal E2; Unidentified E2 transmitter to the south-east with Arabic cartoon; Italy (TVA) A.

1500 to 1800

Switzerland (SF-1) E2 and E3; Spain E2; Slovenia E3; Corsica L2; France L3; Belarus (BT) R2; Latvia (LTV-7) R2; Czech Republic R2; Denmark E3 and E4; Ukraine (YT-1) R2 and R3; Latvia (LTV-2) R3; Portugal E3; Lithuania R2.

1800 to 2300

Norway E2; Sweden E2 and E4; Unidentified signal on Channel C (82.25 MHz) with 'ST' logo top-left; Lithuania R2; Ukraine (1+1) R2; Estonia R2; Germany E3; Belarus (BT) R3 and R5; Ukraine (TV Epa) R2; Latvia (LTV-2) R3; Denmark E3; Slovenia E3; Hungary (RTL KLUB) R2; Croatia E4; Slovakia R2, Czech Republic R2; Switzerland E2; Sweden E2.

Our thanks to Stephen Michie, Simon Hockenhull, Tom Crane, Brian Manley, Peter Barber, Peter Barclay, **Vincent Richardson** and **Paul Foley** for submitting detailed reports.

### Service Information

Tom Crane reports that the G-204 test card with "Moldova" in an elliptical logo has been seen on Channel R3. Peter Barclay (Sunderland) confirms that Austria (ORF-1) E4 (Patscherkofel) is still operational. Also the German BR-1 Kreuzburg E3 outlet remains on-air, despite its deletion from June 2005 analogue listings. A boxed 'e' logo on R2 has been tracked down as 'TV Epa' (Ukraine) which time-shares with 'Inter'.



● **Fig. 1: Strong Lithuanian reception on R2, captured by Stephen Michie.**



● **Fig. 3: The BBC Colour Tuning Signal radiated during 405-line NTSC test transmissions in 1956.**



● **Fig. 2: The Moroccan PM5544 test card with a distinctive modification to the centre.**

discovered an Arabic cartoon on E2 from the south-east, its origin unknown.

At times, Band I was ablaze with signals and as Simon commented, "By 0620 on the 7th, all Band I channels were busy and it was impossible to identify anything with the m.u.f. extending up to 108 MHz". During the opening, **Stephen Michie** (Bristol) spotted Estonia on R2 with their PM5534 test card bearing 'ETV TALLINN' at the top and a shuttling white maker for digital tests in the lower identification strip. Another rare sight, at 0720, was Albania (TV-SH) on Channel C but on programmes so there was no sighting of their test card.

**Brian Manley** (Welling) has finally installed a Band I dipole in the loft and is surprised how much more robust v.h.f. signals are compared with those at UHF. Noise-level DX from Lopik

### 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 discs, good-quality VHS video and 'low-speed' (x4 maximum) DVD recordings. Our DXTV and Archive TV website can be found at [www.test-cards.fsnet.co.uk](http://www.test-cards.fsnet.co.uk) via the Internet.



# International Radio Clubs



**AMSAT-UK (GOAUK)**  
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 or visit [www.bartg.demon.co.uk](http://www.bartg.demon.co.uk)

**British Amateur Television Club (BATC - RS38114)**  
Enquiries to Dave Lawton G0ANO, 'Grenehurst', Pinewood Road, High Wymcombe, Bucks HP12 4DD. Tel: (01494) 528899. E-mail: 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 or visit [www.bdxc.org.uk](http://www.bdxc.org.uk)

**Danish Shortwave Club**  
Information from Treasurer Bent Nielsen,

Egekrogen 14, DK-3500 Vaerloese, Denmark or visit [www.dswci.org](http://www.dswci.org)

**Group for Earth Observation**  
Information pack from GEO Info S, 34 Ellerton Road, Surbiton, Surrey KT6 7TX or via info@geo-web.org.uk or visit the GEO website at [www.geo-web.org.uk](http://www.geo-web.org.uk)

**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 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 or visit [www.raota.org](http://www.raota.org)

**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: membership@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



**Royal Navy Amateur Radio Society (RNARS - G83RN, 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 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 or visit [www.rsars.org.uk](http://www.rsars.org.uk)

