The SHORT WAVE Magazine

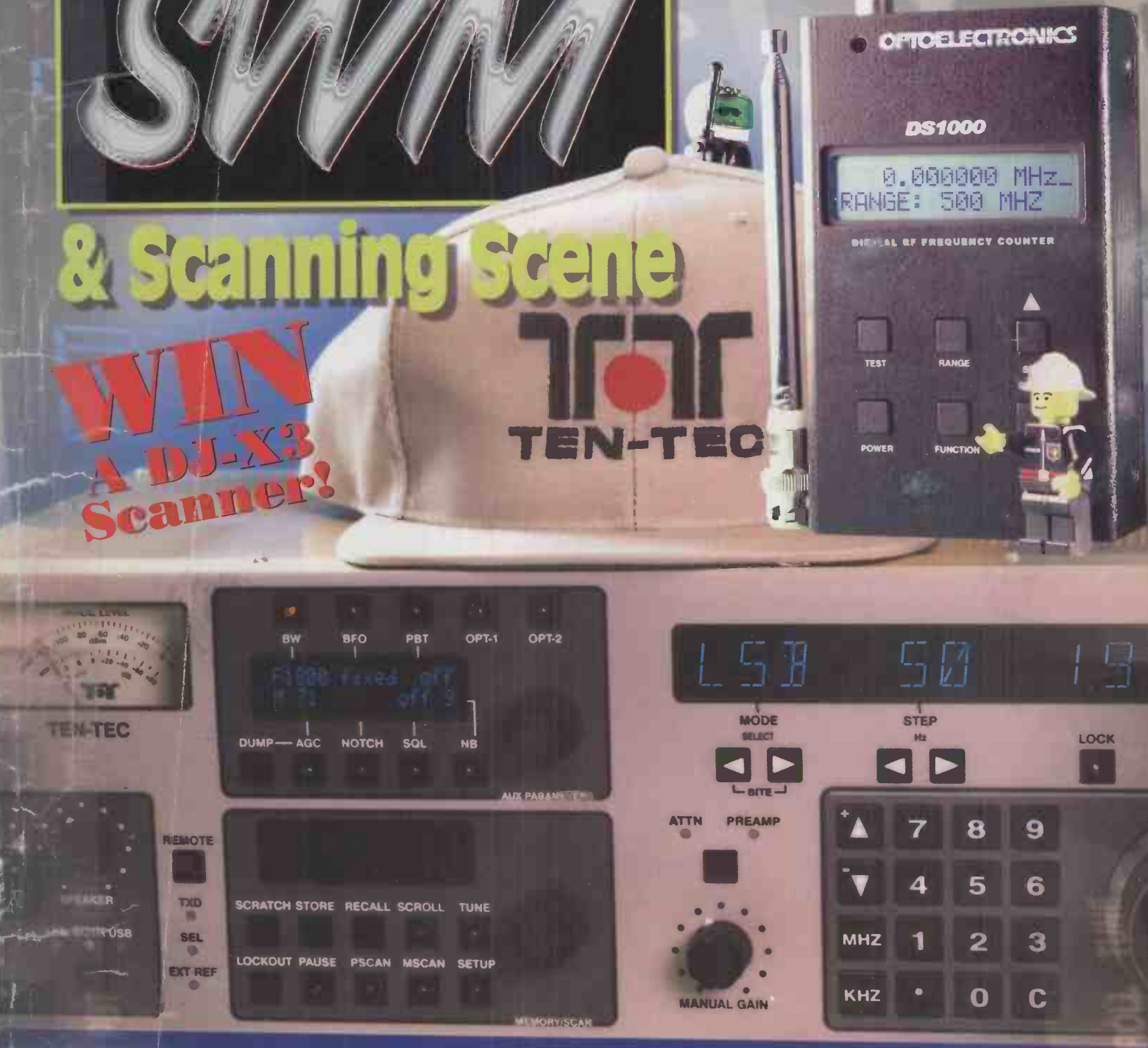
SWM

& Scanning Scene

WIN A DJ-X3 Scanner!

Reviewed in this issue...

- Ten-Tec RX-340
- Optoelectronics DS1000
- Videoscanner 2.4GHz Integrated Video Receiver



October 2001 £3.25

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- Broadcast
- Satellite TV
- WXSATs
- Data Modes
- SSB Utes
- DXTV
- Amateur Bands
- Propagation
- Pirates
- Numbers Stations

the POWER to

DJ-X10E advanced featured scanning receiver

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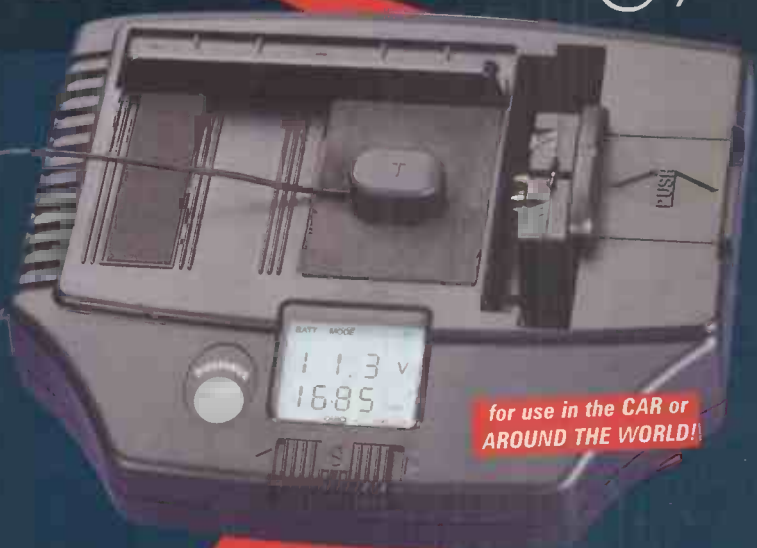

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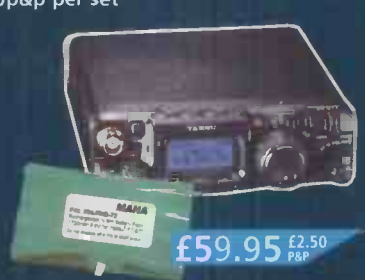

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october 2001 issue

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The SHORT WAVE Magazine contents

features

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Cover Subject: *Combining a hefty price tag with stunning performance, the new RX-340 from Ten-Tec is given the JW work-out.*

Check out the *SWM* web site www.pwpublishing.ltd.uk/swm

Join in with the on-line action on the *SWM* Readers' E-mail Forum - send an E-mail to **swm_readers-subscribe@yahoogroups.com** to subscribe - don't miss the on-line action!

regular columns

COMING UP NEXT MONTH IN NOVEMBER 2001 SWM

- **'WXSAT Special' with Lawrence Harris**
- **Sanyo WS1000 WorldSpace Receiver - Review**
- **JW on Active LF Antenna Alternatives from RF Systems & Wellbrook.**
- **Dave Roberts on his IOSA Experience**

*contents subject to change

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Simply add the name of the person you wish to contact.
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Subscriptions are available at £36 per annum to UK addresses, £43 in Europe and £48 (Airsaver), £54 (Airmail) overseas. Subscription copies are despatched by accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both *Short Wave Magazine* and *Practical Wireless* are available at £60 (UK) £73 (Europe) and £81 (rest of world), £93 (airmail).

Components For *SWM* Projects
In general all components used in constructing *SWM* projects are available from a variety of component suppliers. Where special, or difficult to obtain, components are specified, a supplier will be quoted in the article. The printed circuit boards for *SWM* projects are available from the *SWM* PCB Service, **KANGA PRODUCTS, Sandford Works, Cobden Street, Long Eaton, Nottingham NG10 1BL. Tel: 0115 - 967 0918. Fax: 0870 - 056 8608.**

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 £3.25 each and photocopies are £3.25 per article.
Binders are also available (each binder takes one volume) for £6.50 plus £1 P&P for one binder, £2 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 £1 inc P&P.

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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 **(01202) 659930**. 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 **(01202) 659950**.
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Technical Help
We regret that due to Editorial time scales, replies to technical queries cannot be given over the telephone. Any technical queries by E-mail are very unlikely to receive immediate attention either. So, if you require help with problems relating to topics covered by *SWM*, then please write to the Editorial Offices, we will do our best to help and reply by mail. .

ed's comments

US Friends

After the obscenities that took place on 11th of September in New York and Washington, I wish all those affected our deepest and sincere sympathies from myself and all on the *SWM* team.

ASDL Interference

Oftel are requesting comments on ASDL interference, particularly how it might affect m.w. reception.

Oftel today launched a consultation document that proposes to insert a new licence condition into certain operators' licences to ensure that they take reasonable steps to mitigate any harmful effects of electromagnetic interference caused by their telecoms equipment. The document can be found on Oftel's website at **www.oftel.gov.uk/publications/licensing/2001/rfi0801.htm**

Attention Budding Authors

How many of you reading this have thought to yourselves, now if only I wrote for *SWM*? Maybe this is the opportunity to turn a wish into reality. If you have some ideas for *SWM* style articles, and the patience to produce one or more features, then please don't hesitate. Contact me, all the details are on the masthead on page 5, and we can discuss what's involved. Go on make that call, you never know you might see your name in print in the near future.

Amateur Bands

Those of you who jump straight to their favourite regular column at the rear of the magazine and work forward, will have noticed the absence of Paul Essery's 'Amateur Bands'. Unfortunately, Paul has had a major computer problem at the eleventh hour which condemned all his material and reader correspondence to the scrap heap. Regrettably we, that's Paul and myself, had no option but to have an issue with no amateur band contribution. Paul will be back next month!

UK Amateur Licence Changes

As of the 1st October 2001, there will be a new structure for amateur radio licensing in the UK. The RA has announced a series of changes. These include a reduction in the Morse speed requirement for full licensees to 5w.p.m. The amalgamation of some licence categories, allowing trainees (on a registered training course) to operate while supervised, before passing the RAE and the introduction of a new class of licence, the Foundation Class, which is to be implemented at the beginning of 2002.

It is hoped by the RA that it will be possible to simplify the new three tier structure following the World Radio Conference in 2003.

SWM Survey

So far I've had a phenomenal response to the survey which was included in the last edition. Up to and including today's receipts (13 September - Happy Birthday Dad), we have a total of 898 forms returned. If you've thought about completing the form but not yet got around to it, then don't wait any longer - send it back straight away - it's post paid in the UK so it won't cost a penny to both have your point of view expressed and to be entered for the prize draw. For those of you who had no intention of completing the survey - why on earth not? You too should express your opinions and help me to make *SWM* even better.

Vy 73 Kevin

Dear Sir
Allan Langer's untimely death at a relatively young age is a great loss to the amateur radio community. I knew him for a good many years and was greatly shaken when I heard he was no longer with us. His collection of Watkins-Johnson, Collins and Racal equipment was renown in those narrow circles where professional equipment is appreciated and collected, every item in pristine condition.

I well remember a trip to Telford Electronics and seeing the very same W-J v.h.f./u.h.f. electronic warfare receiver featured with Allan at the head of your article and being severely tempted, but the lack of a manual and information put me off. Not so Allan, he bought it a few days later. He had the green fingers that could make almost anything work. He also had the patience and ability to rebuild to the highest professional standard.

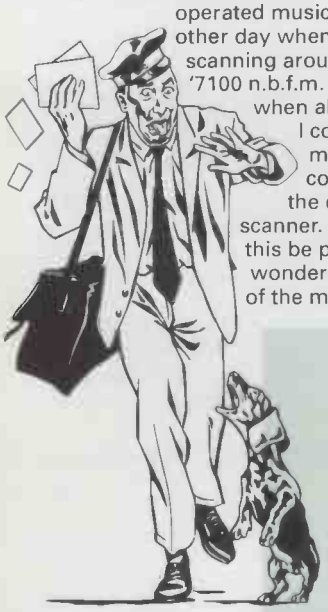
On another occasion I was offered an Eddystone 958 receiver which had been badly affected by cigar smoke. Having less patience than Allan, I was not prepared to spend hours cleaning it up and declined the offer. I know that Allan subsequently bought that 958. He stripped the chassis down to the component plates, cleaned and replated every affected item and rebuilt the set, almost from scratch. He was even known to reconstruct complicated cable looms where the original insulation had become somewhat brittle with heat.

I fear that such skills and knowledge are fast dying out in our throwaway, plastic based society. But I know that somewhere 'Up There', Allan is pouring over a Racal manual with a big smile as he reconfigures the software of some esoteric EW receiver. RIP.

Michael O'Beirne G8MOB
Surrey

Dear Sir
I have been a s.w.l. and scanning enthusiast for many years. I own a Yupiteru MVT-7100 and a Realistic DX-400 communications receiver. I was wondering if any other reader has ever received transmissions on their hand-held scanner from a child's organ?

My son was playing on his battery operated musical organ the other day when I was scanning around on the '7100 n.b.f.m. (152MHz) when all of a sudden I could hear the musical notes coming from the organ to the scanner. How could this be possible I wonder? The model of the musical organ is a Casio SA-20 battery operated.



Thanks for a great magazine. I get mine every month from our local newsagent. I look forward to getting *SWM*, *PW* and *RA* monthly. Anyway, all the best to everyone at *SWM*.

P. Brown
Nottinghamshire

*I have to admit this is the first report I've had of a Casio organ, though I am aware of lots of appliances that do radiate. I'm sure the flood gates will open now with details of other organs that can be heard! - **Ed**.*

Dear Sir
I have just purchased a second-hand Yaesu FRG-7 radio in good condition, and wonder if you could help me as to where I could get an instruction sheet, which would help me find all the stations and use the radio properly.

James Taylor
N. Ireland

James, although we have an FRG-7 in the Editorial Offices, we cannot find the manual anywhere. As for finding stations to listen to, that depends on where your interests lie. A careful eye on the regular SWM *columns should produce lots to listen to. You may consider either a Broadcast or Utility frequency directory, such as those you can find in the* SWM *Book Store. I'm sure there will be a reader who can help with a copy of the FRG-7 handbook. Any such kindly soul, please contact James via the* SWM *Editorial Offices, thanks. - **Ed**.*

Dear Sir
I was somewhat taken aback to see a letter I had written appearing in the current issue of *SWM* that dropped through my letterbox this morning. On reflection, I did cover a whole range of topics in my chest-clearing epistle, didn't I?

However, in my blaze of zeal, I did overlook one topic that has rankled for nearly two years and that is the demise of 'Tandy' shops from our high streets. Swallowed up by 'Carphone Warehouse' it is another example of the bean-counters riding rough-shod over the customers in the endless quest for bigger profits, regardless of the effects of their decisions.

For over 20 years Tandy outlets were to be found in almost every town and city and provided a marvellous convenience source of components and equipment for the electronics hobbyist. As a consequence, now even the most humble PL-259, reel of wire or coaxial cable has to be obtained by mail order adding at least £2 to the costs (unless you are fortunate to live within a bus ride of a Maplin depot).

With the current over-saturation and decline of the mobile 'phone market, I wonder whether the bean-counters are ruining their decision to ditch a time-tested steady business in favour of an ephemeral fad-fed single product market outlet? Like many irritations these days, it is no use complaining, but I hope the wheel revolves full turn and we see a return of Tandy, or similar facility on our town streets once again when the likes of Carphone Warehouse begin to crumble.

P.S. Yes, Kevin, my subscriptions were renewed again, thanks due to a generous daughter.

John W. Thexton G3URE
E. Twickenham

*Great shame about the Tandy Stores, I do wonder though if they were actually viable in their pre Carphone Warehouse guise. Glad to learn of your daughter's generosity - glad to keep you 'on-board'. - **Ed**.*

Letters Received Via E-mail

A great deal of letters are now arriving by E-mail, and although we welcome this, many correspondents are forgetting to provide their postal address. Even though we do not publish a full postal address unless we are asked to do so, we still require this information, especially if your letter wins 'Top QSL' and we need to send you your voucher! So, if there is something you want to get off your chest or you have a problem that fellow readers of *SWM* can solve for you, drop us a line, clearly marking your letter 'For Publication', to the Editor at **QSL, *Short Wave Magazine*, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW**. The best letter will receive a £20 voucher to spend on any *SWM* service.

TOP QSL

Dear Sir
Please stop printing those boring letters about the design of the front cover of *SWM*. This is a short wave magazine, if I wanted to read about design, I'd buy that sort of magazine. I don't care what the cover looks like as long as I can read about radio. I love *SWM*, but this is way off beam. Please accept this as constructive criticism.

Lee
Via E-mail

*Lee, I do indeed accept your criticism as being constructive. Cover subject hereby dropped! - **Ed**.*

Communiqué

News and Products

Land Rovers On Air

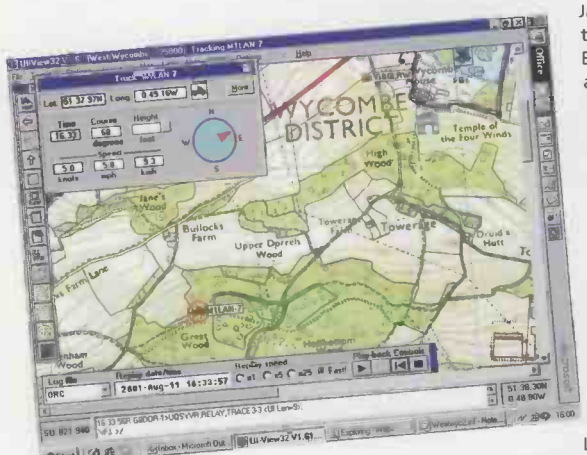
The **Land Rover 101 Forward Control Club** and Register ran a Radio Special Events Station from the Grounds of West Wycombe House during the Land Rover World Show in August. This station was

The special event QSL card.

given a special Callsign for the day of **GB0LRW** and issued special cards to successful contacts. The station was run by members of the RSGB and also the local Aylesbury Raynet Group, along with licensed members of the 101 Club.

Operators **Ivan G3KLT** and **Ian G3ZHX** successfully worked south Russia, Sweden and Norway as well as the States on h.f. and had more local contacts in the main body of Europe. On v.h.f., an APRS tracking system was used to record the position of vehicles on the off road course supplied by the organisers.

The car on the course used Alasdair Worsley's callsign of **M1LAN**. The vehicle being a Land Rover 101 Forward Control MILAN Anti Tank Missile Carrier. Further Details can be found on **www.users.waitrose.com/~1tonnefc/show.htm**



***UIView* screengrab of the LRW off-road course.**

New Catalogue

The new catalogue from **Tennamast (Scotland) Ltd.** is available with full details of their range of masts. So flexible is the Tennamast range that the same product will suit virtually any application from surveillance to floodlighting, defence communications to amateur radio and s.w.l.s. Contact Tennamast at **81 Mains Road, Beith, Ayrshire KA15 2HT, Tel: (01505) 503824** or visit their web site at **www.tennamast.com** for more details.

Video Evening

Members of the **Bangor & District Amateur Radio Society** meet on the 1st Wednesday of every month in 'The Stables', Groomsport, at 2000. On **Wednesday 3rd October 2001** they are holding a video evening, showing (with a projector, on a big screen) videos of some of the bigger recent DXpeditions. This is a great opportunity to see for yourself the work that goes on behind the scenes at these events and to experience the pile-ups from the DX operators position. Visitors and new members are (as always) most welcome. More information from **Mike GI4XSF** on **0284-277 2383** or visit the club's website **http://welcome.to/bdars**

For The First Time

From Monday 3rd September, listeners to **World Radio Network**'s (WRN) EuroMax English service across Europe will be able to hear NHK Radio Japan's English language news programme, *Asian Top News*, via direct-to-home digital satellite for the very first time.

The twenty-five minute round-up of international news and analysis from NHK Radio Japan will be transmitted from Monday to Friday at 2230UTC on the WRN EuroMax English network, currently available via *Astra 2B* on SKYdigital channel 872 in the UK and Ireland, Eutelsat *Hotbird 5* across Europe and on analogue and digital cable systems in many leading European cities.

This development is part of a distribution agreement designed to bring NHK Radio Japan's foreign language programming to a wider audience, signed in September 2000 by Mr Yoshinori Imai, Director-General, International Planning and Broadcasting Department, NHK and Mr Karl Miosga, Managing Director, WRN.

Last year, NHK World Radio Japan celebrated 65 years of overseas radio broadcasting that encompasses news and commentary, Japanese culture and music, major political and sports events, Japanese language courses - with daily world-wide short wave broadcasts in Japanese and English as well as regional services. You can visit WRN at **www.wrn.org**

New Squares

Back on the 29th July 2001 three new 'Worked All Ireland' squares were activated for the first time. The areas in question were J06, J07 and J08 County Tyrone. The County Tyrone sectors of these squares can only be got at by boat and they are all located in the central area's of Lough Neagh, the largest lake in the British Isles.

The radio operators were **Ernie GI0GDF** and **Jim GI0PGC**. The skipper, boat owner and friend was **Ken McCleod** who is not a radio amateur. The boat used has an interesting history, says Ernie, it was built by Ribtec in Southampton, especially for the Camel Trophy 2000. It is 6.5m in length, powered by a Honda BF130 (130HP) four stroke

engine and weighs in at 1.5 tons.

The equipment used on the day was an Alinco DX-70TH, running 100W to a Hustler 40m whip with HI-Q resonator on a triple mag mount. According to Ernie, conditions on the Lough were very deceptive and they encountered 20 knot winds and six foot waves - giving a very bumpy ride!

Ken's comments after the event were that he was very pleased to take part with Ernie and Jim on the squares and that it was nice to do something unique with the boat. He was also touched by the enthusiasm and kind remarks from both the crew and the many radio amateurs who received the transmissions. Needless to say, an enjoyable day was had by all and it is hoped that this will become an annual event.

Don't forget to keep sending me information on yo

Open Days, spe

Remember, menti

Follow My Leader

Tony G3RKL and 10 more people are on a 72 day walk in New Zealand, which commenced on 10th August 2001, walking from the top to the bottom of the country. If you want to follow Tony G3RKL/M or if you'd like more information and pictures, visit **http://www.qsl.net/g3zhi** - link 221. ZL maps are available on request.

The callsign used by Tony is ZL6RTB, and he is in daily QSO with the UK via the New Zealand National Repeater System, via *iphone* and talking over his local repeater GB3US in Sheffield.

2 Into 1

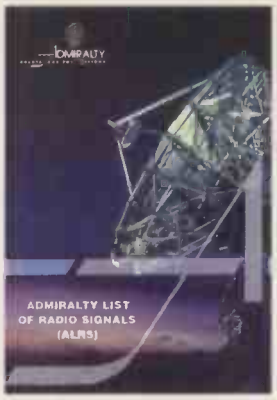
Radio and Communications magazine has been acquired by Radiomag Pty Ltd. This merged publication is in a bid to serve the long term interests of Amateur Radio and CB industries in Australia. Published monthly, subscribers to the individual publication will now receive the combined title.

Chris Edmondson VK3CE, Director and Publisher of Radiomag, said the merged title would initially bear both names, incorporating the best features and regular columns from both titles. The new venture will mean more pages, more colour, more competitions and lots more great radio stories. The first issue of *Radio and Communications* and *Radiomag* was due out in late August. Enquiries concerning the merged magazine should be addressed to: **Chris Edmondson VK3CE, Publisher & Editor, Radiomag Magazine, PO Box 123, Eagle Heights, Queensland 4271 Australia. Tel: 07 5545 0666, FAX: 07 5545 0622** or visit **http://www.radiomag.com**

Passport Time Again

With 2001 drawing rapidly to a close, it's time to announce that the 2002 edition of ***Passport to World Band Radio*** will be available from the *SWM* Book Store at the end of October. The price for the best selling broadcast station guide is still £15.50. Order yours today to avoid disappointment. Tel: **(01202) 659910**, or used the Book Store order form on page 78.

Latest Volume



The **United Kingdom Hydrographic Office** has just released its latest volume of *Admiralty List of Radio Signals (ALRS) - NP283 Parts 1 & 2 - Maritime Safety Information Services*. In response to customer feedback, the layout of the new version has been completely re-designed into a more user-friendly format.

The publication is now arranged in alphabetical order by country and then by station. Each station is colour-coded by its type - NAVTEX, Marine Rescue Co-ordination Centre, Coast Radio Station or Commercial Broadcast Station. The information is now provided in a tabular form with the associated diagrams positioned adjacent to the text which they illustrate - providing everything the mariner needs to know at a glance and easing the task of updating from Admiralty Notices to Mariners.

Part 2 (Oceania and the Americas) now includes a new section containing information from NOAA on Weather radio continuous broadcast services covering the US coast and islands. NP283 is part of the suite of Admiralty List of Radio Signals publications which are constantly being revised for easier use and maintenance by the mariner.

Another of the titles in the ALRS series - *NP285 - Global Maritime Distress and Safety System (GMDSS)* has also been released and reformatted with the colour coded tags extended throughout the volume. The sections in Inmarsat and COSPAS-SARSAT have been extensively revised and there are new diagrams to complete the global SafetyNET series. All the DSC (Digital Selective Calling) and SRR (Search & Rescue Region) diagrams have been amended to reflect the latest global position.

Admiralty List of Radio Signals publications are available from appointed Admiralty Distributors at £26.50 per publication (UK RRP). More information from The United Kingdom Hydrographic Office at **Admiralty Way, Taunton, Somerset TA1 2DN, Tel: (01823) 337900, FAX: (01823) 284077** or visit their web site at **www.ukho.gov.uk**

r new products (with photographs), as soon as details are released, together with any information on al offers, new catalogues, RAE courses and general items of news.

ns are free, so don't delay, send off your news to *SWM* today!

rallies

October 7: The Great Lumley Amateur Radio & Electronics Society is to be held at the Community Centre, Front Street, Great Lumley, Chester-le-Street, Co Durham. This is classed as the biggest and best rally in the north east. There will be free parking, plus easy access. Good, inexpensive food and drink. There will be a Bring & Buy, radio, hobbies, electronics, computer, satellite and component stalls. Doors open 1000 and admission is £1. More information from **Nancy Bone G7UUR** on **0191-420 2061 (home)** or **0191-274 4274** (work) or **lumley.rally@ic24.net**

October 7: The Mansfield ARS, Radio, Computer & Electronics Rally takes place at a new venue - this being the Intake Leisure Club, Kirkland Avenue, Mansfield. Doors open at 1000. **Oavid G0RDP** on **(01623) 631931** or E-mail: **david.g0rdp@lineone.net**

October 21: The Backwood & District ARS will once again be holding their annual rally at the Newport Centre, Gwent. Features include special interest groups, parking, licensed bar, catering and trade stands. Doors open 1045 (1030 for disabled). Admission is £1.50 and talk-in will be on S22. More information on **(01495) 228516**.

October 28: The Galashiels and District ARS will be holding their annual rally in the Volunteer Hall, St. Johns Street, Galashiels, Scottish Borders. Doors open 1100 (disabled access from 1045). Admission is £2 and includes a free cash prize draw ticket. There will be all the usual attractions, Bring & Buy, traders and refreshments. Jim **Keddie GM7LUN** on **(01896) 850245** or E-mail: **jimk@gm7lun.freeserve.co.uk**

November 3/4: The Fifteenth North Wales Radio & Electronics Show is to be held at the North Wales Conference Centre, Llandudno. The show opens at 1000 both days and the entrance fee is £2 for adults and under 14s free, when accompanied by an adult. There will be an extensive Bring & Buy and clubroom. M. Mee **GW7NFY**, Rally Secretary, on **(01745) 591704** (combined telephone and FAX number).

November 11: The South Yorkshire Repeater Group presents the 11th Great Northern Hamfest at the Metrodome Leisure Complex, Queens Road, Barnsley, South Yorkshire. Doors open at 1000 and will feature trade stands, specialist interest groups and a large Bring & Buy. Talk-in on 145.550MHz and Morse tests on demand. More information from **Ernie Bailey G4LUE** on **(01226) 716339** or **(07787) 546515**.

November 18: The Midland Amateur Radio Society (MARS) 12th Radio and Computer Rally is taking place today. Doors open at 1000 with plenty of free parking, trade and club stands and refreshments. For more information call **Peter G6DRN** on **0121-443 1189**.

November 24: The Rochdale & District Amateur Radio Society are holding their traditional radio rally at St. Vincent de Paul Catholic Church Hall, Caldershaw Road, off the A680 Edenfield Road, approx two miles west of Rochdale, follow the orange arrows from M62, J20. Yes, this is a Saturday rally! Open from 1015/1030, there will be a talk in on S22, Bring & Buy, refreshments, etc. More information from **John G7OAI** on **(01706) 376204** evenings, E-mail: **radars@mbc.co.uk**

November 25: The Bishop Auckland Radio Amateurs Club (BARAC) 2001 Rally will take place at Spennymoor Leisure Centre. This venue is ideally suited for both trader and disabled as it boasts good parking and access to large ground floor hall. There will be the usual radio, computer, electronics and Bring & Buy stall, as well as catering and bar facilities. Morse tests will be available on demand. As you can imagine, there will be lots to do for all the family, within the confines of the Leisure Centre for those of the family not interested in radio. Doors open 1100 (1030 for disabled visitors), admission is £1, under 14s free of charge with adult. Talk-in on S22. Mark **G0GFG** on **(01388) 745353** or **Brian G7OCK** on **(01388) 762678**.

November 25/26: The London Amateur Radio & Computer Show takes place at the Lee Valley Leisure Centre, Picketts Lock Lane, Edmonton, London N9. There will be trade stands, Bring & Buy, Morse tests, free car park, catering, licensed bar, talk-in, special interest groups, disabled facilities, camp site, and family attractions include cinema, swimming, golf and spa. Doors open 0945/1000. More information on **(01923) 893929**.

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. The Editorial Staff of *SWM* cannot be held responsible for any information on Rallies, as this is supplied by the organisers and is published in good faith as a service to readers. If you have any queries about a particular event, please contact the organisers direct. Editor.

■ BRIAN ODDY G3FEX, THREE CORNERS, MERRYFIELD WAY, STORRINGTON, WEST SUSSEX RH20 4NS

LM&S

Many listeners who enjoy searching the long, medium wave and tropical bands at night will welcome the increasing hours of darkness, which herald the arrival of winter. British Summer Time (BST) will end at midnight on Saturday October 27 and clocks in the UK must then be put back one hour so that Greenwich Mean Time (GMT) is displayed. For most purposes, GMT is the same as Universal Time Co-ordinated (UTC), the time system adopted by the international short wave broadcasters, which is quoted in their transmission schedules, also in this column. If you have a clock set to UTC beside your receiver, **do not** alter it when the changeover from BST to GMT takes place.

To allow for seasonal changes in propagation, many of the s.w. broadcasters may introduce new transmission schedules on October 28. From that date, some of the s.w. information herein may no longer be applicable. If you observe any such changes while searching the bands after that date, please send the details to me at the above address for inclusion in 'LM&S'. If possible, please state the language, intended destination and duration of the broadcast, ensuring that the times quoted are in UTC.