**The Medium Wave Circle**  
Details from c/o C. Rooms, 59 Moat Lane, Luton LU3 1UU. E-mail: contact@mwcircle.org

**World Association of Christian Radio Amateurs & Listeners M1CRA**  
Details from Membership Secretary Derek Chivers G3XNX, 51 Alma Road, Brixham, South Devon TQ5 8QR. Tel: (01803) 854504 or visit [www.wacral.org](http://www.wacral.org)

## Next Month in Practical Wireless, the magazine that brings you Amateur Radio & So Much More....



**THE UK'S BEST AND ONLY INDEPENDENT AMATEUR RADIO MAGAZINE**

**CAN YOU AFFORD TO MISS IT?**

### REVIEWED

- The new high power hand-held from Icom, the IC-V82, is put to the test by Richard GORSN.
- Rob Mannion G3XFD's been busy testing the IC-2200H 144MHz mobile transceiver, share in his findings and operating fun.



### BEAT THAT INTERFERENCE!

- Stan Brown G4LU looks at tackling TVI, offering some solutions to an often common problem.

### ANTENNA WORKSHOP

- John Heys G4BDQ takes his turn in the 'workshop' as he introduces a 'guitar quad' beam antenna for use on the 144MHz bands.

### MAKE MORE OF YOUR MELLSTOCK

- Following on from the success of the Mellstock transmitter Tony Nailor G4CFY now brings you the receiver side of the project, which he says is will finish your project off nicely as both transmitter and receiver can be built into a diecast box.

### Plus all your regular favourites including:

- Amateur Radio Waves
- Bargain Basement
- Club News
- Keylines
- News
- Radio Scene
- Valve & Vintage

and much, much more! \* contents subject to change

NOVEMBER 2005 ISSUE ON SALE 13 OCTOBER...PLACE YOUR ORDER TODAY!

Also available direct for £3.00 by calling 0870 224 7830

## In Next Month's Radio Active

### Tried & Tested

- SBS-1 Virtual Home Radar
- Perstel DR-601

### Airband Special

- Understanding Airband Radio
- Airshow Dates
- Maycom AR-108 On Test

### Wish List

- New Products - Sneak Preview!

### WIN! Goodmans DAB Clock Radio



**What DAB?**  
A guide to the latest Hi-Fi systems and mains only DAB radios

Plus all the usual features packed with information for the radio enthusiast...

# radio ACTIVE

Introducing You to Hobby Radio

**RADIO ACTIVE October ISSUE ON SALE 16th Sept**  
Radio Active is published on the third Friday of each month - available from all good newsagents or direct by calling 0870 224 7830 priced at only £2.85.



# Amateur

Bands

- **Clive Hardy** SWM, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW
- **E-mail** [clive@pwpublishing.ltd.uk](mailto:clive@pwpublishing.ltd.uk)

**H**opefully, by the time you're reading this, all the fuss made recently about the alleged proposals to de-regulate the amateur radio spectrum will be a fast fading memory and normal service will have been resumed. That includes consultation between the regulator, Ofcom and the amateur radio community.

Once the policy regarding licences has been sorted out (one assumes it will bring with it the licence for life) then one of the first consultations will be about the long overdue re-writing of the *Amateur Radio Full Licence Terms, Provisions and Limitations Booklet*, usually known by its classification of *BR68*. The Foundation and Intermediate Licence booklets will doubtless be re-written at the same time.

Apart from, hopefully, more reader friendly language being used, the update will almost certainly bring with it some significant changes. The legal requirement for amateurs to keep a log of their transmissions is one condition that already looks likely not to make it into the new *BR68*, along with the need to obtain special endorsements on licences (known as *Notices of Variation* or *NoVs*) when experimenting with certain modes and communication technologies.

There will be a consultation period, expected to be ten weeks, when individual amateurs, clubs and societies, can express their views on what will be in or out of the new version, so get your thinking caps on! **Steve Roper G8MXZ** is the man at Ofcom who will be looking for input from radio amateurs and he is keen to hear what the grass roots, as well as major clubs, have to say.

## Jamboree On The Air

A major event this month that should fill the amateur airwaves for a couple of days is the 48th Jamboree On The Air or JOTA as it is usually known. This is organised by the World Organisation of the Scouting Movement with the help of radio amateurs around the world. Its purpose is to give Scouts and Guides around the world the

opportunity to get together over the airwaves.

The event takes place each year over the third full weekend in October, which this year means the 15 & 16th. The period of operation for each station is 48 hours, starting at 0000 local time on the Saturday, until 2400 local time on the Sunday, although few operate for the whole period. With stations in all the time zones, the complete window of activity will be from 1200 Friday 14 to 1200 Monday 17.



The JOTA is a popular event, with many clubs and individual amateurs providing the special event stations to enable Scouts and Guides to get on the air, so there will be lots of special event callsigns aired over the weekend. Most stations will probably be set

up in Scout or Guide huts, but there will be a fair number operating from all sorts of different locations with a Scouting theme.

It would take a small book to list all the special event stations that will be on the air that weekend, but a handful of callsigns that might be worth keeping an ear open for are: **HB9S** World Scout Bureau, Geneva; **K2BSA** Boy Scouts of America; **JA1YSS** Boy Scouts of Japan; **PA6JAM** Scouting Nederland; **5Z4KSA** Boy Scouts of Kenya; **VK1B** Scout Association of Australia and **GB2GP** Scout Association, Gilwell Park, London.

On most h.f. bands there is a World

Scout Frequency and these would be a good place to start listening, although the activity is likely to be spread across the bands. For s.s.b. the frequencies are: 3.740, 3.940 (not available in the UK), 7.090, 14.290, 18.140, 21.360, 24.960 and 28.390MHz. For c.w. the frequencies are: 3.590, 7.030, 14.070, 18.080, 21.140, 24.910 and 28.190MHz.

## Exam Fees Go Up

On 1 September 2005 the RSGB effectively completely took over the running of the amateur radio exams. Since then it has handled the day-to-day administration of the exams, which includes maintaining the question banks.

The Radio Communication Foundation, which now accredits and moderates the exams, is a charity set up by, and sharing its principal address with, the society. As Ofcom ceased to pay a grant towards administration of the exam scheme on the same day, one of the first steps the Society took was to increase the examination fees.

For the exams for the three licences the fees are now: Foundation, £20; Intermediate, £25 and Full, £30. I seem to recall paying about £20 to take the old *City & Guilds Radio Amateurs Exam 25* odd years ago, so paying £75 in total to be able to take the exam for a Full licence does seem a bit high. But in my day you had to take the Morse test as well, which was probably another £10, so perhaps today's fees are about right.

I remember, on the day of the exam, listening to BBC Radio One whilst sat in my car waiting to pick up the kids from school. It's a measure of how high the profile of amateur radio was back then that the DJ wished "Good Luck to everyone taking the Radio Amateurs Exam this evening". (I imagine that was Steve Wright, who is a licenced amateur - Ed.)

## All Quiet On The DX Front

Not too much happening in the DXpedition line this month. **Alex HB9FBO** will be operating as **A35BO** from Tonga for about six weeks beginning the 24 October. Listen out for him on all the h.f. bands using s.s.b. as well as c.w. and possibly also PSK31. He might also get onto 1.8MHz. Vertical antennas will be in use on all frequencies.

Earlier in the month Belgian members of the International Police Association Radio Club will be operating a special event station on Jersey from the 5-10 October. The callsign will be **GJ/OO4IPA** and activity should be on all h.f. bands, s.s.b., RTTY, and PSK. Details of an award for working the station can be found at [www.qrz.com/callsign/ON4IPA](http://www.qrz.com/callsign/ON4IPA).

# The wait is nearly over!

The **UK Scanning Directory** - the essential book for all scanner owners and frequency collectors - is at the printers right now!

Copies will be available early October, so to reserve your very own copy and guarantee early dispatch, place your order now.

## THIS BOOK WILL NOT DISAPPOINT!



### Frequencies Covered:

- Aeronautical Navigation
- Amateur Radio
- Ambulance Service
- CB
- Civil Aviation
- Commercial Broadcasting
- Digital Radio
- Fire Brigade
- Maritime
- Military Aviation
- Mobile Telephones
- Ministry of Defence
- Outside Broadcasting Links
- Paging
- PMR
- Point - Point Links
- Police
- Radio Microphones
- Satellite Links
- Satellite Navigation
- TV Broadcasting

■ The 9th edition of The **UK Scanning Directory** is packed full of VHF/UHF frequencies - from 26MHz to 2.5GHz. It covers everything from covert government frequencies to local council traffic wardens and dust carts. It has been completely updated; old frequencies have been discarded and thousands of new, verified ones added. This is the definitive frequency guide and that's why it's used not only by radio enthusiasts and frequency collectors but also by industry and the military, the police and various other government departments.