Long Wave Reports

Note: l.w. & m.w. frequencies in kHz; s.w. in MHz; Time in UTC (=GMT). Unless otherwise stated, all logs were compiled during July.

Commenting upon reception during July, **Eddie McKeown** (Newry) says "Long wave has considerably improved since last month". He found the best time to hear Sasnovy, Belarus on **279kHz** was at approximately 2145UTC and this was confirmed by a report from **Sheila Hughes** (Morden) who picked up a broadcast from Sasnovy at 2135UTC, which rated SINPO 34333.

Good conditions for the reception of Rikisutvarpid (RUV) in Reykjavik, Iceland were observed after midnight on July 18th and 20th by **Simon Hockenhull** in E.Bristol. On the 20th he logged their transmission from Gufuskalar, W.Iceland on **189kHz** as 25343 at 0058 and from Eidar, E.Iceland on **207kHz** as 22341 at 0116. He also heard Taldom, Russia on **271kHz** for the first time.

While searching the band at 0200 on the 27th **Ernie Strong** (Ramsey, Cambs) was surprised to find the RUV 300kW transmission from Gufuskalar, W.Iceland on **189kHz** peaking 34343.

Long Wave Chart

Freq (kHz)	Station	Country	Power (kW)	Listener
153	Bechar	Algeria	1000	F*,H
153	Donebach DLF	Germany	500	A*,B,C*,D,E,F,G*
153	Bod	Romania	1200	C*,F*
162	Allouis	France	2000	B,C,D,E,F,G*,H
171	Nador Medi-1	Morocco	2000	A*,F*
171	B'shakovo etc	Russia	1200	C,D*
171	Sasnovy	Belarus	1000	F*
177	Oranienburg	Germany	500	A*,B,C,D,E,F*,H
183	Saarlouis	Germany	2000	B,C,D,E,F,G*,H
189	Gufuskalar	W.Iceland	150	A*,F*
198	Droitwich BBC	UK	500	B,C,D,F,H
198	WesterglenBBC	UK	50	A
207	Munich DLF	Germany	500	A*,C*,D,E,F*,G*,H*
207	Eidar	E.Iceland	100	A*
207	Azilal	Morocco	800	E,F*
207	Kiev	Ukraine	500	F*
216	Roumoules RMC	S.France	1400	A*,B,C,D,E,F*,H
225	Polskie R-1	Poland	?	A*,B*,C,E,F*,H*
234	Beidweiler	Luxembourg	2000	B,C,D,E,F*,G*,H
243	Kalundborg	Denmark	300	A,B,C*,D,E,F*,H
252	Atlantic 252	Eire	500	C,D,E,F*,G*,H
261	Burg(R.Ropa)	Germany	85	D,E,F*
261	Taldom Moscow	Russia	2500	A*,B*,C,F*
270	Topolna	Czech Rep	1500	A*,B*,C,D,E,F*
279	Sasnovy	Belarus	500	A*,B*,C*,E,F*

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

Listeners:-
(A) Simon Hockenhull, E.Bristol
(B) Sheila Hughes, Morden.
(C) Eddie McKeown, Newry.
(D) George Millmore, Wootton, IoW.
(E) Fred Pallant, Storrington.
(F) Ernie Strong, Ramsey, Cambs.
(G) Thomas Williams, Truro.
(H) Fred Wilmshurst, Northampton.

Medium Wave Reports

The decreasing hours of daylight encouraged some listeners to search the band after dark for the sky waves from m.w. stations in the Middle East, N.Africa, Europe and Scandinavia - see chart.

Some of the entries in the report compiled by **Fred Wilmshurst** (Northampton) were logged after dark, but forty-five were received at dawn/dusk or during daylight! He also picked up the ground waves from forty-seven distant local radio stations - see chart.

To avoid late night listening **George Millmore** (Wootton, IoW) concentrated on receiving the ground waves from stations in Europe and Scandinavia - see m.w. chart. He also picked up the ground waves from fifty-three distant local radio stations - see chart.

Short Wave Reports

Some listeners expect that more use will be made of the **25MHz (11m)** band when the winter schedules are introduced on October 28, but so far there is no indication that will happen. At present, Radio France International (RFI) is the only known occupant of the band, with daily broadcasts to listeners in E/C.Africa on **25.820** (Fr 0900-1300). It seems likely they reach the intended area well most days, the exceptions being when the effects of solar activity have disturbed the propagation conditions.

Daily checks on the RFI transmissions are made by some listeners in the UK but reception is far from reliable because it is dependent upon back scatter and other modes. The SINPO ratings noted in the reports were 25122 at 0900 in Newry; 34333 at 0900 by **Vic Prier** in Colyton; 24222 at 0935 by **Thomas Williams** in Truro; 25532 at 0940 in E.Bristol; 35433 at 0948 by **Richard Reynolds** in Guildford; 35323 at 1035 by **Bernard Curtis** in Stalbridge; 22222 at 1100 by **Bill Griffith** in W.London; 35444 at 1128 in Northampton.

There is a high level of activity in the **21MHz (13m)** band and listeners in the UK reported good reception from many areas. During the morning HCJB Quito, Ecuador **21.455** (Eng [u.s.b.]) rated 54544 at 0523 in Guildford; Radio Australia via Shepparton on **21.725** (Eng to Pacific areas 0200-0900) was 23222 at 0816 in Colyton; R.Pakistan **21.465** (News in Eng 0800-0803, Ur to Eur 0803-1100) 44333 at 0800 in Morden; R.Prague, Czech Rep **21.745** (Eng to E.Africa, S.Asia 0900-0930) 55555 at 0920 by **Stan Evans** in Herstmonceux; Swiss R.Int via Sottens **21.770** (Eng, It, Ger, Fr to Near East, Africa 0830-1030) 22222 at 0948 in Truro; R.Australia via Shepparton **21.820** (Eng to Asia 0900-1400) 24422 at 1001 in E.Bristol; R.Japan via Yamata, Japan **21.755** (Jap, Eng to Oceania 0800-1100) 43333 at 1040 by **David Hall** in Morpeth; BSKSA Riyadh, Saudi Arabia **21.705** (Ar to W.Eur 0600-1500) 54444 at 1130 by **Robert Hughes** in Liverpool.

After mid-day Channel Africa, Johannesburg **21.725** (Eng to Africa, Eur? 1300-1455) was 34243 at 1318 in Newry; BBC via Cyprus **21.660** (Eng to Africa 1400-1700) 55545 at 1435 in Stalbridge; Voz Cristiana, Chile **21.500** (Sp to S.America 1100-2100) 24232 at 1626 by **Rhoderick Illman** in Oxted; UAER, Dubai **21.605** (Eng to Eur 1600-1640) 45554 at 1632 by **David Edwardson** in Wallsend; R.Nederlands via Bonaire, Ned.Antilles **21.590** (Eng to C/W.Africa 1830-2025) 35333 at 2007 by **Peter Pollard** in Rugby; R.Canada Int via Sackville **21.570** (Fr, Eng to Eur 1900-2100) 45444 at 2025 in Northampton.

Potent signals reach the UK in the **18MHz (15m)** band, but the occupancy is low. Mentioned in the reports were R.Norway Int & R.Denmark via RNI **18.950** (Norw, Da to N.America 1100-1155), rated 55555 at 1120 in Newry; R.Sweden **18.960** (Eng, Sw to N.America, Lat.America 1130-1430) 44444 at 1230 in Truro, 55455 at 1330 in E.Bristol & 54454 at 1334 by **Ken Vero** in Co.Dublin; WYFR Okeechobee, USA **18.980** (Eng to Africa, Eur 1600-2200?) 44333 at 1700 in Morden & 45444 at 2047 in Northampton; Christian Science BC via WSHB Cypress Creek **18.910** (Fr, Eng to E/C.Africa 1600-2200) 24222 at 1710 in Colyton & 34333 at 2045 in Stalbridge.

In contrast, there is a high level of activity in the **17MHz (16m)** band. Early risers have been hearing Radio New Zealand's broadcast to Pacific areas on **17.675** (Eng 2100?-0500). It was rated 25322 at 0410 in E.Bristol. Radio Australia's broadcast to Asia via Shepparton on **17.750** (Eng 0000-0500, 0600-1100) has also reached our shores. In Northampton it was 35444 at 0645.

Also mentioned in the reports were Vatican R, Italy **17.640** (Eng to Africa), noted as 54555 at 0622 in Co.Dublin; R.Bulgaria, Sofia **17.500** (Eng to Eur 1100-1200) 44444 at 1118 in Oxted; Africa No.1, Gabon **17.630** (Fr to W.Africa 0700-1600) 24222 at 1121 in Rugby; BBC via Seychelles **17.885** (Eng to E/S.Africa 0800-1400) 24232 at 1122 in Newry; Voice of Turkey **17.830** (Eng to Eur 1230-1320) 55544 at 1240 in Herstmonceux; Swiss R.Int via Sottens **17.680** (Eng, Ger, Fr to Asia 1400-1600) 45534 at 1440 in Colyton;

Tropical Bands Chart

Freq (MHz)	Station	Country	UTC	DXer
3.230	SABC Meyerton	S.Africa	1959	E,I
3.255	BBC via Meyerton	S.Africa	1959	E,H,I
3.270	Namibian BC,Windhoek	Namibia	1957	C,E,H,I
3.310	R.Mosoj Chaski	Bolivia	0120	C
3.316	SLBS Goderich	Sierra Leone	2011	E
3.320	SABC (RSG) Meyerton	S.Africa	1952	E,H,I
3.325	FRCN Lagos	Nigeria	2158	I
3.365	GBC R-2	Ghana	2001	E,H,I
3.915	BBC via Kranji	Singapore	2108	H,I,K
3.955	R.Korea via Skelton	England	2015	G
3.955	R.Taipei via Skelton	England	1841	A,D,J
3.975	R.Budapest	Hungary	2130	A,F
3.975	R.Korea via Skelton	England	2100	A,F,J,K
3.985	Nexus, Milan	Italy	2145	H
3.995	DW via Julich	Germany	2020	G,K
4.005	Vatican R.	Italy	1843	D
4.760	ELWA Monrovia	Liberia	2130	H,J
4.770	FRCN Kaduna	Nigeria	2003	E,H,I,K
4.775	TWR Manzini	Swaziland	0450	I
4.783	RTM Bamako	Mali	1949	B,H,I
4.790	Azad Kashmir R.	Pakistan	1951	H,I
4.815	R.diff TV Burkina	Ouagadougou	1958	B,E,I
4.820	R.Botswana Gaberone	Botswana	2023	H,I
4.820	AIR Calcutta	India	0130	C
4.825	R.Cancao Nova	Brazil	0228	C,I
4.830	R.Tachira	Venezuela	0133	C
4.835	RTM Bamako	Mali	2000	B,E,H,I,K
4.845	ORTM Nouakchott	Mauritania	2000	E,H,I,K
4.860	AIR Delhi	India	1825	E
4.885	R.Clube do Para	Brazil	0445	I,K
4.885	KBC East Sce Nairobi	Kenya	2105	H
4.890	RFI Paris	via Gabon	0413	I
4.905	Anhanguera	Brazil	0235	C
4.910	Tennant Creek	Australia	2136	I
4.915	R.Anhanguera	Brazil	0100	B
4.915	R.Difusora, Macapa	Brazil	0238	C
4.915	GBC-1, Accra	Ghana	2000	E,F,H,I
4.915	KBC Cent Sce Nairobi	Kenya	1906	E,I
4.920	R.Quito, Quito	Ecuador	0414	I
4.935	KBC Gen Sce Nairobi	Kenya	1906	E
4.950	VOA via Sao Tome	Sao Tome	1950	E,F,G,I
4.960	VOA via Sao Tome	Sao Tome	0415	I
4.965	Christian Voice	Zambia	1948	E,I
4.975	R.Uganda, Kampala	Uganda	1951	E,I
4.980	Ecos del Torbes	Venezuela	0230	B,C
4.985	R.Brazil Central	Brazil	0215	C
5.005	R.Nacional, Bata	Eq.Guinea	1950	E,I
5.009	R.TV Malagasy	Madagascar	1819	E,I
5.020	La V du Sahel,Niamey	Niger	1925	E,H,I
5.025	R.Parakou	Benin	1823	E,I
5.025	R.Rebelde, Habana	Cuba	0529	I
5.025	R.Uganda, Kampala	Uganda	1924	E,H,I
5.030	AWR Latin America	Costa Rica	0145	C
5.035	R.Bangui	C.Africa	2210	I
5.050	R.Tanzania	Tanzania	1932	C,E,I

DXers:-
(A) Stan Evans, Herstmonceux.
(B) Bill Griffith, W.London.
(C) David Hall, Morpeth.
(D) Rhoderick Illman, Oxted.
(E) Fred Pallant, Storrington.
(F) Clare Pinder, while in Appleby.
(G) Peter Pollard, Rugby.
(H) Vic Prier, Colyton.
(I) Richard Reynolds, Guildford.
(J) Ken Vero, Shankill, Co.Dublin
(K) Thomas Williams, Truro.

Channel Africa via Meyerton **17.860** (Eng, Afrik to W.Africa 1700-1800) 54454 at 1730 in Liverpool; VOA via Morocco **17.895** (Eng to Africa 1600-1900) 55445 at 1735 in Stalbridge; R.Canada Int via Sackville? **17.820** (Eng to Eur, Africa 1800-1900?) 44344 at 1800 by **Clare Pinder** in Appleby; Channel Africa via Meyerton **17.870** (Eng to W.Africa 1800-1830) 34333 at 1815 by **Fred Pallant** in Storrington; R.Philipinas, Philippines **17.720** (Filip, Eng ?-1930) 44544 at 1825 in Guildford; Israel R, Jerusalem **17.545** (Eng to Eur, N.America 1900-1930) 44444 at 1904 by **Vera Brindley** in Woodhall Spa; HCJB Quito, Ecuador **17.660** (Eng to Eur 1900-2200) 34333 at 2010 in Truro; WHRI via Maine, USA **17.650** (Eng to Eur, M.East, Africa 1600?-2200?) 44434 at 2012 by **Tony Hall** in Freshwater Bay, IoW; VOA via Philippines **17.820** (Eng to E.Asia 2100-0030?) 44333 at 2120 in Morden; R.Japan via Yamata, Japan **17.685** (Eng? to ?) 43333 at 0126 in Morpeth.

Radio New Zealand has also reached the UK in the **15MHz (19m)** band. Their 100kW transmission from Rangitaiki, N.Island on **15.160** (Eng 1850-2100?) rated 33222 at 2000 in Appleby. Radio Australia's broadcasts in this band have been received in the UK on three frequencies from Shepparton: **15.240** (Eng to Pacific, E.Asia 0000-1000) noted as 34333 at 0530 in Morpeth; **15.415** (Eng to E/SE.Asia 0600-0900) 33323 at 0730 in Colyton; **15.515** (Eng to N.America, Pacific 0100-0700) 44433 at 0655 in Herstmonceux.

During the morning the BBC via Ascension Is **15.400** (Eng to W.Africa 0700-1130, 1500-2300) was 44444 at 0730 in Morden; Swiss R.Int via Julich, Germany **15.315** (Eng, Ger, Fr, It, Eng to Eur 1000-1230) 35443 at 1025 in Northampton; Voice of Malaysia **15.295** (Eng to Asia 0700-0830) 24542 at 0745 in Wallsend; V of Greece, Athens **15.630** (Gr, Eng to Eur, Australia? 0900-1000) 23222 at 0945 in Truro; BBC via Singapore **15.360** (Eng to E.Asia 0000-0330, 0500-1030) 33333 at 1013 in Oxted.

After mid-day R.Canada Int via Sackville? **15.305** (Eng to USA [CBC News] 1200-?) was 34433 at 1205 in E.Bristol; R.Finland via Pori **15.405** (Eng? to Eur, N.America 1330-1400) 54454 at 1352 in Co.Dublin; WEWN via Vandiver, USA **15.745** (Eng to E.USA, Eur 1100-2100) 34433 at 1615 in Rugby; WWCR Nashville, USA **15.685** (Eng to N.America, Eur 1100-2100) 32232 at 1810 in Liverpool; R.Philipinas, Philippines **15.190** (Filip, Eng 1800?-1930) 55544 at 1826 in Guildford; Africa No.1, Gabon **15.475** (Fr to W.Africa 1600-2100) 45444 at 1851 in Storrington; R.Canada Int via Sackville? **15.325** (Eng, Fr to Eur 2000-2200) 44444 at 2000 by **Gerald Guest** in Dudley; Voice of Indonesia, Jakarta **15.150** (Eng to Eur, Africa 2000-2100) 34433 at 2021 in Newry; Voice of Russia **15.735**

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

Listeners:-
(A) Simon Hockenhull, E.Bristol.
(B) Sheila Hughes, Morden.
(C) George Millmore, Wootton, IoW.
(D) Ernie Strong, Ramsey, Cambs.
(E) Fred Wilmshurst, Northampton.

Local Radio Chart

Freq (kHz)	Station	ILR BBC	e.m.r.p (kW)	Listener
558	Spectrum, London	I	0.80	A,C,D*,E
603	C.G,Litt'brne	I	0.10	B,C,D,E
630	R.Bedfordshire(3CR)	B	0.20	A,C,D,E
630	R.Cornwall	B	2.00	C
657	R.Clwyd	B	2.00	C,D*,E
657	R.Cornwall	B	0.50	C
666	Cl.Gold 666, Exeter	I	0.34	A,C,D,E
666	R.York	B	0.80	B,D
729	BBC Essex	B	0.20	C,D,E
738	Hereford/Worcester	B	0.037	A,B,C,D,E
756	R.Cumbria	B	1.00	D
756	The Magic 756,Powys	I	0.63	C,D,E
765	BBC Essex	B	0.50	A,C,D,E
774	R.Kent	B	0.70	C,D,E
774	Cl.Gold 774, Glos	I	0.14	C,E
792	Cl.Gold 792,Bedford	I	0.27	D,E
801	R.Devon	B	2.00	A,C,D
828	Cl.Gold 828, Luton	I	0.20	D,E
828	2CR Cl.G Bournem'th	I	0.27	A,C
837	Asian Netwk Leics	B	0.45	C,D,E
855	R.Devon	B	1.00	C
855	R.Lancashire	B	1.50	D
855	R.Norfolk, Postwick	B	1.50	D
855	Sunshine 855,Ludlow	I	0.15	A,E
873	R.Norfolk, W.Lynn	B	0.30	C,D,E
936	Brunel CG, W.Wilts	I	0.18	C,D,E
945	Cl.Gold GEM, Derby	I	0.20	D,E
945	Capital G, Bexhill	I	0.75	C
954	Cl.Gold 954 via ?	I	?	D
954	Cl.Gold 954 Torquay	I	0.32	C
954	Cl.Gold 954, H'ford	I	0.16	A,E
963	Liberty R, Hackney	I	1.00	B,C,D,E
972	Liberty R, Southall	I	1.00	A,B,C,D,E
990	R.Devon, E.Devon	B	1.00	A,C
990	Cl.G, Wolverhampton	I	0.09	E
999	C.Gold GEM Nott'ham	I	0.25	D,E
999	R.Solent	B	1.00	C
999	Valley R, Aberdare	I	0.300	A
1017	Cl.G,WABC,Shr'shire	I	0.70	A,E
1026	R.Cambridgeshire	B	0.50	D
1026	R.Jersey	B	1.00	A,C
1035	RTL C'try(Ritz)1035	I	1.00	A*,C,D,E
1116	R.Derby	B	1.20	D,E
1116	R.Guernsey	B	0.50	B,C
1116	Valley R, Ebbw Vale	I	0.50	A
1152	Cl.G Amber, Norwich	I	0.63	D
1152	LBC 1152 AM	I	23.50	C,D,E
1152	Cl.G, Birmingham	I	3.00	A,E
1161	R.Bedfordshire(3CR)	B	0.10	D,E
1161	Southern Counties R	B	1.00	B,C
1170	Magic 1170,Stockton	I	0.32	D
1170	Capital G,Portsm'th	I	0.50	C
1170	Swansea Snd,Swansea	I	0.58	A
1170	1170AM,High Wycombe	I	0.25	B,E
1242	Capital G,Maidstone	I	0.32	B,C
1251	C G Amber,Bury StEd	I	0.76	D
1260	Brunel CG, Bristol	I	1.60	C
1260	SabrasSnd,Leicester	I	0.29	D,E
1278	Cl Gold 1278 W.York	I	0.43	D
1296	Radio XL,Birmingham	I	5.00	A,C,D,E
1305	Premier via ?	I	0.50	C,D,E
1305	Touch AM, Newport	I	0.20	C
1323	Capital G,Southwick	I	0.50	C,E
1323	SomersetSnd,Bristol	B	0.63	A
1332	Cl.Gold 1332,Pt'bo	I	0.60	D,E
1332	Wiltshire Sound	B	0.30	C
1359	Cl.Gold 1359, C'try	I	0.27	D,E
1359	R.Solent,Bournem'th	B	0.85	C,D
1368	R.Lincolnshire	B	2.00	D,E
1368	Southern Counties R	B	0.50	B,C
1368	Wiltshire Sound	B	0.10	C
1413	R.Gloucester via ?	B	?	D,E
1413	Premier via ?	I	0.50	C,D
1413	Fresh AM, Skipton	I	0.10	D
1431	Breeze,Southend	I	0.35	D
1431	Cl.Gold, Reading	I	0.14	C,E
1449	Asian Netwk,Peterbr	B	0.15	D,E*
1458	R.Devon	B	2.00	C
1458	Sunrise, London	I	50.00	C,D,E
1458	Asian Netwk Langley	B	5.00	D,E
1485	Cl.Gold, Newbury	I	1.00	E
1485	R.Humberside (Hull)	B	1.00	D
1485	R.Merseyside	B	1.20	A*,C
1485	Southern Counties R	B	1.00	B,C
1503	R.Stoke-on-Trent	B	1.00	A*,B,C*,D,E
1521	Breeze, Reigate	I	0.64	C,D,E
1530	Cl Gold via ?	I	?	D
1530	Cl.Gold Worcester	I	0.52	A,C,E
1548	R.Bristol	B	5.00	C
1548	Capital G, London	I	97.50	C,D
1557	Cl.Gold 1557,N.hant	I	0.78	D,E
1557	Capital G, So'ton	I	0.50	C
1566	CountySnd,Guildford	I	0.50	A*,C,D
1584	London Turkish R	I	0.20	D
1584	R.Nottingham	B	1.00	D,E
1602	R.Kent	B	0.25	C

(Eng) 44444 at 2050 in Freshwater Bay, IoW: R.Korea Int. **15.575** (Eng to Eur 2100-2200) 34343 at 2130 in Newry; Christian Science via WSHB Cypress Creek, USA **15.665** (Eng to Eur, Africa 2000?-2200) 34333 at 2137 in Woodhall Spa; R.Taipei Int via WYFR **15.600** (Eng to Eur 2200-2300) 55334 at 2240 in Stalbridge.

There is also much to interest UK listeners in the **13MHz (22m)** band. During the morning Radio Australia may be heard on **13.605** (Eng to Pacific areas 0800-1200) but reception tends to be poor. It was rated 14231 at 0922 in Oxted. Much later, their transmission from Darwin on **13.620** (Eng to SE.Asia 2200-0000) has been received quite well. In Storrington it was often 34443 at 2200. Over in Co.Dublin, Eire it was 32232 at 2325.

Also mentioned in the reports were Christian Science Herald broadcasting via WSHB in Cyprus Creek, USA on **13.650** (Eng to Africa 0600-0700, Mon, Wed, Fri, Sat), rated 44333 at 0640 in Morden; R.Prague, Czech Rep. **13.580** (Eng, Cz to Eur, Asia 1300-1357) 55544 at 1310 in Herstmonceux; R.Austria Int via Moosbrunn **13.730** (Various to Eur, Africa) 44444 at 1330 in Truro; VOA via Sao Tome **13.600** (Special Eng to Africa 1600-1700) 44444 at 1641 in Woodhall Spa; Croatian R, Zargreb **13.830** (Cr to Eur, N.America) 45444 at 1700 in E.Bristol; Vatican R, Italy **13.765** (Eng to Africa 1730-1800?) 32433 at 1730 in Colyton; AIR via Bangalore **13.620** (Ar to M.East, Africa 1730-1945) 33343 at 1825 in Liverpool; Swiss R.Int via Sottens **13.770** (It, Ar, Eng, Ger, Fr to Near East, Africa 1830-2130) 33222 at 1930 in Appleby: WYFR Okeechobee, USA **13.855** (Eng to Eur ?-2200) 34333 at 2025 in Rugby; Voice of Vietnam, Hanoi **13.740** (Eng, Fr to Eur 2030-2130, Sun) 44444 at 2030 in Freshwater Bay, IoW; R.Havana Cuba **13.750** (Eng to Eur 2030-2130) 24222 at 2030 in Newry; R.Damascus, Syria **13.610** (Eng to Eur 2005-2105; Eng to America, Pacific 2105-2205) 45444 at 2055 in Northampton; VOIRI Tehran **13.745** (Eng to Asia, Australia 2130-2230) 54444 at 2135 in Stalbridge.

Noted in the **11MHz (25m)** band during the early morning were R.New Zealand on **11.725** (Eng 0500-0700), rated 34233 at 0633 in Newry; R.Prague, Czech Rep **11.600** (Eng to Eur 0700-0730) 55544 at 0710 in Herstmonceux; HCJB, Quito via ? **11.680** (Eng to Eur? 0600-0800) 55444 at 0730 in Northampton; World Harvest R. (WHRI) via Maine, USA **11.730** (Eng to Africa 0800-0900) 54445 at 0855 in Stalbridge.

During the afternoon, Polish R [R.Polonia], Warsaw **11.820** (Eng to Eur 1300-1400) was 43343 at 1315 in Co.Dublin; R.Jordan via Al Karanah **11.690** (Eng to W.Eur, E.USA 1400-1730?) 34434 at 1400 in Dudley; R.Australia via Shepparton **11.660** (Eng to Asia 1430-1700) 34433 at 1615 in Rugby; R.Japan via Sri Lanka? **11.970** (Eng to M.East? N.Africa? 1700-1800) 44444 at 1700 in Appleby.

Later, the Voice of Mediterranean, Malta via Russia? **12.060** (Eng to Eur, N.Africa 1900-2000) was 24222 at 1925 in Truro; Israel R, Jerusalem **11.605** (Eng to Eur, N.America 1900-1930) SIO 333 at 1926 by **Francis Hearne** in N.Bristol; WWCR Nashville, USA **12.160** (Eng to N.America, Eur 1400-2200) 32232 at 1930 in Liverpool; R.New Zealand **11.725** (Eng 1850?-2058?) 43544 at 1932 in Guildford; V of Russia **11.675** (Eng [WS]) 43333

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

Listeners:-
(A) Simon Hockenhull, E.Bristol.
(B) Sheila Hughes, Morden.
(C) Eddie McKeown, Newry.
(D) George Millmore, Wootton IoW.
(E) Clare Pinder, while in Appleby.
(F) Harry Richards, Barton-on-Humber.
(G) Ernie Strong, Ramsey, Cambs.
(H) Thomas Williams, Truro.
(I) Fred Wilmshurst, Northampton.

Medium Wave Chart

Freq (kHz)	Station	Country	Power (kW)	Listener
526	Vatican R.	Italy	5	G*
531	Ain Beida	Algeria	600/300	A*,G*
531	Berg	Germany	20	C*
531	RNE5 via ?	Spain	?	D,G*
531	Beromunster	Switzerland	500	C*,G*,I*
540	Wavre	Belgium	150/50	B,C*,D,G*,I
549	Les Trembles	Algeria	600	A*,G*
549	Sasnovy	Belarus	1000	G*
549	Nordkirchen (DLF)	Germany	100	G
549	Thurnau (DLF)	Germany	200	D,I
558	Espoo	Finland	50	C*,G
558	RNE5 via ?	Spain	?	G*
567	Tullamore(RTE1)	Eire	500	A,C*,D,G,I
576	Muhlacker(SDR)	Germany	500	C*,G*,I*
576	Barcelona(RNE5)	Spain	50	G*
585	Paris(FIP)	France	8	D,G
585	Madrid(RNE1)	Spain	200	A*,C*,G*,I
585	Dumfries(BBCScot)	UK	2	C*,E
594	Frankfurt(HR)	Germany	1000/400	C*,G
594	Muge	Portugal	100	C*
603	Lyon	France	300	A*,C*,D,G*
603	Sevilla(RNE5)	Spain	50	G*
603	Newcastle(BBC)	UK	2	C*,G
612	Athlone(RTE2)	Eire	100	A*,C*,D,G
612	RNE1 via ?	Spain	10	G*
621	Wavre	Belgium	80	B,C*,D,G,I*
621	Barcelona(OCR)	Spain	50	C*
630	Vigra	Norway	100	C*,G*
630	Tunis-Djedeida	Tunisia	600	A*,C*
639	Praha(Liblice)	Czech	1500	C*,I*
639	RNE1 via ?	Spain	?	A*,C*,G*
648	RNE1 via ?	Spain	10	G*
648	Orfordness(BBC)	UK	500	A,C*,D,G*,I
657	Madrid(RNE5)	Spain	20	G*
657	Wrexham(BBCWales)	UK	2	A,B*,C*,G,I
666	MesskirchRohrd(SWF)	Germany	150	C*,G*,I
666	Sitkunai(R.Vilnius)	Lithuania	500	C*
666	Lisboa	Portugal	135	C*,G*
675	R10 FM	Holland	120	A,C*,D,G,I*
684	Sevilla(RNE1)	Spain	500	C*,G*
693	Droitwich(BBC)	UK	150	D,G,I
693	Startpoint(BBC)	UK	50	A
702	Flensburg(NDR)	Germany	5	C*
702	TWR via Monte Carlo	Monaco	300	G*,I*
702	Presov	Slovakia	200	G*
711	Rennes 1	France	300	A,C*,D,G,I*
711	Laayoune	Morocco	600	G*
720	Langenberg	Germany	200	G*
720	Lisnagarvey(BBC4)	N.Ireland	10	A*
720	Lots Rd,Ldn(BBC4)	UK	0.5	D,G,I
729	Cork(RTE1)	Eire	10	C*,D,G*
729	RNE1 via ?	Spain	?	C*,G*,I
738	Paris	France	4	B,D,G
738	Barcelona(RNE1)	Spain	500	C*,G*,I*
747	Flevo(Hilv2)	Holland	400	A,B,C*,D,G,I
756	Braunschweig(DLF)	Germany	800/200	C*,G*,I
756	Lugoj	Romania	400	G*
756	Bilbao(El)	Spain	5	G*
765	Sottens	Switzerland	500	C*,I*
774	Abis	Egypt	500	G*
774	Enniskillen(BBC)	N.Ireland	1	C*
774	RNE1 via ?	Spain	?	C*,G*,I
783	Leipzig(MDR)	Germany	100	C*,G*
783	Barcelona (COPE)	Spain	50	G*
792	Limoges	France	300	C*,I*
792	Lingen(NDR)	Germany	5	C*
801	Munchen-Ismaning	Germany	300	C*,G*
801	Ajlun	Jordan	2000	G*
801	RNE1 via ?	Spain	?	G*
810	Madrid(SER)	Spain	20	G*
810	Westerglen(BBCScot)	UK	100	A*,B*,C,G,I*
819	Batra	Egypt	450	C*,G*,I*
819	S.Sebastian(El)	Spain	5	G*
828	Hannover(NDR)	Germany	100/5	C*
828	Rotterdam	Holland	20	C*,G*
837	Nancy	France	200	C*
837	COPE via ?	Spain	?	G*
846	Rome	Italy	1200	A*,C*,G*,I*
855	RNE1 via ?	Spain	?	C*,G*,I*
864	Santah	Egypt	500	G*
864	Paris	France	300	A*,C*,G
864	Socuellamos(RNE1)	Spain	2	G*
873	Frankfurt(AFN)	Germany	150	C*
873	Zaragoza(SER)	Spain	20	C*,G*
873	Enniskillen(R.UI)	UK	1	C*
882	Barcelona	Spain	20	G*
882	Washford(BBCWales)	UK	100	B*,C*,D,E,G,I
891	Algiers	Algeria	600/300	A*,C*,G*
891	Hulsberg	Netherlands	20	C*
900	Brno(CRo2)	Czech Rep	25	C*,G*
900	Milan	Italy	600	A*,C*,G*
909	B'mans Pk(BBC5)	UK	140	D,G,I
918	Domzale	Slovenia	600/100	C*,G*
918	Madrid(R.Int)	Spain	20	G*
927	Wolvertem	Belgium	300	C,G
936	Bremen	Germany	100	C*
936	RNE5 via ?	Spain	?	G*
945	Toulouse	France	300	C*,G*
954	Madrid(CI)	Spain	20	C*,G*
963	Pori	Finland	600	C*,G*
972	Hamburg(NDR)	Germany	300	C*
990	Berlin	Germany	300	A*,C*,G*
990	R.Bilbao(SER)	Spain	10	C*,G*
999	Schwerin (RIAS)	Germany	20	C*
999	Madrid(COPE)	Spain	50	C*,G*
1008	SER via ?	Canaries/Spain	?	C*,G*
1008	Flevo(Hily-5)	Holland	400	A,C*,D,G*
1017	Rheinsender(SWF)	Germany	600	A*,C*
1017	RNE5 via ?	Spain	?	C*,G*
1035	Milan	Italy	50	G*
1035	Lisbon	Portugal	120	C*
1044	Dresden(MDR)	Germany	20	C*,G*
1044	S.Sebastian(SER)	Spain	10	C*,G*
1053	Talk Sport via ?	UK	?	C*,D,G,I
1062	Kalundborg	Denmark	250	C*,G*
1071	Bilbao(El)	Spain	5	C*,G*
1071	Talk Sport via ?	UK	?	C*,G,I
1080	SER via ?	Spain	?	C*,G*
1089	Talk Sport via ?	UK	?	C*,D,G,I
1098	Nitra(Jarok)	Slovakia	1500	A*,C*
1107	AFN via ?	Germany	10	C*
1107	Talk Sport via ?	UK	?	C*,D,G,I
1116	Pontevedra(SER)	Spain	5	C*
1125	La Louviere	Belgium	20	C*,D,G
1125	Deanovec	Croatia	100	A*
1125	Llandrindod Wells	UK	1	G
1134	Zadar(Croatian R)	Croatia	800/1200	A*,C*
1134	COPE via ?	Spain	2	C*,G*
1143	AFN via ?	Germany	1	B*,C*
1143	Stuttgart(AFN)	Germany	10	A*
1143	COPE via ?	Spain	2	B*,C*,G*
1179	SER via ?	Spain	?	G*
1179	Solvesborg	Sweden	600	A*,C,G,I
1188	Kuurne	Belgium	5	C,I
1188	Szolnok	Hungary	135	C,I
1197	Munich(VOA)	Germany	300	C,F*
1197	Virgin via ?	UK	?	C,D,G,I
1206	Bordeaux	France	100	A*,C*,G*
1215	Virgin via ?	UK	?	C,D,F*,G,I
1224	Lelystad	Holland	50	A*,C,G
1233	Nitra	Slovakia	40	C
1233	Virgin via ?	UK	?	C,G,I
1242	Marseille	France	150	A*,C
1242	Virgin via ?	UK	?	C,G
1251	Marcali	Hungary	500	G
1251	Huisberg	Netherlands	10	C
1260	SER via ?	Spain	?	C
1269	Neumunster(DLF)	Germany	600	A*,C,G,I
1278	Dublin/Cork(RTE2)	Eire	10	A,C,G*,I
1287	RFE via ?	Czech Rep.	?	C,G*
1287	Lerida(SER)	Spain	10	G*
1296	Valencia(COPE)	Spain	10	G*
1296	Orfordness(BBC)	UK	500	C,G*
1305	RNE5 via ?	Spain	?	C,G*
1314	Kvitsoy	Norway	1200	A*,C,D,G,I
1323	W'brunn (V.Russia)	Germany	1000/150	C,I
1332	Rome	Italy	300	C
1341	Lisnagarvey(BBC)	N.Ireland	100	A*,G,I
1359	Madrid(RNE-FS)	Spain	600	C,G*
1368	Foxdale(Manx R)	Is of Man	20	C,E
1377	Lille	France	300	C*,D,G,I
1386	Bolshakovo	Russia	2500	A*,B*,C,G*,I
1395	TWR via Fiake	Albania	500	C
1395	Lopic	Netherlands	120/40	C,G
1404	Brest	France	20	A*,C,D,G*,I
1413	RNE5 via ?	Spain	?	C,G*
1422	Heusweiler(DLF)	Germany	1200/600	C,G*,I
1440	Marnach(RTL)	Luxembourg	1200	C,D,G,I
1449	Redmoss(BBC)	UK	2	C*
1467	Monte Carlo(TWR)	Monaco	1000/400	C,G*,I
1476	Wien-Bisamberg	Austria	600	A*,C*,I*
1485	SER via ?	Spain	?	G*
1494	Clermont-Ferrand	France	20	C*,G*,I
1494	St.Petersburg	Russia	1200	C*
1512	Wolvertem	Belgium	300	A*,C*,D,G,I
1512	Jeddah	Saudi Arabia	1000	C*
1521	Kosice(Cizatice)	Slovakia	600	C*,I
1530	Vatican R	Italy	150/450	B,C*,H*,I
1539	Mainflingen(ERF)	Germany	350(700)	C*,G*,I
1575	Genova	Italy	50	A*,C*,G*,I
1575	SER via ?	Spain	5	C*,G*,I
1584	SER via ?	Spain	2	G*
1602	SER via ?	Spain	?	G*
1602	Vitoria(El)	Spain	10	C*,G*,I
1611	Vatican R	Italy	15	C,I

at 1935 in E.Bristol; R.Kuwait via Kabd **11.990** (Eng to Eur, N.America 1800-2100) 43434 at 1945 in Colyton; R.Damascus, Syria **12.085** (Ger, Fr, Eng to Eur 1900-2105) 35443 at 2027 in Newry; R.Bulgaria, Sofia **11.900** (Eng to Eur 2100-2200) 54343 at 2110 in Freshwater Bay, IoW; R.Ukraine Int **12.040** (Eng to Eur, N.America 2100-2200) 43333 at 2115 in Morden; China R.Int via ? **11.790** (Eng to Eur 2000-2200) 44434 at 2130 in Woodhall Spa; Voice of Turkey **11.845** (Eng to Eur, USA 2200-2250) 45554 at 2207 in Wallsend; R.Taipei Int via WYFR? **11.565** (Eng to Eur 2200-2300) 44433 at 2215 in Northampton; R.Anhanguera, Brazil 11.830 (Port 0900-0300) 33333 at 0110 in W.London.

Sometimes R.New Zealand has reached the UK in the **9MHz (31m)** band. Their transmission on **9.885** (Eng 0700-1100) was rated 31222 at 0755 in Newry & 33223 at 0900 in Stalbridge. R.Australia has been received here on two frequencies from Shepparton: **9.475** (Eng to Asia 1330-1858), noted as 43433 at 1840 in E.Bristol; **9.500** (Eng to Pacific areas 1900-2130), rated 42333 at 1945 in Liverpool & 35543 at 2038 in Wallsend.

Also mentioned in the reports were WTJC Newport, NC **9.370** (Eng to USA 24hrs), rated 54444 at 0515 in Morpeth; TWR Monte Carlo, Monaco **9.870** (Eng to Eur 0655-0800) 54444 at 0755 in Stalbridge; AWR via Forli, Italy **9.610** (Eng to Eur 0830-0900) 44333 at 0830 in Morden; Herald Christian Science via WSHB Cypress Creek, USA **9.860** (Sp, Eng to Eur 0800-1000) 44444 at 0852 in Rugby; R.Vilnius, Lithuania **9.710** (Eng to Eur 0930-1000) 55544 at 0945 in Herstmonceux; Voice of Turkey, Ankara **9.460** (Tur to Eur 0800-2200) 34332 at 1016 in Oxted; Voice of Korea, Pyongyang **9.335** (Eng to Eur 1500-1600) 24222 at 1526 in Newry; VOIRI Tehran, Iran **9.022** (Ger to C.Eur 1730-1830, Eng to W.Eur 1930-2030) 32222 at 1810 in Colyton; Voice of Turkey via ? **9.785** (Eng to Eur 1830-1920?) 44444 at 1837 in Woodhall Spa; TWR via Meyerton, S.Africa **9.510** (Fulani to W.Africa 1830-2045) 24333 at 1938 in Storrington; Voice of Russia **9.775** (Eng to Eur 1800-2100) 42333 at 2005 in Truro; BBC via Cyprus **9.410** (Eng to Eur, N.Africa 1600-2200) 45544 at 2010 in Northampton; China R.Int via ? **9.440** (Eng to Eur 2000-?) 21121 at 2030 in Co.Dublin; R.Ext.Espana **9.595** (Eng to Eur 2100-2200, Sun) 44444 at 2100 in Appleby; DW via Sines? **9.875** (Eng to ? 2100-?) SIO 444 at 2107 in N.Bristol; R.Cairo, Egypt **9.990** (Fr, Eng to Eur 2000-2245) 54434 at 2135 in Freshwater Bay, IoW; R.Tirana, Albania **9.540** (Eng to Eur 2130-2200) 42333 at 2145 in W.London.

Broadcasts from near and far away places reach the UK in the **7MHz (41m)** band. Good reception was noted from the Voice of Nigeria, Ikorodu **7.255** (Fr? to W.Africa), rated 55434 at 1829 in Guildford; VOA via Botswana **7.415** (Eng to Africa 1800-2200) 43334 at 2225? in Stalbridge; World Harvest Radio (WHRI) via Maine, USA **7.580** (Eng to N.America) 23232 at 2310 in Co.Dublin; WBCQ Monticello, USA **7.415** (Eng to N.America) 44444 at 0215 in Morpeth.

Some of the broadcasts for European listeners originate from R.Japan via Woofferton, UK **7.230** (Eng, Jap 0500-0700), rated 33333 at 0500 in Appleby & 55544 at 0615 in Herstmonceux; Family R. (WYFR) via Okeechobee FL, USA **7.355** (Eng 0600-0800, also to Africa) 35343 at 0731 in Northampton; R.Polonia (Polish R), Warsaw **7.270** (Eng 1200-1257) 34332 at 1215 in E.Bristol; R.Slovakia Int **7.345** (Eng 1630-1657) 44444 at 1630 in Morden; AIR via Bangalore **7.410** (Hi, Eng 1745-2230) 34423 at 1745 in Colyton; Sudwestfunk via Rohrdorf **7.265** (Ger 24hrs) 44454 at 1830 in Liverpool; VOA via Biblis, Germany **7.260** (Special Eng to Eur, M.East, Asia 1900-2000?) 43444 at 1914 in Woodhall Spa; Vatican R, Italy **7.250** (Various, Eng 1950-2010) 44444 at 2000 in Rugby & 44333 at 2005 in Truro; DW via ? **7.130** (Eng 2030-?) 54344 at 2030 in Freshwater Bay, IoW: R.Minsk, Belarus **7.210** (Eng 1930-?) 33333 at 2033 in Newry; Voice of Turkey **7.190** (Eng 2200-2300?) SIO 333 at 2219 in N.Bristol.

The **6MHz (49m)** band carries many more broadcasts for listeners in Europe. Some come from R.Vlaanderen Int via Julich, Germany **5.985** (Eng 0700-0730), rated 45554 at 0702 in Wallsend; TWR Monte Carlo, Monaco **6.045** (Eng 0655-0800) 45544 at 0735 in Northampton; Voice of Hope via Julich, Germany **5.975** (Eng 0700-0800) 55445 at 0856? in Rugby; R.Nederlands via Julich, Germany **6.045** (Eng 1030-1225) 45544 at 1130 in Herstmonceux; Deutsch Welle (DW) via Julich? **6.140** (Eng Service) 55555 at 1520 in Morden; R.Polonia [Polish R] Warsaw **5.995** Eng 1700-1800) 32343 at 1715 in Colyton; R.Yugoslavia **6.100** (Eng 1830-1900) 44434 at 1835 in E.Bristol; Swiss R.Int via Julich, Germany **6.110** (Ger, Fr, It, Eng 1730-1930) 44444 at 1917 in Newry; R.Sweden **6.065** (Eng 1930-1956) 55555 at 1940 in Appleby; R.Canada Int via Skelton, UK? **5.995** (Eng 2000-2100) 54444 at 2000 in Dudley; R.Prague, Czech Rep. **5.930** (Eng 2000-2058) 54444 at 2058 in Co.Dublin; R.Austria via Moosbrunn? **5.945** (Various [Ger 2100-2130]) 44444 at 2100 in Truro; R.Japan via ? **6.055** (Eng 2100-2200) SIO 444 at 2102 in N.Bristol.

Some intended for other areas were also noted in the reports. They came from the BBC via ? **5.875** (Russ 1800-1900, 1900-2000 Mon-Sat, 2000-2030 Mon-Fri), rated 44333 at 1900 in Oxted; ORTM Bamako, Mali **5.995** (Fr 0555-0748, 1757-0000) 23332 at 2210 in W.London; BBC via Antigua, W.Indies **5.975** (Eng to Caribbean, C/S.America 2100-0400) 43334 at 2235 in Stalbridge; R.Havana, Cuba **6.000** (Eng to N.America 0100-0500) 44444 at 0438 in Morpeth; WEWN Birmingham, USA **5.825** (Eng to N.America 2200?-1400?) 44344 at 0605 in Stalbridge.

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

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

Interference
5 nil
4 slight
3 moderate
2 severe
1 extreme

Noise
5 nil
4 slight
3 moderate
2 severe
1 extreme

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

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

List of Equipment Used

LM&S for $August, #September *October 2001.

$ # * Vera Brindley, Woodhall Spa: Roberts R-867 or Sangean ATS-803A + r.w.
$ # Martin Cowin, Kirkby Stephen: Roberts R-881 + built-in whip.
$ # * Bernard Curtis, Stalbridge: Realistic DX-400 + r.w. or rod or loop.
$ # * David Edwardson, Wallsend: Trio R-600 + 22m long trap dipole.
$ # * Stan Evans, Herstmonceux: Kenwood R-2000 + Balun + 11m wire in loft.
$ # * Bill Griffith, W.London: JRC NRD-535 + Global AT-2000 a.t.u. + 20m wire.
$ # * Gerald Guest, Dudley: Roberts RC-818 + r.w.
$ # * David Hall, Morpeth: AOR AR7030 + Global AT-2000 + 13m wire.
$ # * Tony Hall, Freshwater Bay, IoW: Yaesu FRG-7 + 13m wire or RF.B45
$ # * Francis Hearne, N.Bristol: Sharp WQT370 + r.w.
$ # * Simon Hockenhull, E.Bristol: Roberts R-617, R-876, ITT Colt or AKD HF-3 + 10m wire.
$ * Robert Hughes, Liverpool: AOR AR7030 + 15m indoor wire or Drake R8E + RF Systems MTA on roof.
$ Robert Hughes, while in Penang, Malaysia: Grundig Yacht Boy 305 portable.
$ # * Sheila Hughes, Morden: Sony ICF-7600DS + loop or Panasonic DR48 + 16m invert L.
$ # * Rhoderick Illman, Oxted: Kenwood R-5000 + r.w. or AN-1, Sony ICF-7600DS.
$ Brian Keyte, while in Ballater, Aberdeenshire: AOR AR7030 + r.w. attached to wire fence.
$ # * Eddie McKeown, Newry: Grundig Yacht Boy 400 or Sangean ATS-818.
$ # * George Millmore, Wootton, IoW: Racal RA17L + v.l.f. converter + loop or Sangean ATS-803A + loop.
$ # * Fred Pallant, Storrington: Trio R-2000 + Howes CTU8 a.t.u. + r.w.
$ # John Parry, Larnaca, Cyprus: Realistic DX-394 or Yaesu FT-767 or Realistic DX-400 + r.w.
$ David Payne, Hornchurch: JRC NRD-345 + Vectronics AT-100 active antenna or 50m indoor wire.
$ # * Clare Pinder, while in Appleby: JRC NRD-525 + Yaesu FRT-7700 a.t.u. + r.w. or Sony ICF SW55.
$ # * Peter Pollard, Rugby: Sony ICF-2001D + r.w.
$ # * Vic Prier, Colyton: Redifon R551N + a.t.u. + r.w. or loop in loft.
$ # * Richard Reynolds, Guildford: Sangean ATS-803A + a.t.u. + 10m 'T' antenna or 60m loaded dipole or 11m dipole (all in loft) or loop.
* Harry Richards, Barton-upon-Humber: Grundig Satellit 700 + AD270 or r.w. or Grundig Yacht Boy 400 or Matsui MR4099.
$ # * Ernie Strong, Ramsey (Cambs): AKD HF3 or Yaesu FRG-8800 + a.t.u. + 30m wire.
$ # Martin Venner, St.Austell: Yaesu FRG-7700 + FRT-7700 a.t.u + 30m wire; Realistic DX-394 or Sangean ATS-818 + Global AT1000 + 30m wire.
* Ken Vero, Co.Dublin: JRC NRD-545 + r.w.
$ # * Thomas Williams, Truro: Gundig Yacht Boy 400 or Yacht Boy 206 or Sharp 5454 + r.w.
$ # * Fred Wilmshurst, Northampton: Icom IC-R70 + Global AT-1000 + r.w. in loft.

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Bandscan Europe

BROADCAST

Welcome to October's 'Bandscan Europe' or 'Upon A Drab Scene', according to the on-line anagram site I just discovered on the web. I really must get a life.

As you'll be aware, the BBC carried out its threat, back in July, to axe World Service broadcasts to America and Australia. No sign of them wavering despite protest from ex-listeners and the press alike.

Radio Netherlands immediately stepped into the breach and filled the newly vacant frequencies with programmes of their own - 1030-1225 on 5.965MHz and 1430-1625 on 15.220MHz. More recently, Radio Canada International has also adopted some of the ex-BBC frequencies and intends to carry on, at least until the end of October.

Meantime, some enterprising wag has launched the 'Save the BBC World Service' campaign. From their website at **www.savebbc.org** there are instructions on how to contact various dignitaries - from Tony Blair down - what to say and how to say it.

For those that are sticking with short wave broadcasting, the move toward digital transmission carries on apace with the first drm-compatible radio on a PC card now available from the Fraunhofer Institute for Integrated Circuits. The card, small enough to install in a laptop, requires a conventional receiver as a front-end. No doubt the complete works will be available on a single board before long.

Self-contained portable receivers are being worked on and the launch of Digital Radio Mondiale, slated for 2003, looks good. Long(ish) range short wave tests have been carried out over a distance of around 8000km with great success and the next milestone is the Denmark to New Zealand test - coming soon. See **www.drm.org** for more. The data stream appears to be very robust which, it seems, is no bad thing, given our next story.

And that is the potential threat to DXing from Power Line Communications (PLC) - the delivery of Internet over mains electricity cables which has, once more, reared it's head. After a year or so of inactivity by interested parties, the German government has now sanctioned a system that will allow unacceptably high levels of r.f. interference as a result. Users of the spectrum - that's you and me - should be concerned. The interests of radio hobbyists - be they short wave listeners or radio amateurs - will be regarded as a sacrifice worth making on the alter of broadband Internet for all. This story, and how things progress, is the one to watch.

EuroNews, the pan-European satellite channel owned by ITN, have added a Russian version to their bouquet. To begin with, the station's output will be identical to that already on offer, bar the soundtrack. Plans are afoot to include opt-outs with items of interest to the Russian audience. As well as being on satellite 24-hours-a-day, the station will also be available terrestrially for 12-hours-a-day, first in Moscow, then in other regions.

Talking of satellite, September sees BSkyB closing its few remaining analogue transponders on the old *Astra 1* constellation. This leaves very little in the way of English language broadcasts at 19°E. CNN and Channel 5 would appear to be it. There are still over 140,000 analogue subscribers, so this final nudge should motivate these stragglers to join the digital revolution.

DAB continues to embrace new listeners to the fold - with a little encouragement. Prices inch ever downwards and tuners, manufactured by Videologic, are available in the high street for under £300. And the news gets better. Texas Instruments have announced the development of a DAB chipset that's priced at just £32, allowing the sale of DAB receivers at under £100.

As well as affordable products, programming, exclusive to DAB, is also playing a part. In Bristol, GWR FM is broadcasting a multi-act, live concert on DAB only, with cross-trailing on their f.m. service, recommending that listeners make the switch.

With 80% of the UK now covered and prices becoming more attractive, surely DAB will have its day sometime soon. Meanwhile, how many people do you know (not in the trade) who are aware of DAB's existence and what it can offer, let alone bought into the technology.

Still on these shores, ITV have rebranded to ITV1 with ITV sport launched in August. October should see the channel's BBCs Choice and Knowledge become BBC3 and 4 respectively. A pre-school channel and a channel for older children are also planned whilst a brace of new digital radio stations are gearing up for launch.

Culture secretary, Tessa Jowell, has extended the consultative period and a favourable announcement is expected at the International Television Festival in August. For those with Internet access, **www.bbc.co.uk/info/revolution** carries more details with useful explanations of some of the technology involved.

Struggling ntl are £10 billion pounds in debt and have resorted to cutting at least 2,400 jobs from a total of 19,000 with a similar number going next year. They are also selling their network of transmitter masts - valued at around £1.8 billion.

Cunning Plan

And finally, my favourite story from the Bandscan vault this month comes from Slovakia where STV, the national television broadcaster, has devised a cunning plan in an effort to cut costs - and that is to switch off the transmitters.

Apparently, sufficient funding from the government has not been forthcoming, so the station has come up with this wheeze to save money. Someone, somewhere - probably an accountant - needs to have this broadcasting thing explained to them.

Have a pleasant autumn, try to ignore the tinsel in the shops already and see you in January's issue of Vein Amazes Warthog.

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Off The Record

The BBC's closure of their s.w. services to N. America and Australia earlier this year is still receiving much comment. Radio Netherlands in a somewhat hurried move took over many of the former BBC frequencies using the same transmitters in the USA. Time will tell if this was a publicity stunt or an actual expansion to the Dutch broadcasters English Service. Why the BBC decided to flush away their American and Australian s.w. listeners before an adequate alternative form of programme delivery was available is a question that has remained largely unanswered. On the other hand, perhaps the short wave listeners in the effected areas are simply clinging onto the nostalgic memories of "This is London" amongst the noise and static.

Many large international broadcasters have reduced their s.w. output quite considerably. It was not that many years ago that broadcasts from Radio Moscow, VOA, Radio Canada and many communist block stations dominated the s.w. bands. Other casualties are the once respected DX programmes, which have no relevance on satellite or Internet broadcasts, are slowly vanishing from programme schedules. Hopefully the reduction in the numbers of high-powered s.w. transmitters will ease the overcrowding of the bands and reveal some interesting DX.

Programme Providers

These days just about every organisation that produces audio for public consumption calls themselves a radio station irrespective of their means of delivery. You now get cable radio, Internet radio and satellite radio, but are they really radio?

Historically, a radio station is a place where signals are transmitted - it could be Morse, Teletype or even musical entertainment. Now with privatisation of transmitter sites and the use of other organisations distribution systems many so-called radio stations will not own or control the transmitter carrying their programmes. With digital radio most stations will totally rely on licensed multiplex broadcasters to transmit their output. This will surely make some broadcasters just programme providers to a larger more powerful network.

The government have suggested that digital radios and suitable antennas should be available in High Street shops by Christmas priced at about £100, (I wonder?). On the other hand, you may wish to hold fire until *SWM* have featured and reviewed some of the competing range of models and how they actually perform in the field.

Letters

Dave Williams from Southampton asks if I have heard any broadcasts from Britain Radio International? The answer is that I have not heard them for several years, but I do have a QSL from them from the time when they were very popular. I have seen a report that suggests they were heard during May this year on 6.240MHz, which could well have been a relay from Jolly Roger Radio.

Dave also asks if there is anything relating to the offshore radio era of the 1960s left on the Thames forts? I would suspect quite a lot of junk was left there, however I believe during the early 70s military personnel visited the forts and removed the ladders and landing stages to make access to the towers virtually impossible. They also partially destroyed the catwalks on both army forts, which sadly now appear to be slowly reaching the point of collapse.

A message from **Alan Phillips** of the British Forces Broadcasting Service (BFBS) confirms that they have lost their monopoly in forces broadcasting. Army barracks at Catterick in North Yorks, Bullford/Tidworth at Salisbury Plain, Aldershot and Colchester are now identifying as Garrison Radio.

Mark Page, a former BFBS presenter at Cattrick, secured a contract for Garrison Radio that operates on an LPAM licence using 1287kHz at each camp. All other British forces radio stations, including those in Ireland and abroad have still been retained by BFBS.

At Gravesend in Kent, **Ian McGregor** the station manager of RSL station The River has abandoned hope of doing a summer broadcast this year. Previously they have had acute problems with radio pirates blocking their frequencies. This year after hearing very strong unauthorised signals on their intended frequency of 87.9MHz it was decided to abandon the project.

Radio Caroline

Another station to also withdraw an RSL broadcast this summer was Radio Caroline who had hoped to be on air during most of August from their ship at Queenborough on the Isle Of Sheppey. Another group in almost the same location had already applied for a trial community radio station called Swale Sound on f.m. between 4th and 31st August. Their spokesman **Peter Flynn** said they did check with the Radio Authority that Caroline had not already applied and then submitted their licence application. The RA will only licence one RSL in any particular area so the Radio Caroline application was rejected. Peter said he would be happy to cooperate with Radio Caroline in any way he can.

Allan Beech reporting for Radio Caroline admitted they had sent their application two days after Swale Sound. In an unexpected twist Swale Sound, in the run up to their broadcast, lost two road show bookings and withdrew their RSL application. Sadly this happened too late for Caroline to re-apply for an August broadcast and it was considered too much of a financial risk to re-schedule the RSL for later in the year.

While the BBC may be reducing s.w. broadcasting Radio Caroline are actually expanding it. Special programmes are being produced in the UK for transmission over the 50kW American s.w. broadcaster WBCQ. This station is owned by **Alan Weiner** and usually carries religious programmes from Brother Stair and the Overcomer Ministry. Reception here in the UK is quite weak, but is audible at night.

Tony Christian of Radio Caroline says that the shows will be on the air between 2000 and 2100 on 7.415MHz on Thursdays, Fridays, Saturdays and Sundays. Listeners in Britain may be disappointed as this frequency also carries the Voice Of America for Africa at 1900 to 2130 each evening from a transmitter in Botswana. Another station sometimes audible at night is the offshore pirate station Arutz Sheva (Station 7) off the coast of Israel on 1539kHz.

SW Broadcasting

Trevor Brook, electronics engineer and former head of s.w. station Radiofax, says that he has just heard from the Office Of Fair Trading regarding the monopoly of British s.w. broadcasting. Trevor had failed to get a ruling against this at the European Court Of Human Rights who said that the UK was not obliged to allow commercial broadcasting on all frequency bands. The fact that they did on f.m. and m.w. was sufficient.

He recently took this subject up with the Office Of Fair Trading claiming that the refusal to grant licences for short wave radio was unfair and unjustly denied competition to the many foreign s.w. stations that could be heard throughout Europe. The OFT have now refused to intervene in this matter. Trevor is also behind the recent Surrey based RSL station Susy Radio 531kHz.

Frequency Problems

Radio Nationaal from Holland are currently being broadcast on 1296kHz from the BBC/Merlin Communications transmitter at Orfordness, Suffolk, using a directional antenna. It is reported that they had frequency problems in Holland where m.w. frequencies are being licensed to the highest bidder, so time is being rented on this idle transmitter.

Comparing the signal strengths with BBC 648kHz from the same site I suspect much less power is being used on 1296kHz than the normal 500kW. This transmitter has also been used for in-band a.m. digital radio tests, known as DRM.

Religious Stations

Within the radio industry there is increasing dissatisfaction about the embargo placed on national and digital religious radio stations, at present only local analogue stations are permitted. The anomaly may be rectified in forthcoming communications legislation, however this may not come into effect until 2003. This would allow local religious digital stations, but probably not a national network.

Much of Wales and North West England can however receive the satellite station Untied Christian Broadcasters from an apparently unauthorised high power transmitter in Ireland on 549kHz. It would seem that cross border broadcasting, in both directions, is a contentious issue in Ireland.

Enigma 819AM

A new m.w. radio pirate has recently started in London using a frequency that has been extensively used by Radio Free London and Radio England. Radio Enigma have just started transmissions on 819kHz in London at the weekends and they are keen to point out that they have no connection with RFL or Radio England and their origin goes back to Radio Helen in 1969. A regular pirate radio monitor known as The Sneak reports that he has received Enigma with very good signals in South East London, he also says Radio England appear keen to regain their 819kHz frequency.

Access Radio

The Radio Authority is reported to have received 200 applications for an Access Radio pilot project. About twelve prospective stations will be selected to participate in a year's licence free scheme to evaluate the viability of low powered non-commercial community radio. Existing independent stations have already started voicing their fears of losing listeners and revenue to this proposed new strata of radio broadcasting. Last year a similar idea in the USA, for what they call micro-radio, was abandoned after the large established broadcasters brought pressure on politicians.

One Step Behind

Among the proposals for the new national BBC digital (DAB) radio services is a music station aimed at the audience at present catered for by the many urban f.m. pirate stations. The last time the BBC started a radio station to replace pirate radio was with Radio One in 1967. It is perhaps a move forward for the BBC to even acknowledge this audience exists. Whether they will be able to emulate the enthusiasm for the music, the freedom of expression and the air of immediacy will have to be seen.