■ Everybody's amazed by the information we print. We list frequencies for Civil and Military Aviation, Army, Navy, Police, DSS Snoopers, GCHQ, Prisons, Eye-in-the-Sky Links, Bailiffs, Outside Broadcasting, Motor Racing, Universities, Railways, Telephones, Couriers and many more we dare not mention. All frequencies are listed in a logical order under the relevant sections of the radio spectrum to make it easier for you to find the ones you're looking for and to help you to explore new areas.

■ The Aviation Bands section covers both Military and Civilian Aviation and a separate section lists every airport and military airfield in alphabetical order to make finding frequencies easier and quicker.

■ As well as frequency lists, there are also articles on scanning and the law, scanning for beginners, how to monitor PMR, the military and the civilian aviation bands, Formula One and rallies and a late news section for the very latest discoveries. **Whether you're an experienced scanner user or just starting out, this book will help you to get the most out of the hobby.**

The **UK Scanning Directory** is Britain's largest and best selling VHF/UHF frequency directory and the undisputed leader in the field. No other book dares to list so many frequencies and in such great detail.

**Order BY PHONE - 0870 224 7830**

For credit card orders.

**Order BY FAX - 0870 224 7850**

Fill in the form below and Fax it to us.

Or send this completed form to:

**PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW**

Photocopies of the form are acceptable.

Please reserve me ..... copies of the UK Scanning Directory - 9th Edition @ £19.75 each, plus P&P.

#### Postage Charges

UK £1.75 P&P for one item, £2.75 for two or more (UK)

Airmail £2.75 P&P for one, £4.25 for two, 75p extra per item for three or more

Total cost of order including postage.....Price (£).....

#### Recipient's Details

Name .....

Address .....

Telephone (Daytime) .....

Postcode .....

#### Payment Details

I enclose my Cheque/Postal Order for £ .....  
(Cheques **MUST** made payable to **PW Publishing Ltd.**)



or please debit my Access/Visa/Amex

□□□□ □□□□ □□□□ □□□□

Expiry Date ..... Security No. □□□

or please debit my Maestro/Solo



□□□□ □□□□ □□□□ □□□□ □□□□

Expiry Date ..... Security No. □□□

Start date ..... Issue No (if on card).....

Signature.....

Please allow 28 days for delivery. Prices correct at the time of going to press.  
Please note: all payments must be made in Sterling, **cash not accepted.**



Problems with noise and interference?

DSP noise cancelling at its best



Listen clearly  
on  
SSB, UHF,  
VHF, HF and FM



NES10-2 MKII £99.95  
+ £6.95 P+P

'An easy to plug-in accessory that can significantly improve your readability' RadCom Dec 02

NEIM1031  
£129.95 + £6.95 P+P

'How did I manage without a DSP unit like this?' SWM Mar 03

Don't just take our word for it

NEDSP1061-KBD £89.95  
+ £4.95 P+P



'When you are communicating with weak and noisy QRP stations, the bhi add-on DSP filter could be worth its weight in gold' RadCom Dec 03

NEDSP1062-KBD £99.95  
+ £4.95 P+P



'the on air performance in improving readability of weak SSB signals or those in noisy conditions were excellent' RadCom July 2005

See us at Leicester

bhi Ltd, P.O.Box 136,  
Bexhill on Sea, East Sussex, TN39 3WD  
Tel: 0870 2407258 Fax: 0870 2407259  
www.bhi-ltd.co.uk sales@bhi-ltd.co.uk



PHOTAVIA PRESS

AIRWAVES 2005

PUBLISHED  
APRIL 2005

THE NEW 12th EDITION OF THE UK'S MOST COMPREHENSIVE  
HF / VHF / UHF CIVIL AND MILITARY AVIATION FREQUENCY  
DIRECTORY - FULLY UPDATED FOR 2005

TOWER - APPROACH - RADAR - GROUND - AIR TO AIR - RANGES - ATIS  
GCI - SQUADRON OPS - AIR REFUELING - VOLMET - AIRLINE OPS - AWACS  
AIR DEFENCE RADAR (UK & EUROPE) - AEROBATIC TEAMS - SEARCH & RESCUE  
UK CIVIL & MILITARY AREA RADAR - MILITARY AIRFIELD STUDS - VARIOUS MAPS  
4 LETTER AIRFIELD CODES - RUNWAYS - SSR CODES - UK BASED MILITARY UNITS