Optoelectronics DS1000 Review

Keen to get his hands on the new DS1000 digital r.f. frequency counter, Dave Roberts gets out and about to see how well it performed in real life.

Industrial...that's the initial impression gained when you gaze upon the Optoelectronics DS1000 digital frequency counter. A black box just under five by three by one and a half inches with six buttons and an l.c.d. on the front panel and four sockets including one for an antenna on the top. That's it.

The construction is decidedly sturdy. This American made unit comes supplied with a plug top charger for 240V UK mains electricity, two antennas, both telescopic, one of which is fitted with a pen type clip on the top and which unscrews from the BNC base to reveal a vicious looking spike. Presumably, other antennas could be screwed into the base of the antenna which is 610mm long. The other telescopic antenna is 480mm in length.

In addition to this, the DS1000 is supplied with an RS-232 cable for downloading frequencies memorised in the unit to a PC compatible computer. Suitable software is supplied on a floppy disc. There is also a concise manual which assumes that the user has a reasonable knowledge of radio and frequency management.

Important Warnings

The manual gives two important warnings as a priority. The first is **never** connect it directly to any transmitter because it will bust it for sure. Also, if you have the unit switched on in close proximity to a radio transmitter of more than 10W, it will break the thing for good and they won't fix it under warranty under either circumstance. Secondly, it only runs on 12, not 13.8V, and not from a car 'ciggy' lighter. If you feed it an over voltage you will finish it off and again Optoelectronics won't fix it for you under the guarantee. I know people who have destroyed Opto Scouts by operating them too close to transmitters. So do Optoelectronics!

Charge It Up

When I get any new gadget of this type I always run it flat and then give it a charge up. There is no separate battery tray or pack in the DS1000. The batteries are fitted in the cabinet and I was not prepared to take my Philips screwdriver to the case to check on the battery type or fitting. This gadget costs nearly six hundred pounds and I didn't want to risk an invoice. In this case, I gave the machine a ten hour charge and it seemed happy with that.

The DS1000 is more sophisticated than its predecessors in that in addition to features that other members of the Opto family boast, this baby will read the frequencies of digitally transmitted signals. It will also display a calibrated

signal strength reading from -5 to -45dBm for a nearby transmitter. This reading is obviously dependant on the distance from the Opto to the transmitter, but may be of use in fault finding on transmitters **under 10W**.

The digital signals that it should detect include TDMA, GSM, On/Off keying, APCO25 and Tetrapol. I have not had the opportunity to try it out on TETRA, but I believe that from the published specifications that it should detect signals in that mode. GSM is the mobile 'phone standard and APCO25 is the digital signalling now coming into use in the USA and Canadian police sector.

Automatically Tune

The radio will automatically tune a number of suitable receivers via a suitable interface cable which can be ordered as an accessory, the cable type depending on your receiver. I don't have a suitable receiver, but a mate of mine owns an Icom R8500 together with the interface cable. So I trundled over to his place with the Opto. Sure enough it automatically tuned the radio to the received signal.

This feature is only available when the DS1000 is receiving analogue signals and not digital. The problem was that the R8500 is by no means portable, so a fair field test of this feature was not really possible. This feature is known as Reaction Tuning by the Opto folks and by pretty much everyone else these days.

"Those who are fanatical about the hobby will be fishing out their credit cards right now"

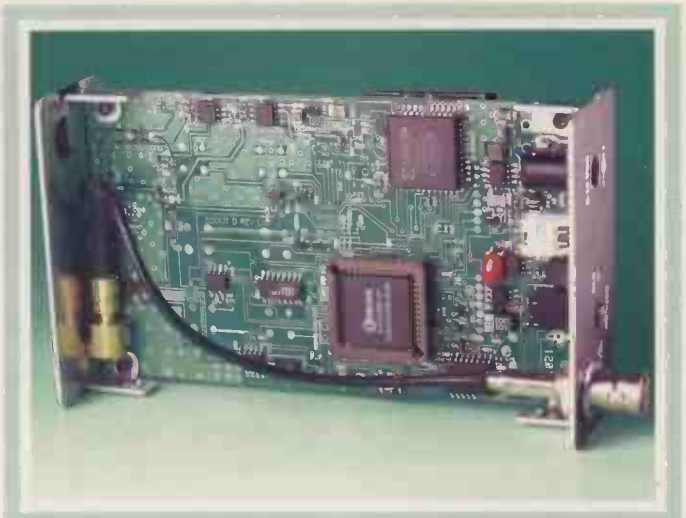
Real Life Conditions

The thing to do was to take the unit out and about and see how it performed in real life and not bench conditions. The first feature to be aware of is that the squelch level must be set to a level that masks background noise, which will leave random readings in the display and memories. The DS1000 has memories each of which will record 65 hits and you can fill them up remarkably swiftly with mush unless the squelch level is set properly.

With a high band f.m. signal from a 10W mobile radio feeding a quarter wave antenna the Opto will register and record the signal at 69ft (21m). With a transmitter on 145MHz the result is another metre of range. In low band under otherwise the same conditions the range is 22m.

Now to f.m. hand-held radios. On 169MHz high band the DS1000 will receive signals from a 5W hand-held fitted with a rubber helical antenna at only 6.1m. This slightly surprised me, but the results were duplicated on 2m amateur band with a reception range of 4.5m from a similar transmitter. At u.h.f. f.m. the range from a 5W handy at 433 and 460MHz was around 9m.

Low power GSM signals were received and recorded from a mobile 'phone at 7.6m. Digital signals from a data source at 700MHz were received at a distance of 12m. I could have increased these ranges by adjusting the antenna length on the Opto, but in the field you wouldn't always know the transmit band in the first place would you.



Software Download

Now to the download software. I installed it from the disk supplied. It works fine, but is a DOS program. This seems to me to be a tad ancient and using a program of this type ties up the whole computer, albeit only for a few seconds, but in this day and age it appears a bit old fashioned. I imagine that some of the target customers may require a DOS download package and that's why it has been presented in this way.

My Opinion

This short review does not do this very sophisticated machine justice. I imagine that dozens of these DS1000s have been sold to Government departments, engineers and frequency managers throughout the world, many of these making the purchase due to the unique digital signal capture facility. For the average enthusiast it probably is too sophisticated and expensive. Those who are fanatical about the hobby will be fishing out their credit cards right now. ***SWM***

My thanks to **Waters & Stanton PLC, Spa House, 22 Main Road, Hockley, Essex SS5 4QS, Tel: (01702) 206835/204965, FAX: (01702) 205843** for the loan of the DS1000, which retails at £599 inc. VAT. If you quote that you have seen this review in *SWM*, then you can also receive **FREE delivery** of the DS1000!

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★ Fully digital world receiver
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★ Programmable memories
★ Sleep timer + alarm function
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A superb performance portable/base synthesized world receiver with true SSB and 40Hz tunning 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 FM stereo through headphones. The ATS-909 represents superb value for money.

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★ Portable SW receiver with built-in cassette deck
★ 54 memory presets
★ Continous coverage 150kHz-30MHz (all mode)
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special interest

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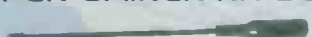

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WEATHER CLOCK.

- Weather forecast
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- Supplied with one remote (wireless) sensor
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- Barometer
- 24 hr "radio" clock
- Thermometer

£69.95 P&P £4

The Ten-Tec RX-340

This month John Wilson has a brand new radio to scrutinise. Down in quiet and leafy Devon there is much radio test and measurement activity. Here JW tells it just how it is.

With or without the cap, this is certainly one to have!

Ten-Tec may not be a name immediately familiar to the short wave enthusiast, but the company, based at Dolly Parton Parkway in Sevierville, Tennessee, has been in business a long time and is best known in amateur radio circles as a producer of keenly priced high performance c.w. and s.s.b. transceivers. Ten-Tec's design emphasis has always been on r.f. performance, with the low phase noise and good dynamic range of their receiver sections attracting many serious DX operators, particularly those wanting full break-in c.w. facilities; something which Ten-Tec provided, unlike the better known Japanese and American manufacturers who shied away from the design difficulties of full BK. Doing a bit of basic research on Ten-Tec gave me a few surprises, one of which was the discovery that Ten-Tec still produce a range of low cost kits for basic receivers and accessories, a typical example being a 9-band regenerative short wave receiver kit for $69, or a 4-band version for $24. However, it's time to look at the other end of the market with Ten-Tec's latest RX-340 which kicks in at a price tag of about £4000.

Back in 1986 there were announcements that Ten-Tec were to produce a general coverage h.f. receiver to be known as the RX-325, but production seemed to be limited and despite a promising published specification the RX-325 did not meet with overwhelming approval from reviewers and owners and was withdrawn from the market. According to Fred Osterman's information, the RX-325 was produced only in 1987/1988 and he comments that they are "scarce" on the second user market. Not having used an RX-325 I have no idea what the performance was like, so we'll draw a veil over it.

Among keen 'high-end' receiver enthusiasts, there have been references to a Ten-Tec RX-330/331 made for military use, and one or two of these remotely controlled receivers (no front panel controls) are in private hands and are well respected amongst 'those who know'. With a military contract tucked under the belt it was almost inevitable that Ten-Tec would produce a commercial receiver, and this is indeed what the current RX-340 seems to be, although a lot of development has clearly taken place apart from the fitting of a front panel full of operator controls.

Country and Western or Urban Sophisticate?

Real Revelation

Your first glance at the front panel of an RX-340 must prompt comparisons with the layout of the Watkins-Johnson HF-1000, and indeed the panels of the two receivers are the same size, i.e. 3U high by 19 inches wide (I feel Elgar coming on again, or perhaps Walton's *Crown Imperial*). However, the Ten-Tec is very short from front to back and instead of having great empty spaces inside a huge cabinet like the HF-1000, is extremely compact and light weight. It's a real revelation when you take it out of the carton for the first time.

I have to say straight away that the RX-340 control layout is the nearest thing to my idea of perfection that I have encountered, and this requires some explanation. You can see that there are three display panels, and each panel has a group of associated controls including a rotary encoder for changing various functions within each group. Starting with the largest display, this is obviously concerned with main receiver parameters, including frequency, operating mode and bandwidth. Frequency is displayed to 1Hz, with a

decimal point separating MHz from 100kHz increments, and another separating kHz from 100Hz increments. Tuning steps are selected by left and right arrow keys under the display, with every useful step available from 1, 10, 50, 100Hz; 1, 5, 9, 10kHz; and 0.1 and 1MHz. Using the main tuning knob to zoom around medium and long wave bands in 9kHz steps is really easy, as is tuning short wave broadcast bands in 5kHz steps, whilst 50Hz is ideal for s.s.b. utilities, with 10 or 1Hz for ultra-fine tuning on c.w. or data modes.

The tuning knob is large enough and ideally weighted to spin relatively easily, and although not mentioned in the operating manual, the dial 'drag' can be adjusted by grabbing the back skirt of the knob and twisting the front, rubber covered main knob body against it. The actual drag is affected by the positioning of the knob relative to the front panel, as I found out when I removed it to take a look behind at the drag mechanism, so it requires careful refitting to get it right.

The keypad alongside the main tuning knob looks like a membrane type, but is in fact a matrix of 'proper' push keys with a nice click action when operated. The numerical layout with the number 0 in the middle of the bottom row is standard telephone style, but many professional instrument keyboards place the 0 at the left of the bottom row, so this may initially be a bit confusing. In practice it hardly matters, once you know where the decimal point is located, and frequency entry is exactly as I like it, where you can key in a number such as 5616 and terminate it with the 'kHz' key, or key in 28.6 and terminate it with the 'MHz' key, thus neatly satisfying everyone's requirements. A pair of UP/DOWN arrow keys for stepping frequency in the displayed increments, and a 'C' clear key to escape from incorrect entry complete the keypad. Just perfect.

A second pair of Left/Right arrow keys select receiver mode, with the mode selected being displayed immediately above the keys. A full line-up of modes is provided: u.s.b., l.s.b., a.m., c.w. (with tunable b.f.o.), c.w.1 (b.f.o. fixed at zero beat), i.s.b. with fully selectable sidebands, a.m., f.m. and synchronous a.m., again with fully selectable sidebands. It is as if Ten-Tec have been reading everyone's wish lists and tried their best to provide everything in one package. I think they have largely succeeded. Below the mode selection arrows is a single push button which selects 'straight-through' r.f. from antenna to mixer, or inserts a 10dB preamplifier or a 15dB r.f. attenuator. Below again is the manual r.f. gain control which quite properly puts a 'pedestal' bias on the a.g.c. line to give a gloriously quiet background to s.s.b. utility listening, with the received signals just sitting there in almost Hi-Fi quality. I can't describe the various modes without also bringing in the question of receiver bandwidth, so take a quick sideways trip up to the top of the two auxiliary display and control sections. This really gets interesting.

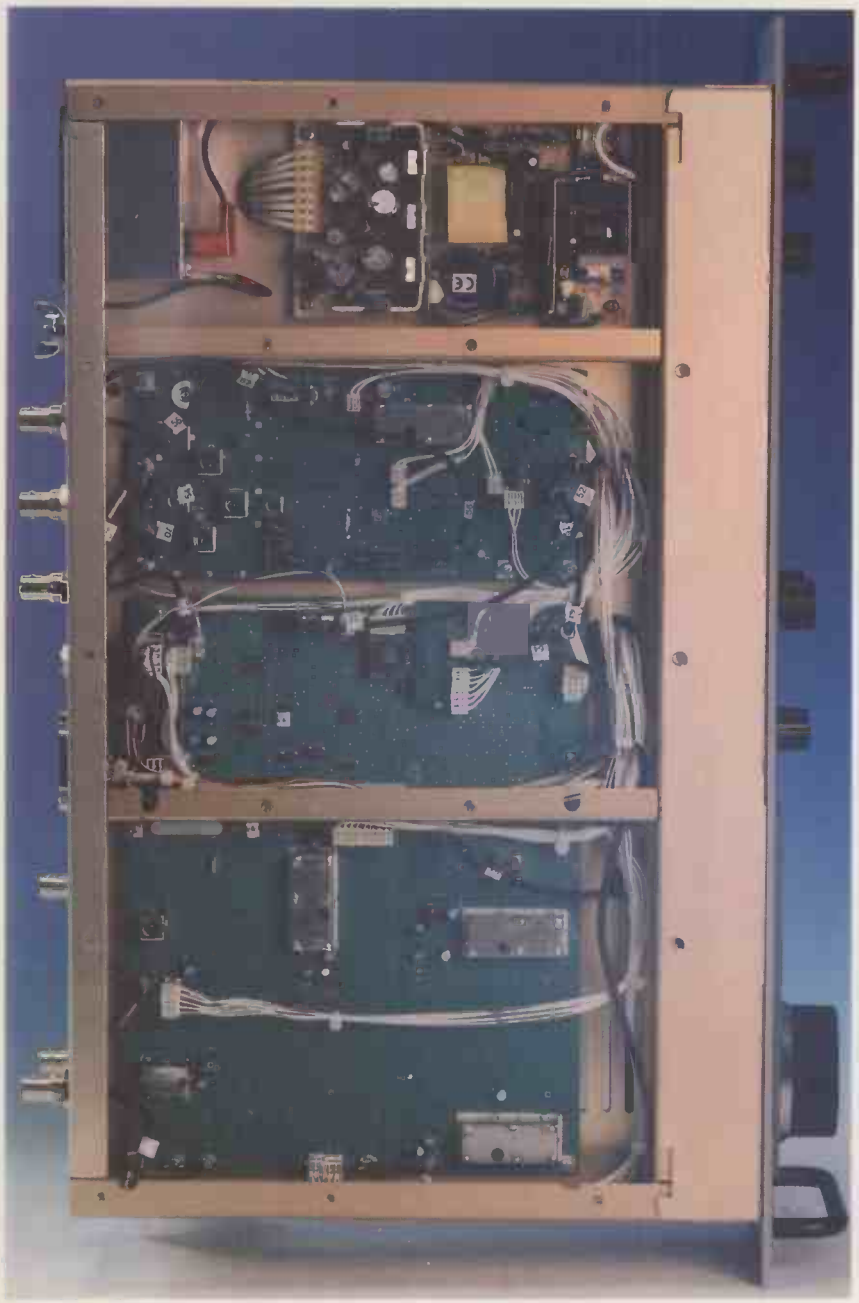
"...if you want the best new general coverage receiver that money can buy, the Ten-Tec RX-340 is the one to choose..."

The box is full both under the top cover...

You Can't Wish For More

This sub panel is very well arranged, with a series of buttons around the periphery, each button illuminating when pressed so as to instantly inform you which function is in use. As a function is called up, the control of what happens is transferred to the rotary encoder on the right hand side of the sub panel, so for example, when 'bandwidth' is selected, the rotary control allows you to spin through the i.f. bandwidths, and there are many, because the RX-340 uses a d.s.p. back-end to provide a sensible range of i.f. bandwidths for any mode. I can't tell you how incredibly satisfying it is to use this variable bandwidth feature, but let me give you a flavour. Tuning across the medium wave band after dark (in 9kHz steps) you find a station broadcasting good music and at a reasonable signal strength. Just twiddle the bandwidth control with an idle thumb and listen to the audio quality as the bandwidth increases to a maximum of 16kHz. Interference? just twiddle the bandwidth down again until it disappears - and the audio quality through a decent external speaker obviously has wide bandwidth judging by the bass and top end response. It's probably the best audio I have heard from a solid state h.f.

...and the underside.



receiver, but still not quite up to the EK-07. Synchronous a.m. deserves a special mention because it is probably the best I have yet met. When in synchronous mode, the RX-340 gives you the choice of listening to either of the two sidebands or both together, and the way the detector locks on to deeply fading signals and restores them to listening quality is exceptionally good. On top of that, you have fully adjustable i.f. bandwidth in synchronous mode. You can't wish for more.

Needless to say, with the RX-340 having a d.s.p. back end, I tried my 900/909/918kHz test after dark on the medium wave, and found that with a bandwidth of 6kHz I could select each of the two weaker Continental stations from the overmodulated crud of Radio Five Live, and there was absolutely no sign of the 'monkey chatter' which characterised the NRD-545. It just goes to show that d.s.p. can work if it's designed properly, and when a human being has actually listened to the a.m. results before letting the receiver on to the market.

The a.m., l.s.b., u.s.b. and c.w. bandwidths are adjustable from 100Hz to 16kHz; synchronous a.m. from 4 to 16kHz; f.m. from 600Hz to 16kHz, whilst i.s.b. bandwidth is fixed at 3.2kHz. There are no default values, but I see this as an intelligent decision for intelligent operators of this receiver. When you first read that the receiver has 57 bandwidths you might think "What can I possibly need 57 bandwidths for?" But due to the intelligent way that Ten-Tec have made bandwidth selection available using a rotary encoder, it's better to think of it as a receiver having fully variable bandwidth in 57 steps, and that's how you use it in real life. This careful marriage between technical features and operator ergonomics is what makes the RX-340 so 'right'. A final feature which Ten-Tec have included is a 'Fast Filter' function which operates on bandwidths between 200Hz and 4kHz and allows the data enthusiasts to receive delay critical h.f. data modes such as SITOR and QPSK (I copied this straight from the handbook, because I don't have enough experience in h.f. data transmission to fully understand it's significance, but it's best to be honest about these things).

But - getting back to things I **do** understand, there are more functions to mention. Pass band tuning is available in a.m., l.s.b., u.s.b. and c.w. modes, and the shift is shown to 1Hz up to a maximum shift of plus or minus 2kHz. Given fully variable bandwidth, coupled to fully variable pass band tuning makes the RX-340 the serious enthusiast's dream receiver - and it all works so easily because you have a button for each function right there at your fingertips. And even that's not the end of the features.

And There's More...

How about fully tunable b.f.o. for c.w., a tunable notch filter for u.s.b., l.s.b. and c.w. which is a demon whistle cracker with a range of plus or minus 6kHz and full readout to 1Hz. All at the touch of a button and a twiddle on the rotary encoder. How about a variable noise blanker operating within the d.s.p. section and available in all modes? How about an all mode squelch with level readout calibrated in dBm of r.f. signal level? The final items on this display panel show the a.g.c. setting, with fast, medium and slow decay available, but also a fully programmable a.g.c. set-up reminiscent of the Collins 95S-1. I must admit to being totally baffled by the programming of this, because the 'Attack' time is shown in dB/ms with a range of 0.01 to 1.0, which if you think about it seems incomprehensible. Why would you want an attack time of 0.01dB/ms which would result in an attack time of six seconds for an input level change of 60dB. The manual confuses me even further by referring at one point to dB/ms whilst in the next sentence calling it ms/dB which would actually make more sense. In use on a stepped test signal, the attack time adjustment seems to change the decay time rather than the attack time, so I'm even more confused. The 'Hang' time is logical, being variable from 0 to 99.9 seconds, as is the decay time which is adjustable from 0.01dB/second to 99.9dB/second. All a bit of a mystery, but be assured that the a.g.c. systems on the RX-340 are excellent as can be seen from **Fig. 1** which shows the good audio control with a 50dB r.f. input step, with no 'popping' in the audio and a clean release to full gain. As with other d.s.p. receivers there

"It's ergonomically excellent and performs competently with any kind of signal."

is a fixed delay between application of an r.f. signal to the antenna and audio coming out of the d.s.p. system, as can be seen in **Fig. 2** which shows a 12.5ms delay in the system. The reason why this delay does not cause receiver overload as it does in the 95S-1 is that Ten-Tec have used an analogue a.g.c. control loop around the gain control stages early in the receiver, so the gain is controlled in real time before any digital processing takes place. Cleverly engineered and very successful.

The signal level meter is a tastefully lit moving coil instrument calibrated in 'S' units and also in r.f. signal level in dBm. This proved to be absolutely spot-on accurate at any frequency, and stays correct should you be using the front-end attenuator or pre-amplifier. My one criticism is that the meter is very lightly damped and continues to bounce around independently of the a.g.c. setting, so you find that strong utility s.s.b. signals have a nice slow audio recovery, but the signal meter still has a fast action so you can't easily read s.s.b. or c.w. signal levels.

Two separate audio gain controls are fitted below the level meter, one for the built-in speaker and/or external speaker, and the other for controlling the headphone level. It's a nice thoughtful design touch.

Finally the bottom display and control panel which is concerned entirely with memory store, recall and scan, together with programmable scanning between preset frequencies. Once again Ten-Tec have been listening to users because I can't think of a single function which hasn't been included. A total of 100 memories are provided, each one storing the complete receiver configuration. These can be reviewed by using the associated rotary encoder, can be recalled to the front panel, and can be scrolled through in active mode with each memory channel contents being transferred to the front panel as you select each channel. For quick checking of intermittently active frequencies this is a real winner. The scanning functions are extremely comprehensive, with programmable dwell time, dead time and gaze time, all terms not seen before but explained in careful detail in the manual. Another interesting development in scanning is the concept of allocating a bandwidth to a locked out frequency. For example, if you lock out a modulated signal which is occupying a 10kHz bandwidth, the lockout takes the centre frequency and allocates lockout within a 5kHz band each side of the carrier. This immediately eliminates the annoying tendency for conventional lock out systems to keep stuttering on strong modulated signals. The lockout bandwidth is programmable by the user and can be different for different frequencies.

Getting Technical

So, how does it all work as a receiver? Brilliantly as far as my needs are concerned. It's impossible to be confused with the RX-340 and you really don't need the handbook until you come to the comprehensive memory functions. It's ergonomically excellent and performs competently with any kind of signal. A single glance at the front panel tells you exactly what the receiver is doing, and access to all the variable control functions just couldn't be easier. I'm smitten!

I should mention of course that with my eyes sparkling at the ergonomics of the front panel I have failed to tell you that the RX-340 is fully controllable via a built-in RS-232 interface, and all the necessary control functions are listed in the comprehensive manual. I'm sure that it won't take long for software packages to appear for this receiver, and that will make everyone happy - even me, if I can keep the PC crud out of the antenna system (use a Wellbrook loop).

Receiver circuit architecture follows the familiar pattern of high level mixing up to a high

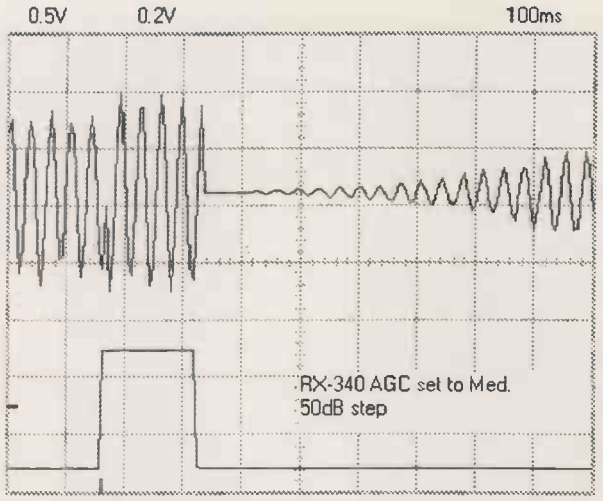


Fig. 1: Here is the good audio control with a 50dB r.f. input step.

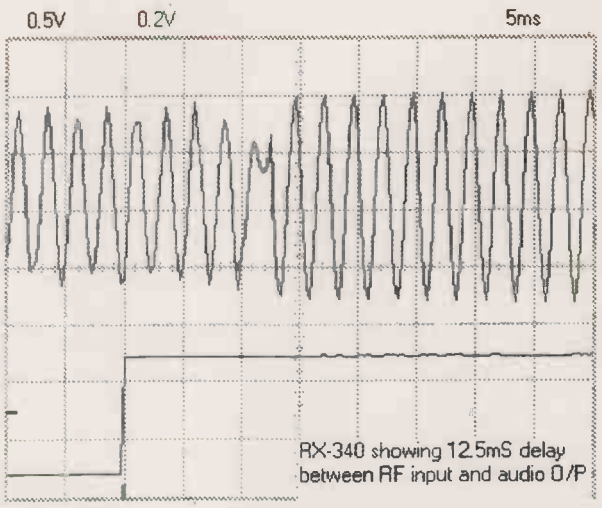


Fig. 2: The delay between application of an r.f. signal to the antenna and audio coming out of the d.s.p. system.

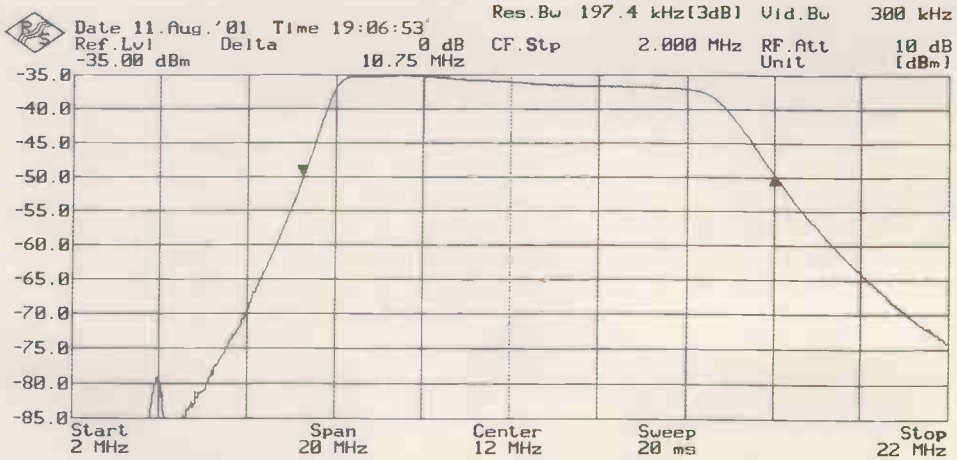


Fig. 3: Also unlike some other manufacturers, this is a preselector which works as can be seen from this plot of the 9 to 15MHz filter.

first i.f. (45.455MHz), the local oscillator level into the mixer being, at a guess, in the +20dBm area. Ten-Tec have chosen to fit a multi-section preselector between the antenna and the mixer, and unlike other manufacturers have included a meaty amplifier to compensate for the inevitable losses in the preselector networks. This doesn't have much gain but it certainly has a seriously good intermod performance, consisting as it does of no less than six J-310 f.e.t.s in parallel push-pull. Also unlike some other manufacturers, this is a preselector which works as can be seen from **Fig. 3** which is a plot of the 9 to 15MHz filter, in circuit during my second order intercept measurements at 13.5MHz. The marker at 7MHz shows the response already down by 15dB and falling fast, whilst the flat top shows excellent design. The first mixer is followed by another gain restoration stage, once more using six J-310s in parallel push-pull, feeding two stages of 20kHz wide roofing filter at 45.455MHz before the signal proceeds to the second mixer, again a high level balanced type with lots of local oscillator drive at 40MHz for the conversion down to 455kHz. Four more J-310 f.e.t.s in parallel grounded gate feed the 455kHz i.f. into the gain controlled i.f. amplifiers with more 3-pole filters at 455kHz to keep broadband noise to a minimum. The 455kHz is finally converted down to a 16.66kHz third i.f. for the d.s.p. system. After this point I admit it's a total mystery to me, smacking of the black arts and witches cauldrons, but eventually audio appears at the other end after much electrickery - and it's good audio. Praise the Lord and pass the Hi-Fi speaker.

All the connections you will need are here.

In The Lab

Measurements. It seems almost unnecessary to measure a brand new receiver, because we can usually trust the manufacturer to print an honest specification. However, for the record, the measured sensitivity for 12dB SINAD with the preamplifier not used was as follows:

Frequency (MHz)	Mode	Bandwidth (kHz)	Sensitivity (dBm)
0.100	a.m.	6	-105
0.909	a.m.	6	-104
2.2	a.m.	6	-104
6.5	a.m.	6	-102
6.5	u.s.b.	2.4	-109
9.5	a.m.	6	-103
9.5	u.s.b.	2.4	-108
13.5	a.m.	6	-104
13.5	u.s.b.	2.4	-110
21.5	a.m.	6	-101
21.5	u.s.b.	2.4	-108
28.5	a.m.	6	-103
28.5	u.s.b.	2.4	-108

All that work tells you that the receiver sensitivity is virtually flat across the entire tuning range. Using the preamplifer in the RX-340 increases the sensitivity by 10dB and that was confirmed by measurement, so in old money, with the preamp in use, you have a 10dB S/N ratio for about 0.3µV.

Third order intercept point measured with 20kHz spacing was +34dBm with a dynamic range of 104dB, whilst the second order intercept was at +76dBm with a dynamic range of 99dB. This of course was achieved by the RX-340 having a good preselector ahead of the first mixer.