MAPS OF - UK PRIMARY AIRWAYS / SECTORS / REPORTING POINTS / OCEANIC ROUTES  
UK TRANSMITTER SITES / FREQUENCIES - MILITARY TACAN ROUTES - AWACS AREAS  
AIR REFUELING / LOW ALTITUDE AREAS - MAJOR WORLD AIR ROUTE HF AREAS  
COMPREHENSIVE CIVIL / MILITARY HF LISTINGS INCLUDING DISCRETE FREQUENCIES  
MWARA / AIRLINE OPS / RAF / USAF / SPACE SHUTTLE / NATO AIR-ARMS / VOLMET / ETC

PRICE £10 - 95 INCLUDING FREE UK POSTAGE & PACKING

PUBLISHED  
MARCH 2005

CALLSIGN 2005

THE NEW 11th EDITION OF OUR CIVIL AND MILITARY AVIATION  
CALLSIGN DIRECTORY - FULLY UPDATED FOR 2005

A5 / WIRE SPIRAL BOUND - ALMOST 5000 AVIATION CALLSIGNS  
MILITARY DIRECTORY - CALLSIGNS ARE LISTED ALPHABETICALLY AND ALSO BY  
AIR-ARM / SQUADRON - CIVIL DIRECTORY - CIVIL CALLSIGNS FROM OVER 180  
COUNTRIES ARE LISTED ALPHABETICALLY AND ALSO BY 3 LETTER AIR TRAFFIC PREFIX

PRICE £10 - 95 INCLUDING FREE UK POSTAGE & PACKING

AIRWAVES SELCAL

THE CIVIL AND MILITARY AIRCRAFT SELCAL DIRECTORY  
OVER 13,000 AIRCRAFT SELCAL CODES  
INCLUDING OVER 1000 MILITARY & GOVERNMENT  
PRICE £11 - 95 INCLUDING FREE UK POSTAGE & PACKING

(SORRY - NO CREDIT CARDS) STERLING CHEQUES or POSTAL ORDERS / PAYABLE TO  
PHOTAVIA PRESS (Dep SW) - SUNRISE BREAK - CHISELDON FARM  
SOUTHDOWN HILL - BRIXHAM - DEVON - TQ5 0AE - UK  
Tel : 01803 - 855599 Web : www.photav.demon.co.uk

JOHN'S RADIO ELECTRONICS TEST AND COMMUNICATION EQUIPMENT

LARGE QUANTITY SALE EX-MOD

MARCONI TF2019A Synthesized signal generators. 80kHz to 1040Mc/s - AM,  
FM - high class with many functions - £285 each.

HP COMMUNICATION TEST SET 8922M 10 to 1000Mc/s + GMS 83220E converter  
1710 to 1900Mc/s. DCS, PCS, MS - £500.

HP COMMUNICATIONS TEST SET 8922M OPT 010 (Dual) etc. - £750.

TEKTONIC 2445A OSCILLOSCOPE 150Mc/s four channel - £300.

ALL UNITS PRICED EX WORKS WITH INSTRUCTIONS - TESTED, BASIC WORKING.  
CARRIAGE AND PACKING IF REQUIRED, EXTRA.

Phone for appointment or to request items lists, photos, site map. All welcome.  
Private or trade for sales, workshop repairs or calibration.

Please contact Patricia at Whitehall Works, 84 Whitehall Road East,  
Birkenshaw, Bradford, West Yorkshire BD11 2ER.

Phone 01274 684007 Fax 01274 651160

Web site: www.johnsradio-uk.com www.johnsradio.com

Sycom

P. O. Box 148, Leatherhead  
Surrey KT22 9YW

Phone 01372 372587

Fax 01372 361421

Robin G3NFV  
Geoff G4ECF

Try us  
for:

- Resistors
- Capacitors
- Switches
- Semiconductors
- Cable connectors
- and much more

COMPONENTS AND AMATEUR  
RADIO EQUIPMENT PURCHASED

E-mail: robin@sycomcomp.co.uk  
Web: www.sycomcomp.co.uk

Toroids are our speciality

Looking for a good but affordable HF or VHF/UHF receiver?

Antennas? Accessories? Software?