Phase noise performance was very good, with close-in noise at –110dBc/Hz at 10kHz, -124dBc/Hz at 20kHz, dropping rapidly to –146dBc/Hz at 100kHz. This is in line with what we have come to expect from good quality receivers these days, and is a close match to the Watkins-Johnson HF-1000. Having mentioned the HF-1000, you will no doubt be expecting me to have done the same 'noise from the tuning knob' test that I commented on in the HF-1000 review. I checked out the RX-340 in the anechoic chamber and can report that there was no sign of the internally generated noise conducted out via the tuning knob, and a close inspection of the innards of the RX-340 showed that someone had been well aware of the necessity to design in the best of EMC good practice right from the start. Each coaxial cable had a ferrite toroid at each end, there were dozens of ferrite multi turn inductors on every board, and the front panel assembly was totally enclosed by a metal box secured by lots of closely spaced screws. The result of all this work shows in the overall quietness of the receiver.

Conclusions

It must be obvious to anyone reading this review that I liked the RX-340. It's even better than that; I found this receiver to be the closest thing to perfection that has passed through my test facility over the last ten years. The ergonomics for the 'hands-on' operator could hardly be improved - no, they probably could **not** be improved, and the final design shows that there is a team at Ten-Tec that must have huge practical operating experience which has been condensed into the RX-340 operating features. I just loved this receiver, and I'm only sad that it has to compete in a market having a fair number of alternative second-hand ex-professional receivers around. If you had to buy an RA1792 at a realistic new price for today, then the RX-340 would compete very favourably, but when the RA1792 is available for under £1000, the RX-340 is at a price disadvantage. However, if you want the best new general coverage receiver that money can buy, the Ten-Tec RX-340 is the one to choose, and I heartily recommend it to you.

Happy listening

The Ten-Tec RX-340 is available from the UK importers Waters and Stanton PLC. Tel: **(01702) 206835**, E-mail: **info@wsplc.com** or Web: **www.wsplc.com**
The European model as reviewed is CE approved and costs £3,995 inc. VAT and P&P.

Six-Sho

Not wild west creations for early wireless communications but six element, multi-purpose antennas. The late Joe Carr K4IPV explains.

Let's talk about a class of antennas they call 'Six-Shooters'. I don't know why they call these antennas 'Six-Shooters', but they do. Perhaps the name came from Bill Orr, W6SAI, in his popular *Radio Handbook*, which covered them. Perhaps the name came from elsewhere, like from the fact that there are six elements in the antenna (more or less). But regardless, we're going to call them all 'Six-Shooters'.

The Six-Shooters are variations of what are called 'broadside arrays'. The version shown in **Fig. 1** is basically a small 'Sterba curtain' array, larger versions of which are often used by high-power international short wave broadcasters. Both antennas can be fed with either 300Ω twin-lead, or with 75Ω coaxial cable if a 4:1 Balun transformer is provided at the feed point. Both versions can be built for the medium wave, high frequency short wave or v.h.f./u.h.f. bands.

These antennas can be built of wire or of aluminium tubing, although the wire option is probably the most popular. An advantage of these antennas is that they can be built for frequencies in the 6 to 7MHz range (where wire construction is preferred), if you have enough room, and also well into the v.h.f. region (in which case aluminium tubing construction is preferred).

Considerable Gain

One advantage of these antennas is that they have rather considerable gain; 6dB in the case of **Fig. 1** and 7.5dB in the case of **Fig. 2**. The radiation/reception pattern is bi-directional, and maximum sensitivity is broadside to the array (in and out of the page as you view **Fig. 1** and **Fig. 2**).

There are two uses for gain in antennas. Firstly, antenna gain makes weak signals stronger by their own gain factor, without the extra added noise that a preamplifier introduces. Indeed, if all you have money for is either an antenna or a preamplifier, go for the antenna nine times out of ten. With most receivers, these antennas cause a signal to be about one 'S'-unit stronger than the same signal received on a dipole (plus or minus a little bit). While one 'S'-unit is not very much to write home about at S9, it can be critical at S1!

Secondly, the gain is achieved by re-focusing the pattern so that the maxima are broadside to the array, and there are nulls off the ends. These nulls can be positioned to reduce the signal level of an offending interfering signal on the same, or adjacent, channel. This may be the most important aspect to a directional gain antenna. The problem is one of signal-to-noise ratio - indeed, one of my college professors said that everything about receiving a signal is a matter of managing S/N ratio! The nulls are sharper and deeper than the peaks, so it's possible to null the interfering signal more than the desired signal. So even if the maxima is not aimed directly at the desired signal, the overall performance is enhanced if the null is dead on the interfering signal.

The Six-Shooter in **Fig. 1** - our micro-Sterba - uses elements of three different lengths, labelled A, B and C. These lengths can be calculated from:

$$A = \frac{149}{F_{MHz}}$$

$$B = \frac{A}{2}$$

$$C = \frac{145.5}{F_{MHz}}$$

At 16MHz, these lengths work out to be:

Element	Length (m)
A	9.31
B	4.66
C	9.09

and at 162MHz;

Element	Length (m)
A	0.919
B	0.46
C	0.898

The horizontal distance between horizontal elements should be 100 to 160mm. In wire antennas, an ordinary end insulator placed between two elements will usually suffice.

The lengths of the elements in **Fig. 2** are calculated as shown in the figure. The horizontal elements are each calculated from:

$$\text{Length} = \frac{144.8}{F_{MHz}}$$

While the vertical separation between the two

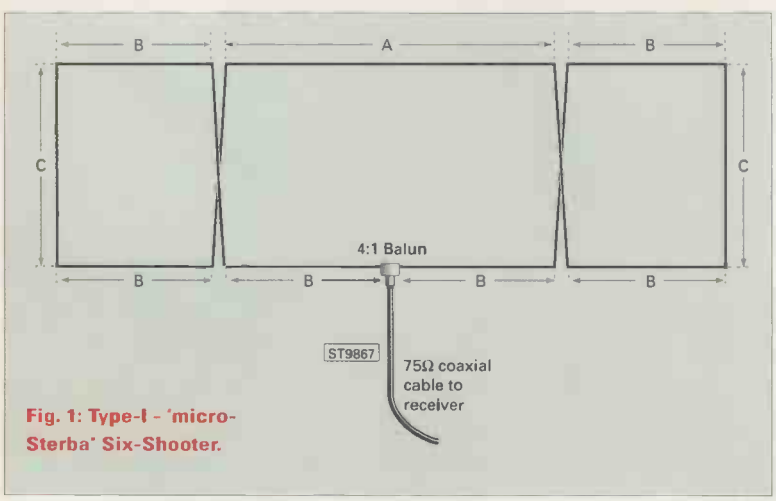


Fig. 1: Type-I - 'micro-Sterba' Six-Shooter.

...ter Antennas

$$\text{Length} = \frac{147.87}{F_{MHz}}$$

rows of horizontal elements is calculated from:

These two antennas are relatively easy to construct of either wire or tubing, and should be considered whenever you want gain on the cheap.

A third type of six-shooter antenna is merely the second type made unidirectional by the addition of a reflector shield quarter wavelength in the direction of the minima (behind the radiator elements). This shield can be constructed of solid aluminium on v.h.f./u.h.f. bands, but it can also be made of chicken wire or other forms of screening. The only criteria are:

1. The screen be about ten percent larger than the dimensions of the antenna, and...
2. The spaces in the antenna be at not larger than one-twelfth wavelength at the lowest frequency of operation.

Safety First!

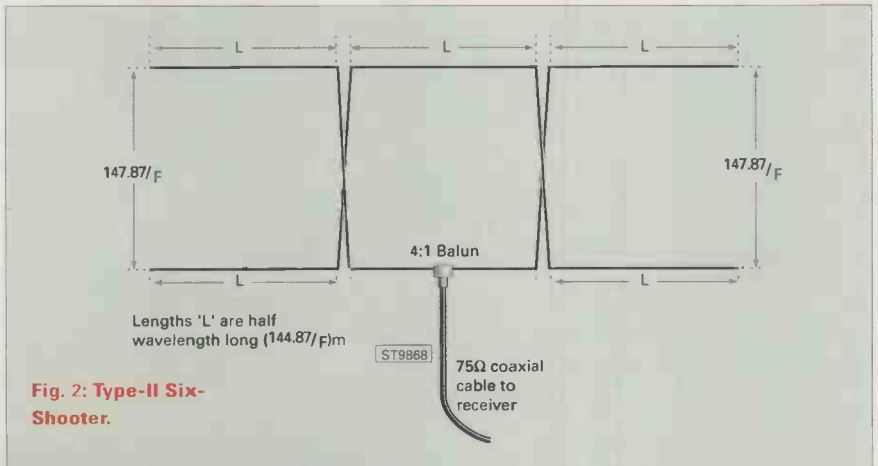


Fig. 2: Type-II Six-Shooter.

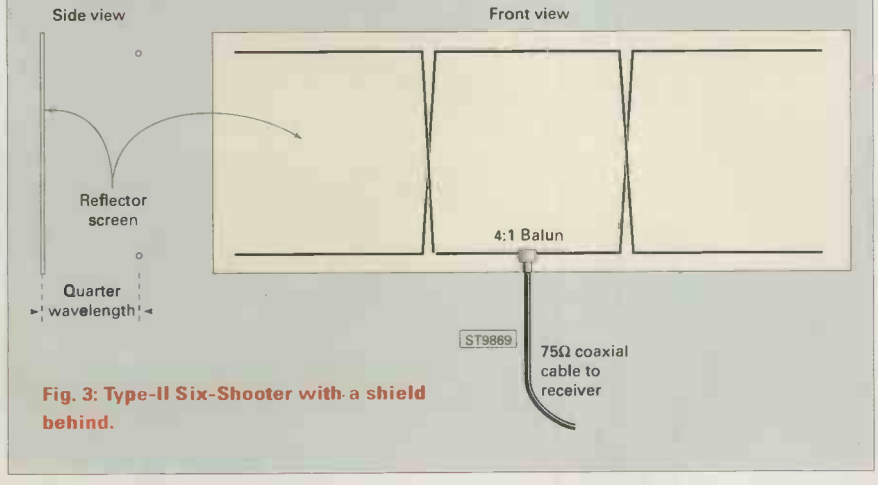


Fig. 3: Type-II Six-Shooter with a shield behind.

Every now and then someone contacts me via E-mail address and asks something about antennas. One fellow, (not a *SWM* reader!), very carefully gave me details of his plan to erect a wire 'Top-hat Tee' antenna for the high frequency short wave bands. In his description, he mentioned that he was going to use a wrench as a weight to toss a rope over the a.c. power lines coming into his home, and then pull the antenna wire over using insulated gloves. I flamed him with my reply: **don't do it!!!!!! it will kill you**. Always keep well away from power lines. They may look insulated, but **power line insulation can be cut by the antenna wire even when it's new**. You have to be dumber than a box of rocks to try any variant of this often fatal manoeuvre!

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This wide range scanner is fitted with a data port for computer control. Features include USB, LSB, CW, FM, WFM * Programmable steps * 1000 memories in 20 banks * Alphanumeric display * Built-in AM antenna * 8.33kHz steps for air band * Rechargeable ni-cads, AC charger and helical antenna.

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ICOM IC-R10E

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USB, LSB, CW, AM, FM, WFM * 1,000 Memories * Bandscope * Noise Blanker * Wide range of tuning steps * alphanumeric Display * Real Time Band Scope * Voice scan feature * Data output port * Programmable scanning * Ni-cad pack, AC charger and helical antenna.

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ICOM IC-R2

500kHz - 1309MHz

This palm size handy offers great performance. Offers FM, WFM and AM * Auto squelch * 400 Memories * 11 Tuning steps * CTCSS decode * Duplex monitoring feature * PC Programmable * Built-in attenuator * Priority watch * Needs 2 x AA cells (extra). Antenna included.

£135 Plus £6.00 Carr.

YAESU VR-500

This lovely little scanner from Yaesu offers superb performance.

* 100kHz - 1300MHz
* 1000 Memories
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* Band scope Priority monitoring
* PC programmable
* Smart search feature
* Alpha numeric recall
* Size 58 x 95 x 24mm 220g

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* Supply: Battery (5-6 hours), ext. 9V DC, 150mA
* Size: 75 x 122 x35mm
* Weight: 300g

£599 Plus £6.00 Carr.

Ten-Tec RX-340 Professional DSP HF Communications Receiver

£3995 Plus £8.00 Carr.

'SEE REVIEW'

I found this receiver to be the closest thing to perfection that has passed through my test facility over the last 10 years ——— and I heartily recommend it to you
John Wilson - Short Wave Magazine.

The Ten-Tec RX-340 is a multi-mode, professional grade, general coverage synthesized receiver. It utilises extensive Digital Signal Processing (DSP), which brings the performance of commercial grade communications receivers into the affordable top end of the amateur market.

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The FRENCH Collection

Just imagine a dream museum located on top of a mountain. Would it be worth a visit? Rosina Brown certainly thinks so.

Radios are Monsieur René Mallet's passion. Located on the top of a mountain in Saint-Appolinard in the Rhone-Alpes, an ancient converted house facing the weatherworn La Marie is the last place any enthusiast would dream of finding 350 radios and seven phonographs dating from 1920 to 1960. But anyone who had owned an early radio would be delighted to make the effort; the beautiful scenic drive to the village is a bonus.

The Maison de la Radio TSF is a museum devoted entirely to European radios, although M. Mallet proudly points out his two exhibits from Argentina and America. Ably assisted by his daughter and Monsieur Jean Giraud, M. Mallet is more than happy to discuss and demonstrate his exhibits from the time of opening at 1000 until 1900 from April to November.

Divided In Four

The museum is divided into four rooms. The first exhibit is a 1939 Ducretet, 3 valves, swiftly followed by a huge display of valves in all shapes and sizes. The display shows and explains how valves have evolved since 1920; size being the main difference.

There are examples of early valve portable radios which, of course, all changed with the birth of the transistor. M. Mallet has about 70 valves in his collection from octal based to the more modern miniature. He took great delight in demonstrating the audio quality of an early valve portable radio and compared the sound to a mains valve radio 10 times its size. Both compared well, if not better than, to modern transistor radios. Technology may have changed dramatically, but sound quality has remained pretty static.

Glancing around the shelves of radios on display, it is easy to see why M. Mallet speaks so passionately about his charges. Every radio, most of which are in full working order, appears to have a character of its own. Most of the collection is European. This might appear to be obvious because of the museum's location in the middle of the Rhone-Alpes, but Europe also had its early pioneers in radio, Guglielmo Marconi and Henrich Hertz being two of the most renowned.

The majority of exhibits are wooden cased, but there are plenty constructed of Bakelite, a material popular for a variety of household items in the 1940s and 50s. Walnut and mahogany were used in abundance in earlier decades, and the quality of construction of the cabinets suggests that real craftsmen have been at work.

Excellent Sound

M. Mallet then demonstrated a Telefunken stereo u.h.f. radio. The sound quality was excellent and it is clearly one of the owner's favourites. Even the tone can be altered to accommodate different types of music and it is doubtful whether a better example of versatility and audio quality could be bought today. Among his valve radios, a 1926 Mira, a 1924 Gody, a 1922 American Atwater Kent and an Â Identifier dated 1936. All are in pristine condition and obviously built to last.

There are several early examples of cat's whisker crystal sets, including a 1922 Â Galène and a 1924 model complete with plug-in coils for changing the wave band - all ably demonstrated by a French mannequin!

Several examples of cylinder phonographs and mechanical (wind-up) record players are displayed on the second floor. A spontaneous demonstration by M. Giraud of one of the phonographs playing a 78r.p.m. record of a traditional French tune immediately had the assembled French coach party tapping their feet in time to the music.

From the smiles and nods amongst the elderly visitors, it obviously brought back fond memories to many. Portable record players from the early sixties are displayed next to the early phonographs and perfectly preserved radiograms, all in polished wooden cabinets with examples of automatic record changes, stand proudly in line, each one a work of art.

Real Passion

M. Mallet's collection is primarily made up with his own radios collected during his many years in the business of repairing them. Some are on loan as permanent exhibits for visitors from all over the world to enjoy. The owners of these unique receivers need not worry about their prized possession; M. Mallet treats every radio the same - with the respect and care it deserves - and with a real passion.

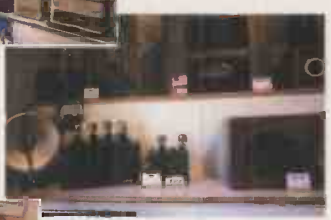
SWM

A 1924 model of a cat's whisker crystal set being 'demonstrated' by a mannequin *(courtesy of The Maison de la Radio TSF).*

Radiograms and radios dating from 1920 to 1960.

A selection of phonographs and portable record players.

A few of the exhibits.

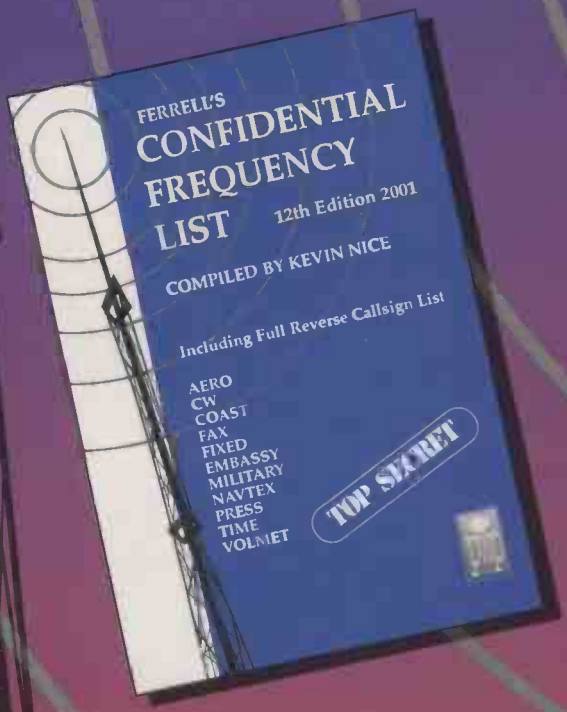


GODY 1924, MIRA 1926 open valved sets.

Early type crystal sets.

A few of the exhibits.

Don't accept second best



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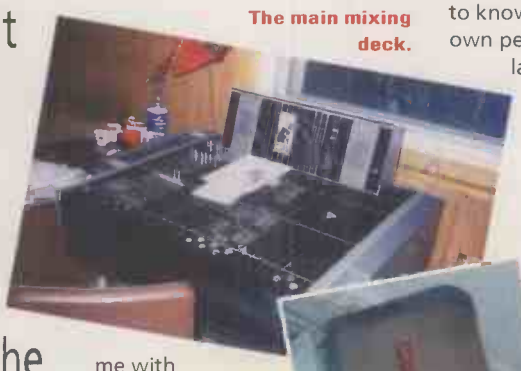
Radio Ukraine International

Peter Egypt immensely enjoyed his visit to RUI where he learned much about the history of the station.

In Eastern Europe you will find many riches. You will find people with a good heart. You will find music that can enrich your life. You will read books that will teach your soul to love your fellow man. You can have all this by listening to Radio Ukraine International. I had the wonderful experience of visiting Radio Ukraine International (RUI). Ever since I began listening to distant stations from around our beautiful earth, I wanted to visit a short wave station. Two lovely Ukrainian ladies greeted me with warm hearts and thankful souls. The first was Inna K. Chichinadze, Deputy Director. The second was Yulia McGuffie, Deputy Editor-in-Chief. They taught me about the history of RUI.

(L to R) Yulia McGuffie and Inna Chichinadze.

The entrance plaque to Radio Ukraine International.



The main mixing deck.

The sign above the recording room door - which says 'No Talking - Recording'.

RUI's History

Inna informed me that October 1st is the 50th anniversary of their station. And that's not all there is to know about the history of RUI. After World War Two, RUI's programmes were intended for Ukrainians living abroad. In 1962, RUI opened their first English language broadcast. In 1966 they began the German language broadcast. Then, in 1970, RUI started their Romanian language broadcast.

RUI suffered from a fire almost three years ago. They had to use a temporary building to keep their messages available to the world.

Yulia and Inna explained their mission to me. They said the world sees Ukrainians as Russians. RUI wants the world to know Ukrainians are their own people with their own language. They hope to educate people from around the world on these facts. The second message RUI wants the world to know about is the wealth of Ukrainian Culture.

Many Programmes

There are many different programmes you can listen to. There are several in the English language. *Ukraine Today*: Digest of the days news. *Close up*: Programme of Ukrainian life. *Hello from Kyiv*: Listener's Letters. *Music from Ukraine*: Sunday Concert. *DX-Programme*: Information on DXing. *Ukrainian Diary*: Review on the week's main events. If you want to learn more about RUI, you can visit their web page at **www.nrcu.gov.ua**

RUI is staffed by 100 hardworking people. Unfortunately, state jobs in Ukraine don't pay equal to what they pay in the United Kingdom. I want to ask a favour of those who want to help our fellow radio lovers in Ukraine. Please mail a small donation to RUI. Their address is: **Radio Ukraine International, English Section, Kreshchatik 26, Kyiv 01001, Ukraine**. Thank you.

One of the studio reel-to-reel tape machines.

More studio recording equipment utilised in the making of RUI programmes.

Tune In & Listen

Ukraine has an important part in world history. They have much to share with you. All you need to do is tune in and listen to Ukrainian Culture. ***SWM***

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- TURBO SCAN 100 Ch/Second
- TURBO SEARCH 300 St/Second
- Automatic Freq Storage
- Selectable Attenuator
- Automatic Freq Sorting
- Data Skip
- Delay Key
- Channel Count Key
- Supplied complete with earphone, case, belt clip, charger and rubber duck antenna

NEVADA PRICE- £199.95

UBC 220XLT

- 66 - 956 MHz (with gaps)
- AM/FM
- 200 memories
- TURBO SCAN 100 Ch/Second
- TURBO SEARCH 300 St/Second
- Data Skip facility
- 10 Priority Channels
- Memory Backup
- Supplied c/w earphone, belt clip, charger and rubber duck antenna

NEVADA PRICE- £149.95

UBC 120XLT

- 66 - 512 MHz (with gaps)
- AM/FM/WFM
- 100 memory channels
- TURBO SCAN 100 Channel/Second
- TURBO SEARCH 300 St/Second
- Data Skip facility
- 10 Priority Channels
- Programmable Search
- Channel Lockout Key

NEVADA PRICE- £129.95

UBC 60XLT

A brand new low cost scanner that covers MARINE, LAND MOBILE and more!

- 66 - 512 MHz (with gaps)
- 30 memories
- Channel or Freq display
- Priority Channel
- Channel Lockout
- Scan Delay

NEVADA PRICE- £79.95

YAESU VR120

PROFESSIONAL GRADE WIDEBAND POCKET SCANNING RECEIVER

- 100kHz - 1299.995MHz
- AM/FM/WIDE-FM
- 640 Memory channels
- Preset 'Quick Tune' mode
- Selection of scanning modes
- 'Channel Counter' feature measures frequency of local signal
- Clone capability

NEVADA PRICE- £159

YAESU VR500

SPECIAL!

ULTRA COMPACT RADIO

- 100kHz - 1300MHz
- FM, Wide FM, USB, LSB, CW, AM
- 1091 Memory channels
- Weight 220g
- Comes complete with Antenna, carrystrap, Belt clip
- Optional Charger: NC60

Optional Accessories

- FNB-59 NiCad battery pk
- NC-60 AC adaptor
- CSC-72 Soft case
- EDC-5B DC cable with cigar lighter plug
- EDC-6 DC cable
- CT-35 Cloning cable

NEVADA PRICE- ~~£244~~ £199

Bearcat UBC 860XLT

AIRBAND Base Scanner

A stylish low profile base scanner with TWIN TURBO scan and search facility. Covers civil airband, marine, police, cellular plus more!

- 66-88, 108-174, 406-512, 806-956MHz
- 100 mems • Turbo Scan - 300 steps/sec

NEVADA PRICE- £139

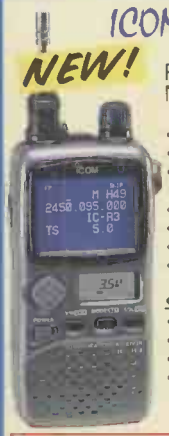
UBC 9000XLT

- 25 - 1300 MHz (with Gaps)
- 500 memory channels I VFO Control
- Selectable Attenuator I Selectable Delay
- Selectable Mode AM/WFM/NFM
- TURBO SCAN 100 Ch/Sec
- TURBO SEARCH 300 St/Second
- Alpha Numeric Display
- Automatic Store I Frequency Transfer
- Auto Tape Record I Data Skip facility
- Programmable Search

NEVADA PRICE- £269

ICOM R3

NEW!



REVOLUTIONARY NEW HANDHELD!

- 495kHz - 2451MHz
- 450 memories
- Modes: FM, AM, WFM, AM-TV, FM-TV
- Alpha tagging
- CTCSS with tone scan
- 2" colour TFT display
- Video audio output

SUPPLIED C/W

- *telescopic antenna*
- *belt clip*
- *charger*
- *LI/ION battery pack*

NEVADA PRICE- £449

ICOM IC-R2

SPECIAL!

PRICE MATCH

One of the smallest radios we have ever seen, Palm size wide band size is not everything. Packed in this receiver's small package are some pretty big features.

- 500kHz -1310MHz
- AM/FM/WFM
- 400 memories plus 25 band edge memories for easy scanning between specified frequency

NEVADA PRICE- ~~£154~~ £139

MAYCOM AR108

Palm sized Airband & VHF Scanner

- Airband: 108 - 136.975MHz VHF: 136 - 180MHz
- Selective Channel Steps: 5, 10, 12.5, 15, 25, 1MHz
- Modes: AM or FM
- Memories: 99
- Dual Watch Function
- Key Lock
- Battery Save Function
- Battery Voltage Indicator
- Supplied C/W Belt Clip, Carrying Strap

Mains Charger £8.95 £2.75 p&p

NEVADA PRICE- £69.95

AR 8200 MkII

SPECIAL!

LATEST model!

- 530kHz-204MHz
- All Mode inc. 8.33kHz AM
- 1000 Memories
- Plus LOTS MORE!

WE CARRY THE FULL RANGE OF ACCESSORIES here's just a few!

CT8200...CTCSS £69.90
EM8200..External memory .£59.90
RU8200...Record/Play Back..£59.90
TE8200...Tone eliminator...£39.90
VI8200....Voice inverter £59.90
SC8200P..Padded soft case ..£19.95

NEVADA PRICE- ~~£434~~ £399.95

YUPITERU MVT 3300

- 66 - 88MHz, 108 -170MHz 300 - 470MHz, 806 - 1000MHz
- MODES: AM/NFM
- STEPS: 5, 6.25, 10, 12.5, 25kHz
- MEMORIES: 200
- BAND MEMORIES: 10 (user re-programmable)
- PRIORITY CHANNELS: 10
- SCAN/SEARCH SPEED: 30/ second
- Requires 4 x AA batteries
- SUPPLIED WITH: Antenna, Earpiece, Carrying Strap and built-in Desk Stand

NEVADA PRICE- ~~£154~~ £149

YUPITERU MVT 7100

Probably the most popular high end Scanner. It's easy to use and can receive just about anything!

- 530kHz-1650MHz
- AM/FM/WFM/SSB/CW
- 1000 memories
- Steps 50Hz, 100Hz for tuning LSB & USB
- 155H x 64.4W x 32Dmm
- Weight - 320g
- Supplied with NiCads, mains charger, 12VDC cigar lead, belt clip, carry strap

NEVADA PRICE- ~~£244~~ 229

YUPITERU MVT 7300

- 520kHz -1.32GHz
- 1000 Memories
- 8.83kHz Airband
- Duplex reception
- Descramble function
- Clock timer
- Signal strength meter
- Auto memory write
- Supplied c/w Mains adaptor, NiCads, Belt clip

NEVADA PRICE- ~~£284~~ £259

YUPITERU MVT9000EU

FLAGSHIP MODEL, with a range exceeding 2000MHz, a real time bandscope.

OP90 Soft Case £26.95 £2.75 p&p

- 531kHz - 2039MHz
- 1000 memory channels
- W-FM, FM, N-AM, AM, LSB, USB, CW
- Scanning steps 50Hz-125kHz
- Duplex receive capability
- Fast tune facility
- Built-in ferrite rod antenna for AM broadcast reception

NEVADA PRICE- £369

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GRUNDIG SATELIT 800

The ultimate in features, performance, convenience, and sound. It's incredibly powerful, technologically sophisticated, yet easy and intuitive to use. Whether you're an experienced Shortwave listener or a newcomer to the world of international broadcasting, this is the radio to get.

Frequency Range:
- 100-30,000kHz (0.1-30MHz) for AM Broadcast and Shortwave
- 87-108MHz for FM Broadcast
- 118-137MHz for Aircraft Band

Modes:
- AM, USB, LSB modes (0.1-30MHz)
- AM mode only for 118-137MHz
- WFM mode only for 87-108MHz

Tuning:
- Direct Input digital key pad combined with manual tuning
- Synchronous detection
- Excellent sensitivity and selectivity
- Three built-in bandwidths for SW
- You aren't limited to SW signals.
- Sure direct keypad digital tuning
- 70 user memory presets
- Two timer clocks keep track of time

EU version features
- 240V AC mains adaptor & Deluxe Headphones included
- Full UK warranty
- CE Approved

NEVADA PRICE- ~~£544~~ £549

WORLDSPACE DIGITAL SATELLITE RADIO

NEW!

Receive over 40 channels of FADE FREE DIGITAL PROGRAMS direct from satellite to this radio - *from almost anywhere in the world!*

IN STOCK

Hitachi radio features:-
- WorldSpace satellite *PLUS* FM/MW/SW
- SW1: 2.3 - 7.3MHz, SW2: 9.5 - 26.1MHz
- Portable, battery powered with AC adaptor
- Stereo headphone socket
- Stereo line out connectors for integration with your stereo or home theatre system
- Built-in easy to aim antenna
- Decryption and narrowcast capability
- Program selection by language and category
- 10 presets and last station memory
- Clock display/timer function
- 1-line 8 character LC display
- Port for easy attachment to the WorldSpace PC card to enjoy multimedia services
- Easy to set up and operate

PRICE - £149

ICOM IC-R8500

PRICE MATCH

Yes, we've got them in stock! This receiver is everything we hoped it would be, covering 100kHz - 2GHz and lots of features including computer control. Pay by 3 post dated cheques!

NEVADA PRICE ~~£1349~~ £1299

PALSTAR R30

PORTABLE COMMUNICATIONS RECEIVER

Compact high performance radio capable of receiving multimode signals in the 100kHz-30 MHz spectrum. Excellent strong signal handling, high sensitivity & dynamic range to eliminate annoying intermodulation interference.

- 100kHz - 30MHz AM, SSB SW
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- Ceramic filters fitted as standard
- Collins mech. filter optional
- 5W low distortion full fidelity audio amp
- 6-digit LCD display
- Analog S-Meter
- Line Audio output
- 100 memory channels
- +15dBm 3rd order intercept
- Miniature size. 8"W x 2.5"H x 9"D

NEVADA PRICE £399.95

YAESU VR 5000

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NEW!