Distributed in the UK by:

Radixon Ltd.

Evesham Marina, Evesham,  
WR11 3XZ, Worcestershire

Tel: (0870) 446 0449

E-mail: info@radixon.co.uk

Quote SWM500203 for discount when ordering.

Don't buy any before you look at WINRADIO!

www.winradio.co.uk

# Classified

**POPULAR SOUND CARD PROGRAMS**, SkySweeper (All versions), JVComm32, Log Analyser. Demodulator programs, SkySpy, RadioRaft, HamComm. Transmit & Receive demodulators. Phone for FREE data pack. [www.pervisell.com](http://www.pervisell.com) [hamsales@pervisell.com](mailto:hamsales@pervisell.com) Telephone (01494) 443033

**ALL COMMUNICATIONS AND RADIO RECEIVERS** of any age (working or not) wanted for cash. Including Racal, HRO, Marconi, Eddystone, Hallicrafters, Plessey, Watkins Johnson, etc. - what have you? Also RAF/military receivers and transmitters, especially R1155 and T1154, and any items connected, older ham equipment, audio amplifier equipment - particularly valve amps. What have you? Test equipment, AVO and Taylor valve testers, signal generators, scope, unused or unwanted electronics components, unfinished projects, valves etc. - any amount. Anything connected with electronics, so please telephone for a chat if you are unsure. Silent key dispersals handled with care and respect. Let me clear your workshop, shed, loft or garage. Payment in cash if required. Collection anywhere - no problem. Call me last for the best offer. Friendly, family run business. Tel: 0845 6126699 or e-mail: [rolendra@aol.com](mailto:rolendra@aol.com)

dealers panels

## Essex

### WATERS & STANTON PLC

Spa House, 22 Main Road,  
Hockley  
Essex SS5 4QS

Tel: (01702) 206835/204965  
Fax: (01702) 205843

Web: <http://www.waters-and-stanton.co.uk>  
E-mail: [sales@wspic.demon.co.uk](mailto:sales@wspic.demon.co.uk)

Open 9am to 5.30pm Monday to Saturday inclusive  
MAIN AGENTS - ALL BRANDS  
PHONE/FAX FOR FREE PRICE LIST

## Kent



### R. G. ELECTRONICS

SCANNERS  
Walkie Talkers, CB Radio  
Satellite Radio, GPS, Metal Detectors.

ICOM & NEVADA  
DEALER.

Radio Shack  
STOCKISTS

[www.rgelectronics.co.uk](http://www.rgelectronics.co.uk)



66 Oxford St., Whitstable,  
Kent CT5 1DG  
01227 262319

## Leicestershire

### STEWART AVIATION

Large range of  
hand-held scanners



Callers by appointment please

PO. Box 7, Market Harborough,  
Leics LE16 8YL  
Tel: 01536 770962  
Fax: 01536 770180

Web site:  
<http://www.stewart-aviation.co.uk/rs>  
E-mail: [radios@stewart-aviation.co.uk](mailto:radios@stewart-aviation.co.uk)

## Scotland

Everything you need for  
C.B., Scanners & Amateur  
Radio. . .

### JAYCEE ELECTRONICS LTD

20 Woodside Way  
Glenrothes, Fife KY7 5DF  
Tel: 01592 756962

• Tues - Fri 9am-5pm  
• Sat 9am-4pm  
Closed Sunday & Monday

## Southwest and Wales

### QSL COMMUNICATIONS

For all amateur radio and listener  
needs.

New & secondhand equipment.  
Part exchange welcome.

YAESU, ICOM, KENWOOD

[www.qsl-comms.co.uk](http://www.qsl-comms.co.uk)

Unit 6, Worle Industrial Centre,  
Coker Road, Worle,  
Weston-Super-Mare BS22 6BX  
Tel/Fax: (01934) 512757

## Yorkshire



### AIR SUPPLY AVIATION STORE

For personal and friendly advice,  
consult the Airband Experts

97 HIGH STREET, YEADON, LEEDS  
LS19 7TA

Phone Ken on: 0113-250 9581  
Fax 0113-250 0119

WEB SITE: [www.airsupply.co.uk](http://www.airsupply.co.uk)

## South Yorkshire

### LAM Communications

71 Hoyland Road, Hoyland Common  
Barnsley, South Yorks S74 0LT

[www.lamcommunications.net](http://www.lamcommunications.net)  
[sales@lamcommunications.net](mailto:sales@lamcommunications.net)

Tel 01226 361 700

Specialists in amateur radio equipment, new and  
second hand. Scanners, receivers, C.B.  
radio, and taxi.

We buy, sell and broker equipment and will part exchange.

Opening times:-

Monday 12.00pm until 6.00pm  
Tuesday - Friday 10.00am until 5.00pm  
Saturday 10.00am until 3.00pm

SPECIAL VIEWING TIMES CAN BE ARRANGED WITH LEE  
We also accept Switch/Visa/Cash/Cheques

## Book service

Order your radio  
books from our  
bookstore  
0870 224 7830

## Dealers panels

To advertise here  
telephone  
020 7731 6222



## Trouble finding SWM each month?

We need to know if any of you are having problems obtaining  
*Short Wave Magazine*. If you can't find a regular outlet, then let us know.

Please contact **Distribution Complaints** by telephone

**0870 224 7810**

Fax: 0870 224 7850, E-mail: [donna@pwpublishing.ltd.uk](mailto:donna@pwpublishing.ltd.uk) or by letter  
to: **Distribution Complaints, PW Publishing Ltd., Arrowsmith  
Court, Station Approach, Broadstone, Dorset BH18 8PW.**

WE CAN HELP YOU, IF YOU KEEP US INFORMED.

You can always place a regular order with your local newsagent. To help  
make this easier, please fill in and cut out the coupon on this page.

Dear Newsagent,

Distributed by Seymour

please reserve/deliver my monthly copy of *Short Wave Magazine*

Name.....

Address.....

Postcode.....

Signed.....



# Thinking of taking up amateur radio?

Look no further!



**Subscribe to Practical Wireless**  
Britain's best selling amateur radio magazine

To order a subscription please contact our new subscription agency:

Practical Wireless Subscriptions  
PO Box 464  
Berkhamsted  
Hertfordshire HP4 2UR. UK

Credit Card Orders taken on:  
**(01442) 879097**  
between 9am - 5pm. Outside these hours your order will be recorded on an answering machine.

FAX Orders taken on  
(01442) 872279

Internet Orders can be placed at:  
[www.webscribe.co.uk](http://www.webscribe.co.uk)

or via E-mail to:  
[pw@webscribe.co.uk](mailto:pw@webscribe.co.uk)

Please note cheques should be made payable to  
PW PUBLISHING LTD and  
CASH is NOT accepted.

PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW, UK

## Advertisement index

AOR.....	63	Practical Wireless.....	44
bhi.....	60	QSL Communications.....	50
Celebrity Communications.....	44	Radio Active.....	56
Electrovalue.....	50	Radioworld.....	14, 15
Haydon Communications.....	20, 21	Roberts Radio.....	64
Icom (UK) Ltd.....	11	Sycom.....	60
John's Radio.....	60	The Shortwave Shop.....	50
Leicester Radio Rally.....	50	Timestep Weather Systems.....	50
Martin Lynch & Sons.....	25	Waters & Stanton.....	28, 29
Nevada.....	2, 3, 34, 35	Winradio.....	60
Photavia Press.....	60		

# AOR DIRECT 'Aerial magic'

## LA380

The LA380 is a compact active (30cm diameter) loop aerial specifically designed to provide good reception when away from the main monitoring location or when large external aerials are not practical. Compact, but achieving high performance, featuring an internal high gain amplifier (20dB for 10kHz-250MHz) and excellent overall strong signal handling (high IP3 +10dBm). The loop section may be detached from the BNC connection to the base unit for mounting in a window. The loop may be rotated for peaking signals.



Usable frequency coverage extends to 500MHz, so can be used with scanning radios as well as dedicated short wave receivers. Ranges are selected from the loop unit with preselection for the short wave bands:

- \* 40kHz - for time signal monitoring
- \* 60kHz - for time signal monitoring
- \* 3MHz - 10MHz - preselected for short wave
- \* 9MHz - 40MHz - preselected for short wave
- \* OTHERS - 60kHz - 3MHz / 40MHz - 500MHz

**£189.00 inc VAT, UK carriage £10.00**

## DA753G

The DA753G aerial is designed to receive across the frequency range of 75MHz to 3000MHz (3GHz) employing a compact discone configuration. The small size and relatively light weight design is ideal for installation in a confined space such as an apartment. The DA753G is **about half the height, size and weight of other typical diconses** measuring just 870mm high, 470mm across the bottom of the cone and 690g in weight (aerial



section only). The **quality of construction is first class**. Termination to the aerial is via a N-type plug, 10m of coax is included (fitted with a BNC plug for the radio).