MOBILE WIDEBAND RECEIVER

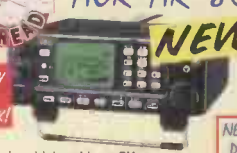
- 100kHz - 2,599MHz
- Multi mode
- Real time band scope
- Optional DSP bandpass, notch & noise reduction
- Optional filters

NEVADA PRICE CALL!

AOR AR-8600

NEW!

NOW IN STOCK!



All mode wideband base RX
- 530kHz-2040MHz
- 8.33kHz airband steps
- Optional slot cards

OPTIONAL PSU AVAILABLE

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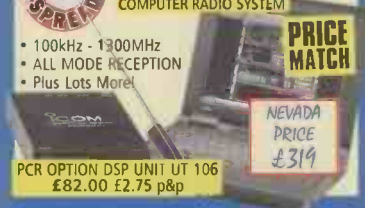
ICOM PCR 1000

COMPUTER RADIO SYSTEM

- 100kHz - 1300MHz
- ALL MODE RECEPTION
- Plus Lots More!

PRICE MATCH



NEVADA PRICE £319

PCR OPTION DSP UNIT UT 106 £82.00 £2.75 p&p

YAESU FRG-100

PRICE MATCH

This receiver provides solid coverage from 50kHz to 30MHz with all mode reception of AM, SSB and CW. Supplied c/w AC mains supply

NEVADA PRICE ~~£444~~ £399

AOR AR 5000

PRICE MATCH

SHIPPED TODAY!

- 10kH - 2.6GHz

All mode top class receiver & scanner packed with features

AR 5000+3 £1799

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ROBERTS R861

DIGITAL WORLD BAND RADIO WITH R·D·S

- Covers MW/LW/FM/SW
- Receives SSB short wave
- 307 presets
- Clock/alarm facilities

Supplied with dual voltage AC supply, sw antenna, earphone, carrying case

NEVADA PRICE ~~£200~~ £179

ROBERTS R9914

DIGITAL WORLD RADIO

- Covers MW/LW/SW/FM
- SSB & CW reception
- Ideal for BBC World Service
- Clock/alarm facilities

Supplied c/w AC adaptor, earphone, carrying case

NEVADA PRICE £99.95

GRUNDIG YB400 PORTABLE SW RADIO

PRICE MATCH

- General coverage RX (144kHz - 30MHz)
- SW: 1.711-26.1MHz
- FM Stereo• MW/LW
- SSB reception
- 40 station preset
- Narrow/Wide bandwidth
- Mains or Battery powered (with optional mains adaptor)
- Supplied c/w SW Handbook, Carrying case, External Wire Antenna, Carry Strap

NEVADA PRICE £99

SCANMASTER LP1300

WIDEBAND BEAM ANTENNA
16 ELEMENT LOG PERIODIC DESIGN

- 105 -1300MHz
- Gain 11-13dBi
- 'N' type connector
- 500W

NEVADA PRICE £129

SCANMASTER DESKTOP

A complete desktop antenna covering 25 -1300 Mhz, just 36" high with 4 metres of cable, fitted BNC plug with a magnetic base.

NEVADA PRICE £49.95

SCANMASTER DD 1300

DOUBLE DISCONE

A high performance wideband antenna

- 25-1300MHz
- Ultra wideband TX capability

NEVADA PRICE ~~£54.95~~ £39.95

SCANMASTER B128

AIRBAND BASE SCANNER

A dedicated CIVIL AIRBAND base antenna designed to give long distance reception on 117-140MHz. Supplied c/w mounting tube & mast clamps.
- 'N' Type connector
- length: 1mtr

NEVADA PRICE £39.95

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Videoscanner REVIEW

Being an experienced video monitoring enthusiast, Alan Gardener was exceedingly keen to get his hands on the latest offering in the field of 2.4GHz integrated video receivers.

I have been interested in monitoring video signals for a couple of years now, and I've had a lot of fun finding all sorts of strange transmissions. The 2.4GHz frequency band is especially interesting because it is used by many commercial operators, and just recently has become very busy with signals from inexpensive licence free videosenders.

These operate on a few de-regulated frequencies in region of 2.4GHz, using low power type approved equipment with integral antennas. They are intended to provide a cheap means of relaying video around the home. For example, to allow a satellite receiver or video to be viewed in a different room, or to relay pictures from a remote video camera back to the TV. Judging by the number of these units being sold in my local d.i.y. store it looks as if they are starting to become almost as commonplace as 49MHz wireless baby monitors. In addition to more common domestic uses, the guts of these units are also frequently used as the basis of relatively cheap spy shop covert video surveillance systems. So as you can imagine, in a typical urban area, you stand a reasonable chance of finding some signals, but first you need a receiver.

This is where the fun starts. Until fairly recently the only option was to either build or modify suitable equipment yourself. If you want to have a go at doing this, a lot of information is detailed on the Radproject website at **http://www.geocities.com/ResearchTriangle/System/5140/**

However, during the past year receiver modules have become available for amateur use from companies such as G1MFG who can be found at **http://www.g1mfg.com/**

Although this has made things a great deal easier and the results that can be obtained can be very good indeed, it still requires a reasonable degree of knowledge to be able to connect all the required bits together and make it work properly. Even the new Icom IC-R3 hand-held scanner does not produce satisfactory results when used for video reception at 2.3GHz. So when I heard about a Videoscanner becoming available I was interested to see how it would perform.

The Videoscanner

The Videoscanner is basically a small black and white video monitor measuring approximately 130 x 170 x 200mm with a built in 2.3GHz receiver and directional antenna. The monitor was originally designed to be part of domestic wireless CCTV system but it has been carefully modified to provide extra functions. The unit only has a few controls, unlike most of the scanners I am used to dealing with, but they provide all that is required for the basic reception of video signals. The front of the unit is dominated by the 125mm monochrome c.r.t. display. Underneath the screen are two edge mounted rotary dials, the left-hand one is used to switch the unit on and set the audio volume and the right-hand one is used to set the brightness. A small, two-position slide switch, on the right-hand side of the unit sets the scanning function. The rear panel has a socket for the 12V d.c. supply input, a 3.5mm jack for audio out, a 3.5mm jack for video out, and small rotary controls to pre-set the contrast and vertical hold. A small plate antenna is mounted on the top of the unit towards the back left-hand side, and this is mounted so that it can be swivelled and tilted to achieve the best results during the reception of signals. The antenna seems to be circularly polarised, which is very useful for receiving signals at frequencies such as this, where the original polarisation of the transmitted signal tends to become scattered as it is reflected off nearby objects.

After applying power to the unit and switching it on there is a short delay whilst the c.r.t. screen warms up and noise bursts from the speaker. The top part of the screen has a simple frequency display which initially shows the receive frequency for a few seconds. Moving the side mounted slide switch into position 1 starts the unit scanning. The on-screen display starts to advance slowly as the receiver tunes at a rate of about 1MHz per second. Then after a short period of time the speed increases to a faster rate of about 12MHz per second, so the entire frequency range of 2.3 to

2.5GHz is scanned in about 15 seconds. Moving the switch to position 2 stops the scan, and moving it back to position 1 restarts it again, but this time in the opposite direction and at the slower tuning rate, making it easy to fine tune the receiver

for the best results. Once the scan has been stopped by putting the switch into position 2 the on-screen frequency display remains visible for a few seconds and then disappears, leaving just the received video displayed on the screen. Although the in-built display is only in black and white, colour signals can be seen on a suitable external monitor via the rear panel video connector, providing of course that the signal is actually being transmitted in colour. It should also be noted that the on-screen frequency display is not present on the external video output. It is worth noting that due to the techniques used to provide the on-screen frequency display, it can appear a little unstable when only noise is being received. It is however, 'rock steady' when a signal is present.

The sound subcarrier frequency is fixed at 6MHz and this should be suitable for the reception of most videosender type transmissions. Any other signals which may be encountered are not likely to have audio subcarriers present, as either, other frequencies are used for communication purposes, or different techniques such as sound in sync are favoured.

Measurements on the receiver indicated that it had a receive sensitivity somewhere in the region of 90dBm which is good, and an i.f. bandwidth of about 16MHz, which is a reasonable compromise for the reception of video signals of the type the unit is likely to be used for. Compare this with the 60dBm figure for the IC-R3 that I reviewed in June 2001 *SWM*.

So if you have a specific frequency that you are interested in, it is very simple to tune to it by starting the scan and then stopping it and using the slide switch to fine tune to the required frequency by observing the on-screen display. Then all you have to do is sit back and watch, and perhaps adjust the antenna for the best results.

Searching

However I guess at some point most users will want to see if they can find other signals, and this is where the scanning function becomes useful. In order to give the unit a reasonable test I decided to take it onto a local hill and see if I could find any interesting transmissions. I powered the unit from the cigar lighter socket and placed it on the car dashboard with the antenna facing out towards the horizon. I then set the receiver scanning and waited for some video to appear. Of course I would have been very lucky to see something on my first expedition out with the new toy, so I guess I wasn't too disappointed when I didn't find anything!

Many previous attempts at portable video reception with slightly more sophisticated equipment have usually produced zero results, so I was not particularly disheartened. Experience has shown that unlike scanning for radio communications where there are lots of reasonably strong signals to monitor, microwave video is a lot more difficult, and requires planning to get the best results.

What's Out There?

Users of the 2.3GHz band tend to fall into a few distinct categories.

Amateur television operators generally use the frequency range 2.3-2.4GHz, have directional antennas, a reasonable level of transmitted power, and are mostly active during the evenings and weekends. If they are operating you stand a good chance of being able to receive them several tens of kilometres away providing there are not to many obstructions in the way.

Civil and military users also tend to use the 2.3-2.4GHz band for air-ground video transmission and short range surveillance links. Air-ground video can be received from 10-20km without too much difficulty, a number of users protect themselves against casual monitoring by using some form of analogue encryption. You can usually recognise this, as it looks very similar to the sort of encryption that was used by BskyB on their analogue services from Astra. Covert surveillance links are usually very short range and do not use encryption, but the chances of finding a professionally installed one by accident is very unlikely. Once again you need to think about the most likely times and locations where these sort of transmissions may be found.

Domestic video senders use a few specific frequencies around 2.4GHz. Units that have been imported from America use 2.434, 2.453, 2.473 and 2.411GHz and units used in Europe use 2.400, 2.427, 2.454 and 2.481GHz. The range of these devices tends to be only 50m or so, but domestic wireless CCTV cameras seem to work over greater distances, generally because they are mounted in relatively high positions outside property so the signals are not attenuated as much by the fabric of the building. The uses that videosenders are put to tend to fall into two specific categories. The first is relaying video from a VCR or satellite receiver to a second TV somewhere in the home. The evening is the best time for monitoring such transmissions, and it is likely that any

The optional companion 2.40 GHz camera.

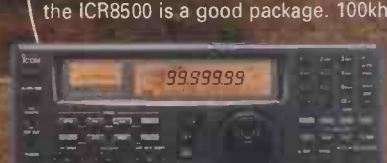
Continued on page 42

AOR AR8600

Another winner from the AOR stable with all the features of an AOR8200 put into a mobile box. Supplied with a Mains Adaptor and Cigar Lead at **only £699.00**

Icom ICR8500

If you want short wave and scanning all in one box then the ICR8500 is a good package. 100khz-2000mhz all mode. Supplied with a PSU and Discone antenna **at £1349.00 you are ready to go.**



Icom ICR3E

The only scanner with a built in TV we are still having problems getting enough stock to fulfill our orders . **For this month only £399.00**

Icom ICR2E

Pocket scanner with AM/FM & WFM covering .5-1300mhz Ideal second scanners **at only £139.00**

JRC NRD545

Still our number one selling Short wave receiver! **Coverage is 100khz - 29.999999mhz offering all mode operation (AM/FM/USB/LSB/ RTTY/CW) Band widths are variable between 0.01 to 9.99khz.(except AMS/FM & WFM). A unique feature of this radio is a true VHF/UHF add on board offering 30mhz-2000mhz all mode operation including WFM. For those of you that like to connect your radio to the PC there is a full control package available for free download at www.jrc.co.jp .**

JRC NRD545 £1599.00

Options
CHE 199 VHF/UHF Module £299.00.
NVA319 Matching Speaker £199.00.
JRC ST3 Communication Headphones £65.00

IcomICR9000L

There are scanners, there are receivers but this is one of the finest communications receivers around. Cost is around £7000.00. If that doesn't put you off, then call for a detailed Brochure.

Yaesu VR500

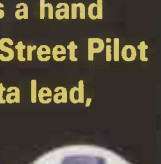
The pocket Communications receiver

100khz-1300mhz all modes.

A brilliant radio at only £199.95

Garmin E Map

The Garmin Emap is a hand held version of the Street Pilot and comes with Data lead, 16mb Ram Card & *UK Metro Guide* on CD Rom at only £329.00.



antennas

MyDel Magnetic Long Wire Balun **Only £19.95**
MyDel Skywire Antenna Kit **Only £39.95**
MyDel Discone 25/1300MHZ **Only £39.95**

NEW DRESSLER ANTENNAS IN STOCK

The ARA 100HDX and ARA 2000HDX....at £349 each

This outstanding range is ideal for use with all base station receivers, the ICR-8500, AR-5000, PCR-1000, NRD-545, FRG-100 & more! Beautifully constructed and designed in Germany .

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The full range of dressler antennas are now available from ML&S.

ARA 60 **£169** ARA 2000 **£169**

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Short Wave Receivers

Yaesu VR5000

The VR5000 has very quickly established itself as a very popular take anywhere unit. Chris Lorek said in a recent review "A great wide band multimode receiver for the price" I can only agree with him no other radio in this price bracket offers all these features -: World Clock, Programmable Timer,Real Time-Spectrum Scope, Front End Preselection Bandpass filter,Audio wave meter and so much more. Coverage is all mode 0.1-2599.99998Mhz. The Unit comes supplied with a mains power supply and telescopic antenna. Options available are the DSP-1 Digital Signal Processing unit, FVS-1A Voice Synthesizer which will announce frequency, DVS-4 Digital Voice Recorder.

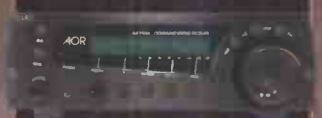
Yaesu VR5000 £699.00
DSP-1. £79.00
FVS-1A. £39.00
DVS-4. £29.00

The first three people to order a VR5000 this month will receive a free VR120

AOR AR8200mk2

One of the best hand held scanners available complete and **ready to go at £399.00**

AOR7030 £729.00



With Free PSU

Yaesu FRG100 £399.00

With Free PSU

Kenwood TS-570DGERX

£949.00 (inc PSU)

Grundig YB400

A portable short wave receiver with SSB reception.

£119.95

Grundig Satellit 800 millenium

£599.00

Icom ICR75 £629.00

With Free PSU

AOR7030 plus

£949.00

nning Receivers

Icom PCR1000

Computer controlled receiver 100khz-1300mhz

£365.00

45 plus CHE199

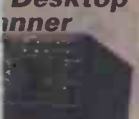
covering 30hz-2000mhz

99.00

AOR5000

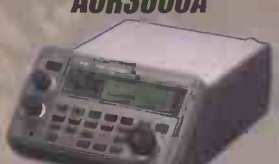
£1599.00

UBC9000XLT Desktop nner



9.00

AOR3000A



£799.00

Handheld Scanners

MVT9000EU MK2

The new improved Mark 2 version

£385.00

NEW Watson WR5002 and Super Searcher Reaction Tune package at £259.00

The WR5002 and Super Searcher give near field frequencies and Audio like a scout and AR8000 but at half the price.

NEW

Yaesu VR120

100hz-1300mhz AM/FM and WFM a good all round pocket scanner with World Broadcast AM reception and a host of new features for a budget scanner

£159.95.

The Yupiteru MVT7100

despite being around for a long time this scanner is still a popular model offering 100khz-1300mhz all mode reception.

£229.00

Maycom AR108

This little airband scanner sells itself with coverage of the civil airband

Only £69.95

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Web site: hamradio.co.uk e-mail: sales@hamradio.co.uk

Videoscanner REVIEW

Continued from page 39

reasonably sized modern housing estate will have at least one such unit in use. Chip shops, takeaways and pubs also seem to use them to relay a satellite channel from living accommodation to a TV in a public area on a fairly frequent basis. The second use is for wireless CCTV. The most common use being on industrial estates for monitoring car parks, loading bays and reception areas. These tend to operate 24 hours a day and provide a good test source for experimentation. Owners of large houses also seem to make use of them to keep an eye on their driveways and surrounding property.

Finally the spy-shop covert video cameras. These frequently use transmitter modules from domestic videosenders and so can be found on similar frequencies. However the transmitters are sometimes modified to increase the power level and higher gain antennas fitted to improve the range, so you may be lucky. These devices are often disguised as everyday objects such as wall clocks, smoke detectors, exit signs, etc. and are typically used for a short duration by private detective agencies, employers and suspicious spouses, for all the usual reasons. Once again you need to use a bit of imagination as to where, and when, these sort of devices are likely to be used, if you are to stand a chance of monitoring one.

One other user who I have not mentioned so far, are the commercial TV companies who use the band for occasional short-range video links. These can be from aircraft, boats, cars, motorbikes or hand-held cameras and can frequently be found at large sporting events. They have 15 channels available, spaced at 20MHz intervals starting at 2.400GHz. Their use is fairly infrequent and is outside the tuning range of the Videoscanner, but I have mentioned them for the sake of completeness.

All I Can See Is Noise

Monitoring any of these transmissions from a fixed location is relatively easy, you just switch on the videoscanner and wait for something to appear. However to increase your chances of finding a transmitter operating within your reception range, you need to get out and about. I experimented with using the videoscanner in a car, by getting a friend to drive me around some of the areas we thought may produce results. I sat in the back (it's illegal for a car driver to be watching TV whilst on the move and there are some fairly specific rules about the siting of video screens in vehicles) and after driving around a few industrial estates at low speed, we got our first catch.

This was from a wireless camera mounted on a building looking down at the car park. We stopped the car and adjusted the antenna and tuning to get the best results, we then tried driving at various speeds to see what sort of pictures we could get whilst actually on the move. It is fair to say that you have to drive very slowly indeed to stand a chance of capturing low power video signals like this. The main problem is the very rapid phase cancellation of the signal, which occurs as you drive around and receive multiple signals reflected off nearby objects. This is due to the nature of the very short wavelength microwave signals and cannot easily be avoided. Just moving the receive antenna a few mm either way can produce very dramatic changes in the received signal.

The second problem is the low power of the transmissions, which mean that they can usually only be received at distances of less than 100m. The final problem is the scanning speed of the Videoscanner which needs to be slow enough for you to be able to spot some video when it is present, but fast enough to tune across the required frequency range at a reasonable rate. No doubt additional functionality could have been added to the Videoscanner such as stopping the search when video was detected, but this would have added to the cost and complexity, and negated the concept of a simple straight out of the box receiver.

After the novelty of finding our first camera wore off a bit we decided to try a bit more experimentation and during the next few days we were able to find quite a few different signals, some of which were very intriguing indeed, but that's another story.

Summary

The Videoscanner is a simple no-frills microwave video receiver capable of tuning over the 2.3-2.5GHz band. The receiver is sensitive and capable of providing good reception providing you are within range of the transmitting source, especially in large urban areas where there is likely to be a high degree of usage. There are plenty of lower cost ways to achieve similar results, but the Videoscanner provides a quick means of receiving signals without the hassle and unpredictability of connecting together lots of individual bits of equipment and obtaining a suitable antenna. The Videoscanner could well herald the beginning of a new dimension to the hobby of monitoring radio transmissions.

My thanks to Videoscanner for the loan of the review model. More details can be found at **http://www.videoscanner.co.uk** or **Videoscanner, PO Box 12, Hedge End, Hants SO32 2EG**.

The Videoscanner cost around £160 and includes a mains adapter and video output leads for connecting to a VCR or colour screen.

Also available for use with the Videoscanner is a companion video camera complete with p.s.u. and bracketery. ***SWM***

Win

Worth £129.95

one of a pair of compact

Alinco DJ-X3 Scanners!

We reviewed this handy scanner back in the August issue of *SWM*. Compact and covering 100kHz to 1300MHz, this radio would make an ideal permanent companion, to ensure you never miss the action. It would also make a terrific beginner's scanner or a second to compliment your existing set-up.

In all, the DJ-X3 would be great to own - it even has a built-in stereo decoder so you can enjoy broadcast f.m. with headphones. So, why not try your luck - thanks to Nevada we've got two sets to give away - don't delay, complete the entry form and get it off to us straight away.

The draw will take place on 5th November 2001, the results will be published in the December 2001 issue of *Short Wave Magazine*.

The Editor's decision is final.

Specification

Frequency Coverage:	0.1 - 1300MHz
Modes:	a.m, n.b.f.m., w.b.f.m.
Memories:	700 channels
Steps:	5, 6.5, 8.33, 10, 12.5, 15, 20, 25, 30, 50 and 100kHz
Size	56 x 102 x 23mm (w x h x d)
Weight	14.5g (plus batteries)

To enter this prize draw, please fill in your details on the entry form, (photocopies can be accepted with the original corner flash attached), answer the two questions and post your entry to: ***SWM* DJ-X3 Draw, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.**

Name .....

Address .....

.....

.....

.....

Tel: ..... E-mail: .....

Do you receive SWM every month?: .....

Where do you buy SWM?: .....

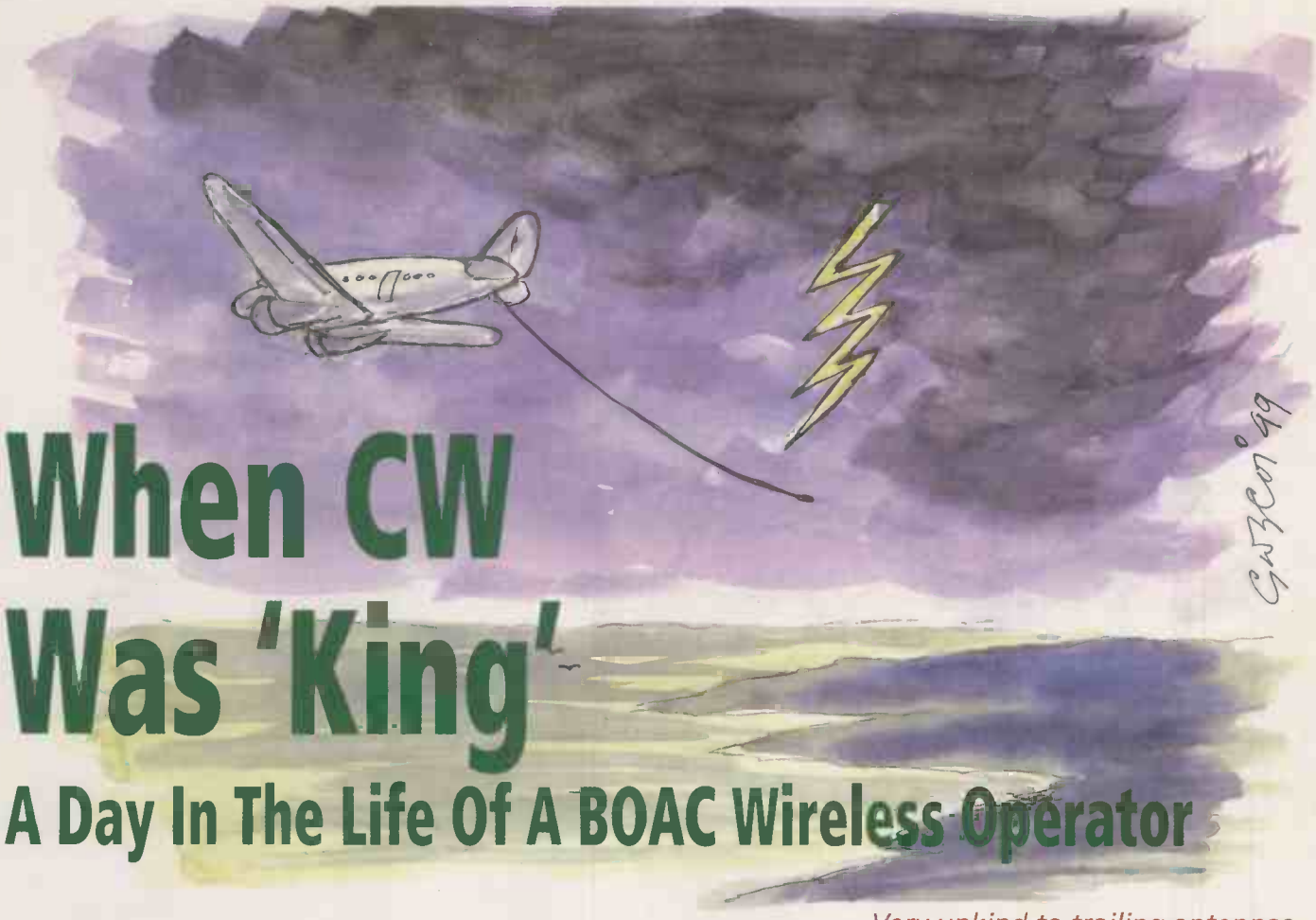
Q1: What is the telephone number of the supplier of the prizes?

.....

Q2: What battery options are available for the DJ-X3?

.....

Alinco DJ-X3 competition SWM Oct 2001



When CW Was 'King'

A Day In The Life Of A BOAC Wireless Operator

Very unkind to trailing antennas..

Jim Fairclough G3CWN remembers his post WWII duties as a Dakota W/O for BOAC. Here he shares a day's work on board.

It was on demobilisation that I applied to BOAC for the post and I was granted an interview with a selection board at Stratton House in Mayfair. There, before half a dozen seasonal civil aviators, in my best pin striped suit, I gave, what must have been satisfactory answers to pertinent questions. I hadn't thought a deal of my chances so I was pleasantly surprised.

Before going into service it was required I undergo training in order to reach the operating standard necessary for BOAC operating. This was undertaken at Aldermaston in theory and practice by tuition from ex Imperial Airways and Marconi Marine operators and degree graduates. Aircraft in use were Dakotas, Halifaxes and Vikings. By 21 May 1946 I was the holder of the Postmaster General's Air Licence Number 1149.

My experience in the Royal Air Force had stood me in good stead. I had over 880 hours flying experience, had operated and serviced the 1082/3 installation, operated with the Marconi T1154/R1155, BC348, BC221 Liaison/Command, Westinghouse G 09, Loran, H2S, Sonar buoys with v.h.f., Bendix and RCA.

Period Of Change

To enable you to understand what was involved in a days work, I will have to give you some understanding of the communication infra-structure in the 1940s. It was a period of great change, c.w. was still the main mode of communication, v.h.f. was in its infancy and was only used where its characteristics conferred benefits. Its short range made it ideal for fighter affiliation, and its freedom from QRM enabled noise free listening from sonar buoys. Radar was rapidly developing, but not yet compact for civil use.

Flying control zones existed around major capitals and some large cities. The London Control Zone with its centre at Uxbridge, whose callsign was MVU, extended south to where its boundary met the Paris Control Zone, whose centre was at Orly, callsign FNA and to the west where the boundary met Shannon, callsign EIP. The centre of France was covered by Bordeaux, callsign FXH at Biscarosse and southern France at Marseilles, callsign FXS at Marignane. From there, and to Malta, the route came under the control of ZBJ at Luqa.

In those days, taking off from the home base of

Whitchurch, near Bristol, landing at Heathrow to pick up passengers, land at Marignane and then finally at Luqa would involve almost nine flying hours.

Navigational Aids

Some d.f. stations like Birdlip, callsign MYF, could provide long range bearings on h.f. These could be obtained by use of the Liaison Command TX and the BC348 by requesting a QDM - what is the magnetic course to steer, with zero wind, in order to reach you? Long range bearings were always to be treated with some circumspection. A signal transmitted from a station inland when passing over the coast was influenced in its passage, its wave front being refracted. The more obtuse the angle of passage, the greater the refraction.

Most major airports possessed a radio range beacon which operated at m.f., in a band between 300 and 500kHz. These transmitted constantly their own callsign which was readily identifiable for 24 hours a day. The beacons were monitored by the Bendix Radio Compass on the navigators table. Tuned, say, to BN on that beacon's frequency, and taking into account deviation, it would point in the direction of Benina, and after passing overhead, would turn onto the reciprocal and still show the correct deviation.

Weather

Reports could be obtained from Rugby for specific areas and specific times, on the hour and at the half hour. Available to aircraft and shipping they came in the form of numbers in groups of five. They were broadcast in two forms, Previ, which was present Weather or Prog., a forecast. These were decoded by reference to the two sheets, one for Previ and one for Prog in possession of the R/U. In addition, a report of present weather could be requested from the station to which one was headed or from others near the aircraft track by requesting a QAM - can you give me the latest meteorological report?

Before taking to the air, a flight plan would be prepared giving detail of the intended flight. This could be sent by teleprinter to the control zone HQ, if facilities existed, to the destination. The Radio Officer would be given details of stations and wireless facilities including frequencies of Wireless Telegraphy stations along the route.

The crew consisted of Captain, First Officer, Navigator and Radio Officer, not always composed of the same individuals but made up from the availability.

A day would begin with a round up of the crew by the BOAC bus. They would probably be at different addresses around Bristol. At 0500 in the morning, it would pick them up together with their impedimenta. This might include an outfit of khaki drill, bush kit or both, depending on the route and destination for a take off from Whitchurch, the west country base.

My log shows on 9th May 1947 in Dakota GAGNC - we obtained clearance by R/T BC453 6440kHz and took off from Whitchurch at 0610 GMT. Having already set the crystal controlled BC221 to the MVU-London Control Zone frequency, I tuned the BC348 receiver and the Liaison/Command transmitter and listened for MVU traffic. No need for a trailing antenna at this distance.

Having cleared the Whitchurch circuit and ascertained the frequency was clear, I called MVU.

MVU de GAGNC
GAGNC de MVU K
MVU de GAGNC QAD JP 0610Z QAB HW ETA 0700Z
Meaning: GAGNC left

Schoolboy French...

The navigator's finished with his 'computer'...

Whitchurch at 0610GMT, is bound for Heathrow and expects to arrive at 0700GMT.

GAGNC de MVU R AR

GAGNC continues guard on MVU frequency. Control Zone rules require an aircraft position report at least each half hour so at 0630GMT on a clear frequency:-

MVU de GAGNC

GAGNC de MVU K

MVU de GAGNC QTH 10 miles NE Newbury QBA? QBB? at HW

Meaning: My position is 10 miles north east of Newbury. What is the visibility and cloud cover at Heathrow?

GAGNC de MVU R QBA HW 12 miles QBB 5/10 at 3000ft QSY London Tower.

MVU de GAGNC R QSY Now AR

BC453 now switched on for R/T. Request runway in use, QFE - barometric pressure at ground level for setting of altimeter, permission and turn to land and, if necessary, assistance for Ground Control Approach. If out, wind in trailing antenna, downwind leg and land.