**£69.00, UK carriage £10.00 inc VAT**

**SA7000** Twin element 'passive' ultra wide band receive aerial 30 kHz to 2,000 MHz (2 GHz). Supplied with 15m of coaxial cable and terminated in a BNC plug.  
**£99.00 inc VAT, UK carriage £10.00**

**ABF125** The ABF125 is a receive bandpass filter especially designed to **improve the strong signal handling characteristics of receivers for VHF commercial AIRBAND LISTENING**. It is suitable for connection to most airband and wide range receivers on the market (particularly useful for improving low cost receivers), it is not designed just for AOR receivers. The addition of this filter to the aerial signal path will provide additional selectivity which will enable the receiver's circuitry to cope much more easily with strong interfering signals such as Band-II stereo or short wave broadcast which can be manifest in many ways such as 'hissing', mixing of many signals together, music breakthrough and desensitisation of the receiver. The connection is BNC-male/ BNC-female.  
**£28.50 inc VAT, UK carriage £2.00**

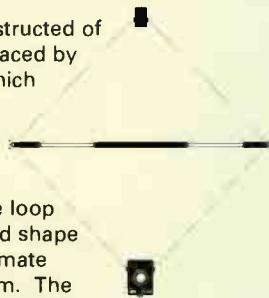


**WL500** The WL500 provides a **solution to those operators who need a good compact aerial for travelling around**.

The loop is constructed of flexible cable braced by a centre pole which splits in to two sections so that it can be easily stored away.

When setup, the loop forms a diamond shape with an approximate diameter of 60cm. The loop covers 3.5 to 30MHz with a range switch mounted at the termination point of the loop (switching at 10MHz).

**£149.00 inc VAT, UK carriage £10.00**



**DA5000** The DA5000 is a professionally constructed 'compact' discone aerial for the upper UHF frequency range of 700MHz to 3GHz. The top section comprises of 16 horizontal elements and the lower section has eight radials mounted on a solid stub terminated in a N-type socket.

**£179.00 inc VAT, UK carriage £10.00**



**MA500** Mobile VHF-UHF aerial mounted on a magnetic base, centre and base loaded whip. Supplied with around 4m of coax cable terminated in a BNC plug  
**£49.00 inc VAT, UK carriage £10.00**

## SR2000 FFT FREQUENCY MONITOR CATCH ELUSIVE TRANSMISSIONS FAST !!!



The SR2000 puts the power of FFT (Fast Fourier Transform) algorithms to work in tandem with a powerful embedded receiver covering 25MHz ~ 3GHz continuous.

The FFT search function monitoring, up to 10MHz search in 0.2 seconds! Using the built-in 5 inch TFT colour display, it is easy to monitor the images of received signals. Up to 10 MHz of bandwidth can be displayed in real time through advanced Digital Signal Processing. **£1589.00 inc VAT, UK carriage free**



## AR5000A & AR5000A+3

Wide frequency reception in all modes from VLF (10kHz) through to UHF (3GHz) in 1Hz tuning steps, impressive strong signal handling capabilities. Used extensively by government monitoring stations throughout the world. **AR5000A** standard version **£1799.00**

**AR5000A+3**, as above with synchronous AM, noise blanker and AFC **£1999.00**



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

**AOR UK LTD Tel: 01629 581222 Fax: 01629 580070**



Unit 9, Dimple Road Business Centre, Dimple Road, Matlock, Derbyshire DE4 3JX  
info@aoruk.com www.aoruk.com www.aoruk.com/tentec



E&OE



# ROBERTS

*'Six hours recording!'*



## Six hours recording on a C90 cassette

**C9950** 'Long Play' cassette recorder with multi event timer

- Six hour record time using standard C90 cassettes
- Telephone record facility
- Built in microphone
- Microphone socket
- Headphone socket
- Multi event timer
- Voice activated record function
- Stereo record/playback
- Digital timer with LCD display
- AC adaptor
- Line input socket
- Tape counter
- Size 260w x 67h x 180d