Taxiing to the terminal apron I notice the concrete apron is being extended and it is three feet thick! They must have in mind accommodating aircraft much heavier than the Constellation standing on there! Engines, switches off. I follow the rest of the crew to the tower to pick up the necessary brief of signal for, as yet, an unknown destination.

As may be seen, from the signals I have made, communications need to be brief, to the point and accurate. In the Control Zone, many aircraft are making for Heathrow, many away from it and others in transit through it. It imposes a strict discipline in listening to the total activity, avoiding interference with others and only signalling when necessary. In an aircraft several miles have been covered in the time the signal has been made.

Having landed at 0703GMT I learn we are designated passenger service 29M437, London to Cairo, via Marignane, with an overnight stop at Luqa (Malta) thence to El Adem to finish at Almaza (Cairo). Take off is at 0900GMT, Time for refreshment, a look over the route, signal stations, frequencies, possible diversions in case of inclement weather and/or any changes. A final cuppa and to the aircraft to do my checks before the passengers come aboard.

The route to Malta will take us through five Control Zones. London (Uxbridge) MVU: Paris (Orly) FNA: Bordeau (Biscarosse) FXH: Marseilles (Marignane) FXS: Malta (Luqa) ZBJ. The aircraft position must be given on entrance to these zones, on leaving and at least each half hour. This enables the controllers to plot the aircraft in their own area and keep track.

All passengers settled, R/T on. Permission asked of Tower to taxi. Line up to runway and we take off. Time 0858GMT. Course to steer and height given by Tower on R/T. Wheels up, trailing antenna out I loaded up the transmitter on very low power to begin a four hour stint.

On clearance of circuit, I called MVU.

MVU de GAGNC

GAGNC de MVU K

MVU de GAGNC Speedbird 29M457 QAD HW 0858Z QAB FXS

Meaning: BOAC aircraft on journey serial number left Heathrow at 0858GMT bound for Marignane.

GAGNC de MVU AR

Now we continue to keep watch on MVU. For the comfort and enjoyment of passengers while exercising economy in fuel consumption, passenger aircraft tended to fly between 2000 and 4000 feet. At this height, sometimes under the cloud base where it could be bumpy and sometimes above it, the passengers could see for most of the time the country or sea below. On the half hour, a signal to MVU

MVU de GAGNC

GAGNC de MVU K

MVU de GAGNC QTH 25 miles S of Brighton QAB FXS

GAGNC de MVU R AR at 1000GMT

MVU de GAGNC

GAGNC de MVU R

MVU de GAGNC QTH 20 miles N or Le Havre QAB FXS

Now, having stretched the boundary of London Control Zone I'm told to transfer to Paris Control Zone:

GAGNC de MVU R QSY FNA

MVU de GAGNC Wilco AR

Tune BC221, BC348, Liaison/Command to FNA

FNA de GAGNC

GAGNC de FNA K

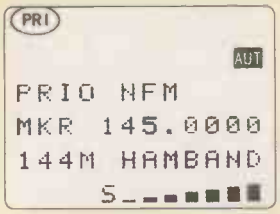
FNA de GAGNC Speedbird 29M457 QAD HW QAB FXS QTH Le Havre

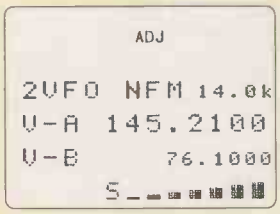
GGANC de FNA R AR

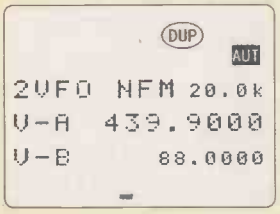
This allows control to plot GAGNC in their zone.

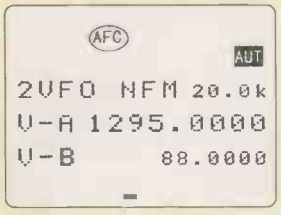
A similar procedure will be followed as we pass through each control enabling the controllers to plot the passage of the aircraft. In the

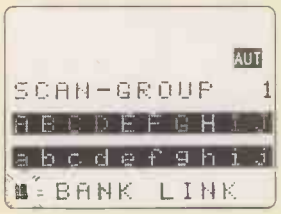
Continued on page 51

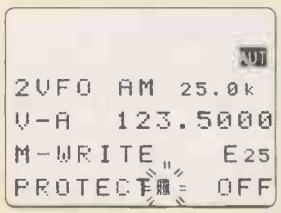


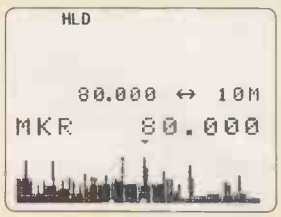


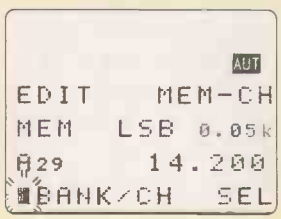












AR8600

MOBILE - BASE - TRANS-PORTABLE

*High sensitivity design

The AR8600 is an extremely versatile **all mode** receiver (**530kHz - 2040MHz**) which can be used virtually anywhere, mobile, base or trans-portable... powered from an external 12V d.c. power supply, optional d.c. lead from a 12V vehicle or from an optional internally fitted NiCad battery pack. A strong twin metal case with die cast front panel characterises the multi-purpose role. All mode receive capability is provided including Single Side Band with programmable tuning steps down to a resolution of 50Hz with the frequency established by a highly accurate Temperature Compensated Crystal Oscillator (TCXO). An RS232 port further extends the capabilities with free supporting control software available from the AOR web sites.

Although many microprocessor features have been adopted from the trendsetting AR8200 Series-2 hand portable receiver, **the AR8600 RF front-end is an all new (*high sensitivity) design with a first rate switched attenuator and preselection around VHF to ensure the highest levels of adjacent channel rejection with software spurii cancellation**. In addition to a hinged telescopic whip aerial, the AR8600 is supplied with a **detachable plug in medium wave bar aerial** which locates on the rear chassis of the receiver for localised medium wave monitoring. An additional BNC socket is mounted on the rear chassis so that **10.7MHz i.f. output** may be extracted for use with external spectrum display and vector analyser units such as the AOR SDU5500. The TCXO ensures **high stability** with **minimal internal spurii** and is usually only seen in top of the range (more expensive) models such as the AR5000 and AR7030.

The chassis is manufactured from two metal compartments, effectively a **metal chassis inside a metal cabinet...** this provides excellent screening characteristics and great robustness highlighting its multi application role. The **front panel** is also manufactured from **die-cast aluminium**. Size is 155(W) x 57(H) x 195(D) excl. projections, weight less than 2kg.

The all important **8.33 kHz airband channel step is *correctly implemented*. Computer control** is available via a standard 9-pin RS232 D-type connector on the rear chassis, just a standard RS232 cable is required for connection to a PC, the extensive RS232 command list is printed in the operating manual. In addition, **'optional internal SLOT CARDS'** (which fit into the rear chassis of the AR8600) extend the capabilities even further, five cards may be fitted with two operational simultaneously. **Supplied with:** Swivel base telescopic whip aerial, MW bar, comprehensive illustrated operating manual with RS232 listing, d.c. lead.

AR8600 - up to FIVE HOURS portable operation from the BP8600 optional internal battery

There are many qualities which make the AR8600 a unique award winning package, as a trans-portable receiver the optional internal battery pack (BP8600 £49.00 inc VAT, carriage extra) extends the versatility even further. When travelling to an airport, airshow, racetrack or wherever, the ability to remove the receiver from the vehicles power and carry on monitoring without the need for a separate hand-portable receiver is a great plus point.

Initially designed to provide up to two hours of operation, tests have shown that once the internal battery has been **fully charged** using an optional **15V regulated DC power supply**, the monitoring time extends to around FIVE HOURS (with back-lit LCD lamps off).

There are many other options available: mobile mounting bracket (MM8600), tape record lead (CR5000), RS232 lead (8600PC), free PC software from the AOR web site (or available on CD-ROM priced at £5), five slot cards (CTCSS, tone eliminator, record/playback, external memory, analogue voice inversion), Collins mechanical substitute IF filters for SSB and AM. If you are undecided whether you need a hand-portable receiver or a base station, take a closer look at the AR8600... virtually two concepts in one compact cabinet.

Note: Operational times are for guidance but depend upon the style of operation (volume level, backlight, scanning etc) and are not guaranteed.

DRM (digital AM radio) - AOR **AR7030** at Internationale Funkausstellung, Berlin

Over the last year or so, there have been various articles appearing on the subject of DRM... digital AM radio designed for transmission over the LW, MW and short wave bands. The Berlin 2001 exhibition (28.8 - 2.9) has provided a great opportunity to demonstrate the new technology. To put the size of venue into context, most 'Ham-Radio' events have three to four major halls, the Berlin Messe has 25 halls, some of which have as many as three levels, it is a small village and is held every two years as a 'window' for consumer electronics and communication, historically it is also the venue for some of the first TV demonstrations. Many global manufacturers occupied entire halls with music concerts and live TV being broadcast from several locations within the venue. There were a total of EIGHT AR7030 in four locations demonstrating DRM. Staff from AOR UK, AOR Japan and from the AOR German distributor Boger-funk attended to show and were involved in a number of DRM related meetings.

DRM (Digital Radio Mondiale) is a consortium established to promote a new standard for broadcasting digitally in the AM bands below 30MHz, the members include broadcasters from UK, USA, Germany, Japan, etc with test transmission / reception already taking place in the UK, Germany, Finland, Portugal and Cyprus. In addition, several electronics manufacturers are involved as partners.

The new software technology (which makes DRM possible) has been developed by the Fraunhofer Institut which employs around 9,000 staff at 48 sites within Germany and is government backed as a development 'vehicle' to bring new technology to the commercial market. The Fraunhofer team have been responsible for the audio music 'MP3' development. DRM does not use MP3 but a later development called COFDM which means that the digital signal is shared across a large number of closely spaced carriers (currently around 200) with a bandwidth of 9kHz or 10kHz. The system uses MPEG4 AAC audio coding or MPEG4 CELP speech coding by broadcast selection. DRM is capable of delivering mono, stereo, pseudo-stereo or multimedia services (depending upon bandwidth) with compression rates up to four times higher than MP3.

Three licensed MW transmitters were established around Berlin (the DRM system is designed to cope with three transmitters sharing the same frequency and providing totally different content) with DRM receivers displayed at the show. There was also a trip around Berlin in a vehicle of Deutche Telekom (which was equipped with an AOR AR7030 + PC) for DRM assessment 'on-the-move'.

World-wide, there are currently only two radio systems capable of receiving DRM, ALL current evaluation (by broadcasters and developers) is being carried out using the **AOR AR7030** or a dedicated (much higher priced) DSP receiver developed by Thales Broadcast & Multimedia (former Thomcast) of France, the Thales receiver features a built-in PC. By contrast, the AR7030 only requires a small down-converter PCB (455kHz to 12kHz) feeding the digital signal into the input of a standard sound card, ideally the 45MHz filter is also changed from 15kHz to 20kHz, all decoding is carried out by the PC (minimum 400MHz). The AR7030 approach delivers a cost effective solution with immediate availability in quantity... judging from the number of AR7030 on display (DRM, Fraunhofer Institut, Deutschland Radio and Deutche Telekom mobile unit), the AR7030 is gaining popular support. It is possible to purchase a DRM equipped AR7030 'now', however the package is targeted at the broadcast community as development costs have to be accounted in the software price.

The 'quality' of DRM is terrific and represents easy listening 'MP3 type' sound via short wave without the fading and adjacent channel interference which is usually associated with short wave broadcasts. Demonstration 'sound tracks' are available from the DRM web site and were given out at the show via CD-ROM.

Over the next year, the Fraunhofer Institut aim to develop a DSP board (to fit inside a radio) so the requirement for a PC will be removed for DRM demodulation. Within the next two years, the goal is to produce a 'chip based' solution to DRM reception. From the comments of visitors to the show, the strength of DRM membership and approval by ITU, the success of DRM looks assured.

Space is too limited here to include 'details' of DRM, however we are keen to gauge the interest of broadcast listeners. If you would be interested to receive a **free DRM information pack**, please phone us here at Belper. The information will also include some personal observations following our sightseeing in Berlin. If you visit the AOR UK web site, the information will be available for view, however please let us know that you are interested in DRM via e-mail.

Photos top-left to bottom-right:
(1) One of the entrances to the show (Messe Berlin) - the scale cannot be appreciated, (2) DRM stand - general view, (3) DRM stand left-hand display featuring the AR7030 and Thales receiver - a further three AR7030 were displayed on the right of the stand, (4) DRM stand - close-up of AR7030 and PC, (5) DRM stand - close up of Thales receiver, (6) Small section of Fraunhofer Institut stand with two AR7030 on display, (7) Fraunhofer Institut stand - close up, of AR7030 with custom multimedia touch-screen display, (8) Deutche Telekom vehicle with groundplane aerial on the roof - time for a trip around Berlin, (9) Deutche Telekom vehicle internal view of AR7030 and PC, (10) Gedachtniskirche memorial church, (11) Checkpoint Charlie, (12) Brandenburger Tor, (13) Reichstag, (14) Deutche Telekom Tower - in the night its floodlit 'bright pink' (corporate colour!). Photos by permission of DRM consortium, Fraunhofer Institut, Thales France and all parties involved (c) 2001, AOR UK.

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When CW Was 'King'

A Day In The Life Of A BOAC Wireless Operator

Continued from page 47

Marseilles area and about one hour from eta I will tune the Bendix radio compass to their range beacon. This will give an indication showing the destination ahead.

Coming into the Marignane Control Zone I tune to their frequency, listen, then call:

FXS de GAGNC

GAGNC de FXS K...some of these French stations send code of a particular character which distinguishes them from others, generally fast and making a sound like a mechanical bug!

On my up and down Bendix I send

FXS de GAGNC Speedbird 29M457 QAB FXS ETA 1325Z PAX 29 QFE? PAX is the number of passengers and QFE, barometric pressure at airport level is needed to set the altimeter.

Ten minutes from ETA the R/T is switched on and the First Officer asks for wind direction, runway in use, etc.

We land, disembarking some passengers and taking on others.

The actual time of landing was 1324GMT and take off will be in an hours time. A light meal in the airport restaurant, a short spell of practising my schoolboy French on the mam'selle and time to take off again.

Next Leg

This leg will be over the sea and will take over four hours. For a couple of hours we will fly SSE, skirt the southern tip of Sardinia then turn further east on track to Malta. Tunis and Cagliari do not possess the luxury of Radio Range, but as they lie on either side of our track whilst they transmit to other aircraft we shall be able to take loop bearings on their transmission. Useful to check our ground speed. Also, must keep an eye on the weather. Look up Rugby to see if they are giving out any weather info on the Med area during our flight.

At 1422GMT having taken off and cleared the circuit, I switch on, reel out the trailing antennas. The TX and RX are still on the FXS frequency so when clear of other aircraft I make my call.

FXS de GAGNC

GAGNC de FXS K

FXS de GAGNC Speedbird 29M457 QAD FXS 1422Z QAB ZBJ ETA 1900Z

GAGNC de FXS R AR

We shall guard the FXS frequency for the next two hours and send a position report every half hour. In the meantime, I tune to ZBJ and listen to his traffic in order to assess propagation conditions and to pick up any weather information he may be sending to other aircraft.

Ajaccio, on Corsica, as I listen is dealing with a lot of traffic and as he lies well on the port side of our track and is a very good signal I take a bearing. As we are over the sea the navigator has greater difficulty in calculating the wind. The bearing will help in his assessment/dead reckoning.

Back to the guard frequency and I send my second position report to FXS. But now I notice a build up of QRN. This can herald the approach of some bad weather. A build up of Cumulo Nimbus, one of those big black clouds which can build up to over 20,000 feet and spreads out at the top can contain a lot of nasties.

It can totally block out all reception. It can even treat you to a firework display and it's very unkind to trailing antennas. It could be on our track which could make our passengers very uncomfortable. In any case, whether it is or not, better let the captain know so they can keep a look out for it. One can tell on the radio. The static builds up at quite a speed if one is approaching. The radio compass goes berserk and starts hunting all round the dial.

In this case it can be seen to starboard and to the south west. Looks like rows of castles, dark, lying against a serpia background. Been airborne for two hours now. Time to send my fourth and final report to FXS and change over to Luqa ZBJ. QRN still high, but a little less.

FXS sounds QRL with a lot of French traffic. Good signal though and easy to copy. Must have changed ops though. This one is slower, more deliberate, maybe longer in the tooth. Frequency goes quiet:

FXS de GAGNC

GAGNC de FXS K

FXS de GAGNC Speedbird 29M457 QTH 3750N 0710 QAB ZBJ QSY ZBJ

GAGNC de FXS R AR

Which is sufficient to tell Marignane where I am, where I'm going and what I'm going to do. He now removes me from his plot. And immediately on ZBJ's clear frequency.

ZBJ de GAGNC

GAGNC de ZBJ K

ZBJ de GAGNC Speedbird 29M457 QAB Luqa 31 PAX ETA 1900Z QAM?

Means: BOAC Flight Number 29M457 Bound for Luqa with 31 passengers expect to arrive at 1900GMT. Can you give me the latest met report?

GAGNC de ZBJ QAM Luqa 1635Z QFE 29R85 ins QBA 20 miles QBB 4000ft

3/10 surface wind 075 10 knots

ZBJ de GAGNC R Radio Compass now tuned to Luqa radio range.

Position report given every half hour. QRN steadily diminishing and the beacon giving us a good strong signal with no QSB. I see the Nav. is now relaxing, putting his computer in his bag so I won't be getting any further signals from him.

Finally, ten minutes from ETA, the First Officer on R/T and with the inland of Malta in sight.

Luqa Tower from Speedbird GAGNC at 1000 feet permission to join circuit and land.

GAGNC from Tower. You have permission to land, runway...wind 090 degrees, 15 knots. From GAGNC Roger.

Trailing antenna in. Radio info. stowed in case. Final landing.

All passengers disembarked. No DDT bomb. They only let those off when coming out of Africa to kill off any infestation. Descend with aid of airport steps. Malta atmosphere much warmer and closer after London. The buildings seem to have the colour and consistency of cheese.

Impressions

Having, with the rest of the crew, seen the BOAC Station Officer, given him any details he wanted to know about our trip, we can now take our leave. The airport bus takes us to our hotel and our working day is ended.

SWM

The Other Man's Shack

This month, Kevin Nice's visit to a *Short Wave Magazine* reader's listening post takes us to South Wales and the listening post of Geoff White.

Located in Mid Glamorgan, a veritable hot bed of radio enthusiasts if my experience is anything to go by, Geoff White has a superb station which is very effectively located in the converted loft space of his home.

Geoff took up our addictive hobby in 1990 when he retired and has amassed a desirable listening post in the time since.

Although most of Geoff's gear is commercially made, the racking and other hardware is home constructed. It certainly is a radio room to be proud of.

Geoff's main interests are weather picture reception, SSTV and data-modes. Here, the station 266MHz PC is pressed into service, fitted with 64Mb of RAM and a Soundblaster soundcard. It is more than capable of running most of the suitable software to cater for those specialities.

Geoff is also a keen h.f. broadcast and airband listener.

Antennas

On the antenna front, Geoff owns up to an 'inverted L' of some 24m in length and a Wellbrook ALA1530 active loop for h.f. For WXSAT reception he utilises a Quadrifilar helix for polar orbiting satellites and a 800mm dish for the geostaionary MET7. I reckon there are some he's not telling us about too, having carfully studied the pictures.

As you can see, Geoff has a very neat set-up indeed.

SWM

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- Kenwood SP-230 and SP-430

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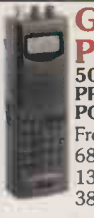

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QE2 SAR

A number of listeners wrote to report that on 23rd July they heard 'Kinloss Rescue' co-ordinating a RAF Nimrod aircraft searching areas of the Atlantic Ocean off the southern coast or Ireland. This follows the tragic loss of a crewman from the *QE2* which was *en-route* from New York to Southampton. The crewmember was last seen alive at about 0130 in the morning, but he was not listed as missing until about midday the following morning after the ship had travelled a further 200 miles. Throughout the rest of the day a succession of maritime patrol aircraft searched the route of the *QE2* looking for signs of the crewmember, but to no avail. All this was heard by **Lee Carberry** in Stockton on 5.680MHz. Also involved in the search were a UK coastguard aircraft and a Casa 235 of the Irish Air Corps which was diverted from its fisheries protection flight off the western coast of Ireland.

Irish Air Corps Casa 235 aircraft - involved in the search for the missing crewman from the *QE2* in July.

Callsign Changes

At the start of August while listening to the Air Training Corps h.f. network on 5.245MHz I became aware of a subtle change in some of the callsigns being used.

Having spent a lot of time listening to the ATC h.f. network you become familiar with their operating procedures and the voices behind them. One of the regular/familiar voices uses the callsign MRH26, while another is MRH19. Since the beginning of August these two callsigns have been noticeably absent. Their place has been taken by two new callsigns - MRF26 and MRF19. This may sound like a minor difference, but such changes are not done for no apparent reason.

Does anyone know why the ATC have changed their callsigns? Is it just these two stations or are others involved?

SAR Changes

During July I heard about some changes to the coverage of UK SAR assets in Scotland, and I have not seen these detailed in print before, so I thought that it was worthwhile passing on to readers. Prestwick International Airport currently hosts a Royal Naval establishment known as *HMS Gannet*. One of the based units is 819 Squadron operating a fleet of Sea King HAS.6 helicopters. Their primary tasking is anti-submarine warfare (ASW), and in this region not too far from the Royal Naval submarine base at Faslane, they are kept very busy with training and exercises.

A secondary tasking is to provide search and rescue cover in the northwest of England, the south west of Scotland, and parts of the Scottish islands. They are frequently heard on 5.680MHz working Kinloss RCC using the callsigns 'Navy 177 - 179' when on SAR training, and 'Rescue 177 - 179' when on SAR missions. They can also be heard using 'Navy 700' series callsigns and NATO tri-graph callsigns while working Prestwick Operations on 6.700 and 9.013MHz.

All this is due to change in the remaining months of 2001 as 819 Squadron is going to disband. Their current operational strength of six Sea King helicopters will be reduced to just two, and they will be renamed to '*HMS Gannet* SAR Flight'. The SAR flight will continue to cover their existing area of responsibility, but that is all - no more ASW work in the coastal waters off south-western Scotland.

This Month

The past few months have been busy for me, but I have been able to pick and choose good times to listen to h.f. Being forewarned about various events has made it easier for me to plan and organise my time, allowing me to pick the best time to listen.

Over the past few months I have continued to listen to the 'Thursday War' each week, starting with **5.206MHz** from about 0600. Much of the time I am not aware of what is actually happening, but it does make interesting listening. They also use **5.267MHz** at various times during the exercise, but other than the above two frequencies I have not found any other h.f. activity.

At the start of July there was one day which stands out as being particularly good. On the 12th July RAF Fairford re-opened after two years of runway work, and a number of aircraft flew-in for the official re-opening ceremony. Most of the aircraft were European based aircraft, but some flew-in direct from the USA. In the early hours of that morning 'Spar 66' was heard working 'Andrews VIP' on 'Mystic Star' channels 005 and 295 (**9.120MHz** and **11.460MHz** respectively) bringing some VIPs to a base in Belgium where they transferred to another aircraft which took them to Fairford. Other readers and listeners heard 'Thug 31' working Shanwick OACC as it crossed the Atlantic early that morning - this was a B-1B from the 366th Wing at Mountain Home AFB in Idaho.

That very same morning saw the launch of Shuttle mission STS-104. The launch occurred at 0904, and in the hours leading up to the launch several support aircraft and ships were heard on h.f. preparing for the launch. The booster recovery vessel 'Liberty Star' made contact with 'Cape Radio' on **10.780MHz** and was moved to **3.120MHz** for the launch so that they could work with 'Booster Recovery Director'. This vessel and sister-ship 'Freedom Star' collect the solid rocket boosters after they are jettisoned by the Shuttle about two minutes after launch. US Navy warship USS Taylor was also heard on 10.780MHz checking-in with Cape Radio. USAF MC-130 Hercules 'King 1' made contact with 'Cape Radio', and was moved to **7.765MHz** for the launch. Unfortunately for me I then had to stop listening as I had to go to work, but I was able to see the launch live on CNN, knowing which ships and aircraft were supporting the launch and which frequencies they were using.

Towards the end of July US President George W Bush visited the UK for a few days while en-route to a conference in Genoa, Italy. Naturally the President flew in 'Air Force 1' across the Atlantic heading for RAF Brize Norton. The flight was heard on **8.864MHz** working Gander OACC and **5.616MHz** working Shanwick OACC. Two days later the President flew on to Italy after spending some time in London visiting The Queen and the Prime Minister. On the evening of the 24th he flew back to the USA direct from Italy, and once again was heard with Shanwick OACC on 5.616MHz.

Yes, July was a busy and interesting month!

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DX Television

July commenced with some incredible Sporadic-E openings to the Middle East. Despite the threat of Spain closing its Channel E2 Madrid transmitter at the beginning of July, signals were still flooding on the 31st!

July Exotics

At 1623 on the 2nd lines of black Arabic script appeared on E2 before submerging beneath a strong TELE A, the Italian private station. **Peter Chalkley** (Luton) also noted Arabic signals around this time. On the 3rd at 1723 an American film with Arabic subtitles emerged on E2 with the IRIB-1 logo in the top-left of the screen. **Ian Milton** (Ryton) had earlier heard Farsi.

As heavy thunderstorms swept the UK during the early hours of the 4th, Band I opened up around 0320UTC. On R1 colour bars were present with the lower third of the screen white. MTV-1 (Hungary) is the prime suspect as it was later identified on programmes at 0413.

On E3 the Slovenian PM5544 test card lurked for well over an hour. At 0352 a weak E2 signal improved revealing the Syrian L-shaped logo in the lower-left of the picture, but by 0405 an Iranian station (IRIB-2) occupied the channel. On R1, Nova (Czech Republic) showed its analogue clock before programmes.

At 0414 on R2 the 'RTL KLUB BUDAPEST' PM5534 (with date, time and tone) from Hungary remained strong and clear until station opening at 0430. By 0534 Iranian and German signals on E2 were competing. **Vincent Richardson** (Dolgarrog) recalls that at 0618 there were Italian stations on E2, A and B, a German financial report from ARD-1 on E2 and Slovenian programmes on E3 which continued throughout the morning.

At 0919 on E4 Icelandic schedules and text pages were resolved by **Peter Barber** (Coventry). RUV re-appeared during the afternoon with trivia quiz pages sporting a revolving question mark in the top-right. As the Sporadic-E had moved anti-clockwise around Europe a close watch was kept on 55.25MHz for signs of A2 activity. At times a rolling effect was noticed as though weak unlocked pictures were attempting to emerge.

By late afternoon, **Tom Crane** (Hawkwell) identified Moldova R2 by its stylised upper-left 'tVm' logo. Norway, Sweden, Estonia, France, Switzerland, Russia and Germany were also logged.

On the 6th conditions seemed dead so following a suggestion from **Tim Bucknall** (Congleton) that Sporadic-E clouds may have drifted mid-Atlantic, the antenna was duly directed towards the US with a careful watch kept on A2. Suddenly, Jordan appeared with its broken oval logo in the upper-left. The antenna was soon beaming eastwards again!

There were further exotic encounters on the 23rd when Ian Milton heard Arabic sound at 1700 on E2, but the vision was too weak to see the logo. Earlier in the day at 0830 a woman presenter darkly dressed was seen on E2 with a small white symbol in the upper-right. The progress of the broadcast strongly suggested a non-European origin.

Skip Extremes

Towards the end of July, Ian Milton encountered short-skip Dutch broadcasts from Lopik on E4 via Sporadic-E. At the other extreme, NRK-1 E2 Veranger was received in South Africa in early July via Sporadic-E assisted TEP (Trans Equatorial Propagation). The transmitter is located in the extreme north of Norway, inside the Arctic Circle.

Non-Standard Broadcasts

On the 23rd **Peter Barclay** (Sunderland) became aware of an R2 station to the south-east with 5.5MHz sound spacing. Meanwhile, **Simon Hockenhull** (Bristol) clocked a mystery station *between* E3 and R2, carrying ORT programmes. In the past, **Stephen Michie** (Bristol) has identified Ukrainian broadcasts on this channel. Any theories about this obscure channel would be most welcome.

Fig. 1: The Jordanian 'broken oval' logo *Photo courtesy of Roger Bunney.*

Channel 'C' Privates

High m.u.f.s created plenty of Channel C (82.25MHz) activity with reports of Albania (RTSH) and RAI UNO. Unidentified signals suggest that at least one Italian private station is operating. Beware, an unusual logo was spotted on Channel A, but this turned out to be the TG1 (News) outline-style logo in the lower-right which closely resembled the old 'VIDEO' logo, which now identifies as 'TELE A'.

Fig. 2: Spain used regional colour bars in the early Eighties. *Photo courtesy of Roger Bunney.*

New Band I Stations

The Greek station 'TILETORA' is active on E3 and has been received in Germany. There is also an E2 station (The Fashion Channel) operating from Athens.

A new E2 station is operating in the Middle East, possibly in Palestine. It has already been received in Europe with news in French co-channelling with Syria and Iran. There was a possible sighting of this station in the UK on the 27th between 1541 and 1557 when an Arabic children's programme was resolved by Peter Barclay who has described its top-left logo as a squashed 'T' shape with a smaller white '1' inside.

Fig. 3: Estonian FuBK test card, received on R2 by Stephen Michie.

Test Card Watch

In early July there was a 'switching error' in Spain which meant that the Spanish regional 'Televisio Valenciana Canal 9' PM5534 test card appeared briefly on E4. This was noticed by several DXers including **David Hamilton** (Ayrshire) but, according to Peter Barber, it flashed up again during adverts at 1342 on the 19th.

Fig. 4: Dutch regional station 'RTV Oost' on E22, snapped by Stephen Michie.

FM DX

Tim Bucknall (Congleton) identified Syria and Lebanon on the 3rd while on the 4th Ian Milton discovered Tunisia and Israel on 87.6MHz while stuck in traffic on the M25. During a four-hour extravaganza from mid-afternoon on the 7th, **Barry Bowman** (Manchester) found the band awash with French, Spanish and Italian stations. On 88.3MHz Simon Hockenhull identified Croatia (HRT-HR-1).

Keep On Writing!

Please send your DXTV, slow-scan TV and f.m. reception reports, news, off-screen photographs and information to arrive by the first of the month to:- **Garry Smith, 17 Collingham Gardens, Derby DE22 4FS**. We can also use off-air pictures stored as JPG files on PC disks and good-quality video recordings. Our new E-mail address is **GarrySmith@dx-tv.fsnet.co.uk** and our website is **www.test-cards.fsnet.co.uk**

■ DAVE ROBERTS c/o *SWM* EDITORIAL OFFICES, BROADSTONE
■ **E-MAIL:** scanning@pwpublishing.ltd.uk

Scanning Scene

"Had yer 'ollidays yit?"

How often have you been sat in the chair getting your hair cut when the girl with the scissors says that? I've been listening around in the south of England and it seems to me that a fair number of people there have been on their holidays in the USA or Canada and have brought a radio back with them.

The Family Radio Service in those two countries operates on the same principle as the PMR446 system here. Non licensed u.h.f. sets are made by the major manufacturers for limited range use. The equipment is of generally good quality. They have had FRS over the Atlantic for some time and our PMR446 was introduced after the transatlantic version. The radios look just the same.

So over there, for example, you can buy a Motorola FRS radio which appears identical to a PMR446 Motorola set on sale right here in the UK. For your average holidaymaker tooling around in Florida these sets seem to be exactly the same as their British counterparts except, of course, that they are cheaper. Holidaymakers from here are bringing them back into the country by the hundreds and thinking that they are legal and they are using them right here.

There are fourteen FRS frequencies:

Channel	MHz	Channel	MHz
1	462.5625	8	467.5625
2	462.5875	9	467.5875
3	462.6125	10	467.6125
4	462.6375	11	467.6375
5	462.6625	12	467.6625
6	462.6875	13	467.6875
7	462.7125	14	467.7125

All are n.b.f.m.

The people lugging the FRS radios back to Blighty could be in severe trouble if the Customs and Excise found them. I understand that you are supposed to declare any radio transmitting gear to Customs as you enter Britain, even if you initially took it out of the country with you. Personally, I have never declared a single set and even though I have travelled to many countries with radios over the years, I have never been stopped...yet.

At least I could prove legality of the equipment, but FRS radios are definitely not kosher here and in any case they are on frequencies allocated to other services. But do have a listen and I bet that in centres of population you'll hear someone using them.

As you have no doubt noticed, the FRS sets have channels spaced at 25kHz with a 12.5kHz offset as opposed to 12.5kHz with a 6.25kHz offset, which is the frequency spacing of our PMR446 band. I was recently asked whether a scanner without 6.25 spacing could resolve the PMR446 band. Yes it will. The thing is that these transmissions are f.m. and as the frequency itself is modulated, it changes and will take the transmission within the passband of most scanners.

The trick is to tune the scanner to the nearest possible frequency to the PMR446 channel to be monitored. With a typical scanner having 5kHz steps as an option the 446 frequencies would come out as follows: 446.005, 446.020, 446.030, 446.045, 446.055, 446.070, 446.080 and 446.095. This will work just fine and with only a negligible amount of signal quality loss. I mean, these little p.m.r. sets work on a mini antenna mounted on the top of the set and the average hobbyist usually has a significantly better antenna.

New System

Speaking of Customs and Excise, I understand that they have a new radio system. It isn't TETRA either. It is supposed to utilise Digital Voice Protection (DVP) and they have sold off their PFX and PF85 sets and the associated covert kit to the second-hand market. I ordered some ex C&E kit from the dealer who obtained it from them. The goods were not delivered. Please be careful when dealing with some of the 'dealers' who advertise ex police or government kit. Basically this one does not seem to deal at all!

Anyhow that's beside the point. Does anyone know what new kit the Customs have purchased? Rumour has it that some of their old frequencies have gone quiet. In low band they used to have 81.700 paired with 68.200, 81.750 paired to 68.250, 81.7625 paired with 68.2625, 81.775 paired to 68.275, 81.7875 paired with 68.2875 and 82.050 with an input of 68.550. All n.b.f.m. For u.h.f. they were on 440.775 paired to an input of 426.275, 440.825 paired with 426.325, 440.850 paired with 426.350 and 440.875 paired with 426.375.

If you have a search facility on your scanner, then you could do worse than to look through the 456MHz range in 12.5kHz steps. You may find some DSS and C&E frequencies there too. A similar search of 461MHz may unearth some interesting finds.

The Customs folks have other frequencies in use at their HQ in London for the security staff and also some are used for surveillance purposes. Again all n.b.f.m. These tend to be simplex channels, although they were able to use some of the frequencies above in a simplex mode. Are they still in use? If anyone has any gossip on this please let me know.

Going Mobile

Although many agencies now use encrypted radio sets it doesn't necessarily mean that the listening game is over. For instance, once you have identified the frequencies in use, some information can be gained by listening to the signals. Is there mobile 'flutter' on the transmission? If there is, then it's a fair bet that the operator could be...you've got it, mobile.

If there is a repeater unit in use can you compare the relative signal strengths on the input frequency? You can even roughly direction find the location of transmitters simply by using your body to shield the portable scanner. From personal experience I can tell you that often the encryption will distort the audio and so the facility is turned off and messages are passed 'in the clear'.

It seems strange in this day and age that many agencies still seem to be conducting real time surveillance (not training) in the clear. Scan around the usual u.h.f. channels in any busy area and you are more than likely to hear such operations taking place. I am willing to bet that when the police have their new system some such operations will be carried out using simplex frequencies of some sort.

The airwave coverage is likely to be limited to more built up areas and when the base station coverage is not possible, they will have the direct mode. However, there may well be difficulties using direct mode at those frequencies operationally. I reckon that there will still be ops taking place on analogue frequencies for some years yet.

Leicester Show

By the time that you are reading this the Leicester show will have been and gone. I hope to have been able to attend and seen what unusual items there were on sale. It's one event that's certainly worth going to. As I mentioned earlier, the Customs people have got rid of a lot of their old gear and I don't mind betting that a fair bit of it will have found it's way to the junk stalls at the show.

When buying kit of this kind at these events it's always worth bearing in mind that most of the 'official' users that flog off their old kit just can't be bothered to clear the memories from the radios. Getting hold of old equipment of this type and bunging it on a frequency counter can usually reveal what frequencies have been in use, and sometimes still are in use, by that agency. If you did attend Leicester, I was the scruffy, balding one in the old brown leather jacket.

SWM

Scanning Scene

■ **PETER BOND, c/o EDITORIAL OFFICES, BROADSTONE**
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Sky High

Firstly, I would like to thank all the people who have contacted me with favourable comments about the new 'Sky High' column. I would just like to remind readers that whenever possible E-mails and letters will be answered in this column. I regret that I cannot answer correspondence personally. A mixed bag this month covering most parts of the airband spectrum.

Frequency Update

Dave L. reports that the Display Control for Plymouth Air Days was on 265.7, (Royal Navy Fighter Control frequency - TAD 401). The Tower at Liverpool has a new frequency of 126.35, apparently replacing 118.1. The relatively new London Military standby frequency 255.925, mentioned in the January and March columns, has been reported as transmitting from the sites at Davidstow Moor and Clee Hill.

I am grateful to **Alan W** from the Wirral who has sent me a list of the frequencies which he has noted broadcasting from the transmitter at Kelsall.

MHz	Transmission
118.775	Manchester (Wirral)
124.2	Manchester (Stafa)
125.1	Manchester (Bolin)
125.95	Manchester (Standby)
126.65	Manchester (Ribel)
128.05	Manchester (West)
129.1	London (Lakes)
131.05	London (Lakes)
133.4	Manchester (Trent)
134.425	London (Standby)
135.575	London (Wirral)
245.25	London Military
254.275	London Military ICF

Selcall Decoder

I recently stayed with an old friend of mine who is a self confessed aeronautical h.f. nut! A large spare bedroom acts as his listening HQ, with an array or radios that would turn most of us green with envy. Lined up along side each other are an Icom IC-R8500, Icom IC-R71 (with pass band tuning), JRC NRD-525 and a Racal RA1792, (which he claims came from GCHQ). He lives quite high up in the Quantock Hills, surrounded by a large garden which looks more like the antenna farm at Daventry with some seven different h.f. antennas available, (not to mention discones, etc.).

During the visit, I had my first opportunity to use *AirNav*'s Selcall decoder and I thought I would briefly report back to 'Sky High' readers with my findings. (I know it has been available for a little while, but it was my first chance at 'hands-on'). This a software based decoder which can be downloaded as a trial version from their website at **http://www.airnavsystems.com** The software is simple to load and set-up, with just one lead needed between the Record/Line-out on the radio and a line-in on the computer's sound card.

The software processes information from the sound card and determines which tones make up the Selcall, then relates this information to the 16 Selcall Tone frequencies and then presents a four letter code on screen. Once it has identified a Selcall code, it then interrogates its own aircraft database and displays the relevant aircraft details.

It should also be remembered that the aircraft data presented with each Selcall is dependent on the accuracy of the database. We found one or two errors in the database, but overall it appeared to be quite accurate. The one problem we did note was that the database included with the download was not that up-to-date. There appeared to be quite a number of Selcall/Registration tie-ups that have been noted by my friend during the past year that were not in the database. We tried a fresh download, but it was still the same version - perhaps as in the past, *AirNav* will put an upgrade on their website?

As with all h.f. listening, the results very much depended on the radio in use, signal strength and the level of background noise. The best results from the decoder were predictably achieved at night with some variable, but generally acceptable results during the day. Despite using a variety of frequencies at different times of the day and by altering the volume parameters, the best success rate I could achieve was around 85% at night. This could drop away to less than 50% on a day with poor listening/propagation conditions. *AirNav* state that with excellent h.f. propagation a success rate of

Our photos this month are from the past and present. An unusual visitor to Gatwick in August 1987 was this immaculate Fairchild C-119F Boxcar, N3267U, operated by Comutair. The aircraft was sadly last reported derelict at Nairobi. Our second photo is Romanian Air Force Mig-21 on the approach to RIAT 2001 at Cottesmore. Thanks Keith.

95% should be possible.

All in all it was an interesting piece of software to use and will prove a useful tool to anyone with an interest in Selcalls. The fact that you can have a trial period is ideal as it will allow each individual to assess this software with their own computer radio/antenna set-up. If you want to register the decoder for permanent use, this can be done over the Internet by credit card and costs $39-95, (which at the current appalling exchange rate is about £28-50).

Uniform Two!

Incidentally, whilst we were listening to Shanwick on 8.906, quite an interesting exchange was noted. Amongst all the airline traffic, we heard Shanwick attempting to call DELL 68 on several occasions, but with no reply.

After about the fifth call, DELL 68 replied and was asked by Shanwick to identify his aircraft type, route, etc., as they had no flightplan details. The American pilot seemed reluctant, but advised them that his initial routing was 48°25N 010W - 49°20N 020°W - 50°13N30°W. With no flight information, Shanwick seemed concerned about his routing, but the pilot advised them that there would be no confliction problems as he was at Flight level 600 at Mach 075.

After what I believe is known as a pregnant pause, Shanwick asked him to confirm his aircraft type, the pilot replied by asking them to standby. After a short pause, (possibly to contact another agency?), the pilot called up to tell Shanwick that he was a Uniform Two. Even after 40 plus years in service by the many different variants, the Americans still seem reluctant to admit that the U-2 still roams our skies!

Photographs

Not strictly airband, but five E-mails in the past few weeks all related to photographs in the column, so I thought I would take bit of space to answer them. A letter and an E-mail from **Martin R** and **Steve** from Plymouth, both commented that it was good to see archive photos used in the column as well as current subjects. Steve comments that magazines can often contain similar pictures of aircraft at recent topical events and for those of us who have been around the hobby for a while it's nice to see some reminders of the past - glad I can help!

To answer Martin's question regarding my photographic history, I took my first photograph of an aircraft in 1964 although I did not start photography seriously until 1970. I now have a very large photo library of both civil and military aircraft dating back over 30 years, so if there are any specific requests from readers for aircraft subjects from the past, I'll see what I can dig out. (By the way, that wasn't a challenge for readers to suggest the most obscure one-off homebuilt aircraft, only found in the Australian Outback!).

Several readers have also asked if we would like photographs sent in for use in the column. Whilst I appreciate the offer, we currently have no plan to do this, but if there is a change of policy, I'll let you know. Lastly, **Pablo** - a reader in Portugal - comments on the blue cast that has spoilt the presentation of some of the photographs in recent *SWM*s. This is a known problem that the Editor has been trying to resolve, it is in hand and hopefully will be corrected soon!

Bristol

A bit of a departure for me from my normal aviation activities, but at the request for some photographs from an American magazine, I set off for the Bristol Balloon Festival. Armed with camera and radio, I left home in sunny weather with a very occasional shower, but as I got nearer to Bristol the weather progressively deteriorated, when I arrived at 1700 it was to a scene of very muddy chaos. Torrential rain had fallen on the Thursday from the early hours of the morning to mid afternoon and with it being the main arrival day for many types of heavy vehicles, especially onto the 'airside' areas, many of the roadways were badly carved up. Even Land Rovers with serious off-road tyres were up to their axles and stuck fast! *(Their drivers should be ashamed! - **Ed.**).*

One of the worst areas was the roadway into the launch site, even copious amounts of straw barely helped and only about half the normal number of balloons made it for the evening nightglow. Despite the lack of flying, the Nation-wide Balloon Common frequency 122.475 was heard on a couple of occasions.

The Friday weather was much better, but the damage was already done and an evening launch of about 20 balloons was sadly the only launch that weekend. The flight restrictions caused by Foot and Mouth, the Thursday downpour and the variable and sometimes strong winds were all to firmly test the resolve of the organisers, but despite all the problems, I thought they coped admirably, considering all the problems. Let's hope it's back to normal next year!

Concorde

Lastly this month comes the excellent news that both British Airways and Air France have sent reports to their respective governments, regarding the test flight results and modification work done to the 12 operational Concordes. This will hopefully culminate in the re-instatement of their Certificates of Airworthiness and consequently return one of the world's most graceful aircraft to our skies. Latest info. indicated that both the BA and Airfrance Concordes will be back in the air by the end of October.

Upper Airspace

With the new 'Sky High' column now well and truly up and running, I thought this would be the right opportunity over the next few months to review the frequencies in use for UK Upper Airspace, (London and Scottish Civil and Military). It has been some time since we have conducted a frequency review of this type in *SWM*, and so next month we will start by taking a detailed look at London Control.

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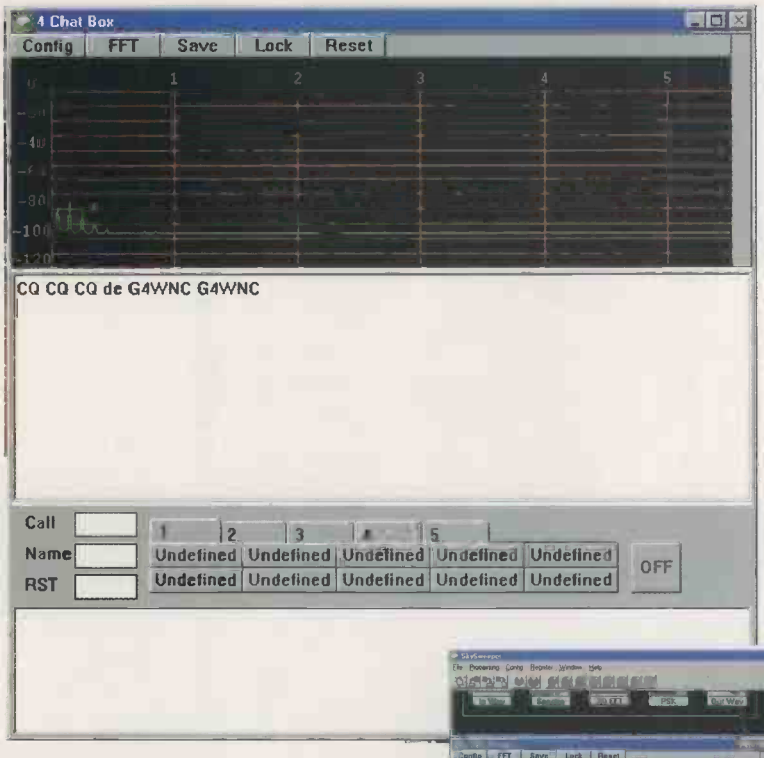
Decode

Latest *SkySweeper v2.4*

The very latest version of this very capable and rapidly evolving program is now available from the *SkySweeper* web site at **http://www.skysweep.com** One of the highlights of the new version is the introduction of a brand-new mode. The new system, called *SkyBoost*, has been built for the professional market, but is available in both the unregistered and registered versions.



***SkySweeper*'s New Chat Mode.**

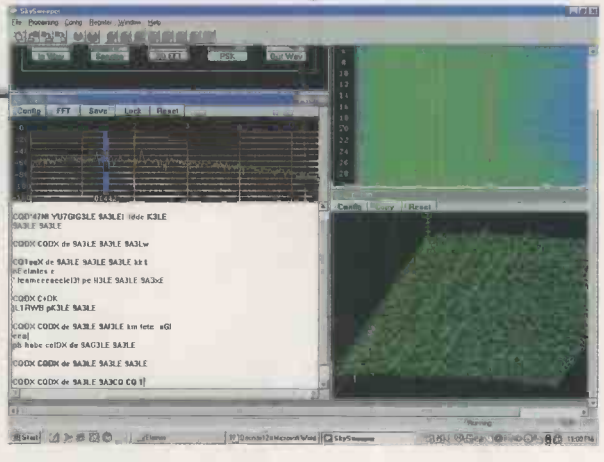
SkyBoost has been designed specifically for long-range h.f. communications and the designers claim that it can operate error free down to 16dB below the noise level. The system uses multi-tone f.s.k. with a bandwidth of 344Hz.

The excellent error performance comes from the use of Forward Error Correction techniques and interleaving. The transmission speed depends on whether or not FEC is selected. With FEC the rate is 21.9 words per minute and without it this increases to 43.8 words per minute. When using FEC the decoder employs soft bit Viterbi decoding.

Tuning *SkyBoost* signals is really easy. You just tune to an area where the transmission is expected to be and *SkySweeper* will automatically search to find any active frequencies. Once a signal has been detected, you can force the program to lock on to it.

At the present time, there are very few stations using this mode, but the fact that *SkySweeper* can both send and receive this mode means that you may well start finding transmissions in the amateur bands. A good place to start looking would be around 14.07 to 14.1MHz which is where you'll find the existing narrow band p.s.k. signals and other amateur data modes.

For those with a transmitting licence, the new Chat modes provides a very neat way to manage your contact with well placed send and receive windows and a host of programmable memories to store all your standard messages, i.e. QTH, equipment, etc. Overall this is an interesting upgrade and *SkySweeper* is now really starting to look like a very powerful decoding tool.



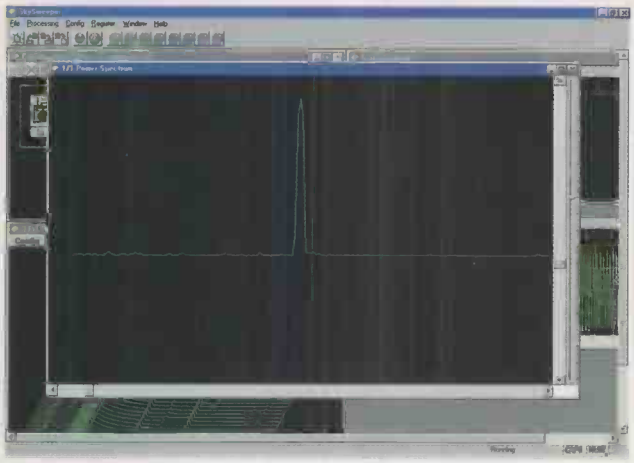
***SkySweeper*'s psk decoding amateur signals.**

Digital Signal Processing Tutorial - Open The Window!

Following-on from last month's introduction to Fast Fourier Transforms, this month I'm going to tackle the subject of Windowing. If you've ever used one of the many d.s.p. based decoding programs, you may have noticed that you often get a choice of window with typical names being Hamming, Blackman, Rectangular, etc. What the programs often fail to do is explain what the different windows do and how to choose the appropriate window. Before I get stuck into this subject, we just need a quick refresher on FFTs because the two are inextricably linked.

The first point to remember is that the continuous stream of measurement samples coming from the Analogue to Digital converter are handled in chunks by the FFT routines. A typical FFT chunk (known as sample points) would be 256 samples. These samples are then broken-down into a series of 2-point samples, the Discrete Fourier Transform is calculated and then they are recombined to be used to show spectrum information. This process is constantly repeated for each chunk of 256 samples so providing a continuously updated analysis of the frequency spectrum. In an application like *Spectrogram*, the output of the FFT will be shown graphically on the main display - see diagram.

Because the FFT routines take a few short cuts to deliver the analysis so quickly, there are a few



A clean Spectrum Display from a signal that fits neatly within the FFT size.

compromises. The most significant problem relates to the way the signal being analysed fits against chosen FFT sample, size 256 in our example. What we're effectively doing is breaking the signal into 256 sample chunks and then stitching it back together again. The important point is to see how the 256 samples fit with the input signal.

Ideally we want the sample value at the beginning and end of the 256 samples to be the same. If this happens, the sample will fit neatly together and there will be a clean flow between the sample chunks. In practice this rarely happens and there will be a sharp voltage step between the sample value at the end of the first FFT chunk and the start of the next.

This sudden change causes spurious outputs from the FFT process, which causes a number of problems in the final spectrum display. Typically, these would show-up as the pure frequency appearing wider than it should or maybe some spurious peaks at unrelated frequencies on the display.

To illustrate the point, let's assume we are analysing a pure 800Hz tone using an A-D sample rate of 8kHz and an FFT size of 256 sample points. What we're interested in is the number of cycles of the 800Hz tone that we will capture with our 256-point sample. The simple formula for this is (Sample Points x Tone Frequency)/Sample Rate. Using our example we get (256 x 800)/8000 = 25.6 cycles).

This clearly shows that our 800Hz signal does not fit neatly within the 256-point sample so there will be a difference in value between each 256-point sample, which will cause errors in the resultant display. To see what this looks like take a look at the screenshots I've supplied. One shows a signal that fits neatly into the FFT size whilst the other does not. Even though the program used to display the signal has been optimised, you will notice that the signal that fits the FFT size has a very narrow peak with few side lobes. The other signal clearly has spurious elements added by the mismatch.

So, what can we do to overcome the problem? The solution is simple; we need to apply some form of mathematical processing to the samples that ensure the values at the end of one sample are the same as that at the start of the next. Bearing in mind our processor is already working overtime trying to handle all this data and display the output, we don't want anything too complicated. The solution used by most designers is to force the first and last samples in each 256-point block to zero. That way they can be connected together without any level differences.

If we were to just force the first and last sample to zero this wouldn't achieve much as we would have just changed the position of the level problem. What we really need to do is gradually alter the values either side of the join between samples. This process is called windowing. You can imagine that each sample passes through a window that changes the beginning and end values of the sample. The science comes in deciding how many samples to alter and by how much, it's rather like the way a band-pass filter alters an analogue signal.

A number of eminent mathematicians have tackled this problem and each developed their own version of an optimised window. The names I mentioned earlier, Blackman, Hamming, etc. are the people that developed the FFT windows. Each one has its own special merits and the trick is knowing which one to use to tackle different problems. The basic compromise is between getting the amplitude right or getting narrow peaks.

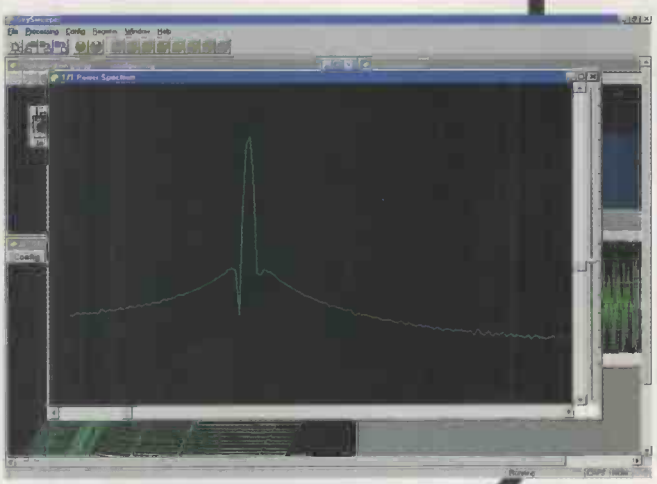
The general rule is that the more complex the windowing function, the better the windowing performance. The compromise here is that you might start running out of processing power if you use complex windows with large FFT samples. To help you choose, **Table 1** lists all the common window functions with the least complex at the top, descending to the most complex at the bottom.

Table 1. Windowing Functions

Rectangular
Bartlett
Hanning
Hamming
Blackman
Blackman-Harris
Gaussian
Kaiser-Besse

Where you have the choice, start at the top and work down till you find the best compromise between a clean display and your processor coping!

Spurious skirt display due to a signal not fitting the FFT size.



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AR5000	High performance full featured wide band all mode base receiver 10kHz - 2600 Mhz. IF selection as standard 220kHz, 110kHz, 30kHz, 15kHz, 6kHz, 3kHz (500Hz optional). Supplied with mains power supply.	£1295.00
AR5000+3	High performance base receiver with three enhanced options factory fitted: noise blanker, synchronous AM, automatic frequency control.	£1449.00
AR3000A	Unique all mode extremely wide band base-mobile receiver 100kHz - 2036mhz with no gaps. RS232 port fitted.	£699.00
AR3000A +(plus)	Customised AR3000A with switchable narrow SM & SAT filters, Tape relay, SDU ready and discriminator output.	£799.00
AR8200 Series 2	New advanced wide band all mode hand-held receiver with enhanced microprocessor facilities, slot card options available, multi-function display.	£395.00
AR8000	The New Concept. Wide band all mode hand-held receiver with many microprocessor facilities, dot matrix display and computer compatibility.	£296.00
ICOM R2	0.1300mhz Handie. Fits in the palm of your hand. AM/FM, FM Narrow - 450 memory channels	£139.00
IC R8500	100kHz - 2GHz Continuous. All mode no gaps.1000 Memories. 4IF band widths Excellent all round for the professional listener	£1440.00
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ALINCO	DR-590 DUAL BAND MOBILE	£175.00
ALINCO	DR-605 DUAL BAND MOBILE TRANSCEIVER	£230.00
ALINCO	DX-70T 100W MOBILE / HF	£399.00
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AOR	AR-2002 BASE SCANNER	£199.00
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ICOM	IC-275H 2M 100W BASE TRANSCEIVER	£550.00
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ICOM	IC-729 TRANSCEIVER HF/ 50MHz	£425.00
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ICOM	IC-746 HF/50/2M 100w	£999.00
ICOM	IC-756 HF/6M BASE TRANSCEIVER	£1,050.00
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KENWOOD	TS-940SAT HF BUILT IN ATU BASE	£750.00
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Satellite TV News

Analogue TV is still alive and well - at least in the satellite broadcast arena. For example, the Albanian TVSH, well sought after by (terrestrial) TVDXers, is a very strong satellite downlinked signal on an 800mm dish from *Eutelsat 2F3*, 21.5°E mid evening, 11.556GHz-H audio 6.50MHz. If you lived near a branch of the Lidl supermarket chain, they've been selling a complete analogue 500 memory receiver, LNB, 800mm dish and even 20m of F-plugged cable for £39! OK for the analogue channels on 13°E *Hotbird* and 19°E *Astra* signals.

I was checking out a manual (vintage rotary tuner, but OK for quickly zapping an analogue satellite!) sat tuner on *Astra* 19.2°E where there's a mass of German analogue signals - a repeating Astra promo on 11.536GHz-V pushing free to air programming, plus a new analogue service test pattern on 11.595GHz-V.

There's life elsewhere on *Astra* 19°E, 'Canal Evenement' is now in the clear within the 'Canalsatellite' bouquet - 12.012GHz-V. **Edmund Spicer** notes that this channel has been carrying 'Zalea TV', though has aspirations of becoming it's own freestanding channel in the 'Canalsat' bouquet. 'Zalea TV', a donation funded operation, currently transmits terrestrial in the Paris region ch.E36 and transmitted evenings over *Astra* until at least end September.

The 'new world' of satellite is one of digits, symbol rates (SR) and forward error correction (FEC) and certainly the unusual and bizarre are rarely seen in analogue. I've spent more time this month on 21.5°E *Eutelsat 2F3* - apart from TVSH everything on board is digital! Here will be found many news and sports feeds from across the UK, mainly uplinked by SISLink - though August 7th unusually, a French language OB (outside broadcast) - 'Les Talents de L'ete' - was being fed @ 11.670GHz-H, 5632+3/4 at 1600 hours. The location was a windswept seaside resort with a grey rough sea, unusual to find French circuits on *2F3* when normally French uplinks are carried on the *Telecom* birds, then at OB end up flashed colour bars with a SISLink ident confirming a UK truck linking a French programme.

The Queen Mother's 101st birthday on August 4th was nearly marred when she was taken to Maryleborne Hospital on August 1st suffering from Anaemia. This naturally produced a flourish of media types on the pavement outside reporting on developments, as was 'SIS CREW 3 SKY LONDON' with their reporter giving live inserts into Sky News on the hour -11.051GHz-H, 5632+3/4 - fortunately the QM was home in time to celebrate her August 4th birthday.

Three days earlier a little confusion resulted on a *2F3* SISLink uplink with horse racing - shots of the nags running passing advert hoardings for Hong Kong companies, the commentary included Chinese named horses and jockeys were prize-presented on a podium emblazened 'Hong Kong Jocky Club'. How could 'SISLink 10 UKI-716' be uplinking out of Hong Kong late afternoon UK time when it would be pitch black in mainland China?

The answer came in a 1 + 1 interview, the interviewer holding a microphone fitted with a logo sleeve 'Ascot TV' - Royal Ascot was having a 'Hong Kong Day' (11.685GHz-H, 5632+3/4)! I have previously commented that satellite uplink engineers are creatures of habit and noting the QM/Maryleborne 11.051GHz-H *Eutelsat 2F3* frequency above, a feed out of Jerusalem again for Sky News, evening of July 26th also used 11.051GHz-H, the service ident however was 'SKY 7.78MB/S', perhaps this is a Sky News dedicated frequency slot.

The 'Outdoor Life Network' is a new one on me, but possibly a sports cable channel in the 'States. Colour bars plus an 'Outdoor Life Network' inlay appeared on the Reuters lease, 11.462GHz-V on *NSS-K*, 21.5°W on July 24th - a switching error as the signal cut only to re-appear on the Globecast bouquet 11.590GHz-V (SR20145+3/4) seconds later. The screen now confirmed a USA location as Stamford CT. The picture then cut to that day's compilation of *Le Tour de France* covering all the main road race events.

American interest in this year's *Tour de France* seems considerable, though the French TV coverage as always is very impressive both of the cycling and the shots of the surrounding environment, honed to perfection over the years. Globecast over the past weeks has carried a daily 'Tour' update, possibly to satisfy the needs of the ever expanding cable sports channels. As an aside, I suspect that the downlink e.i.r.p. on certain leases from *NSS-K*, 21.5°W has been lowered as pictures from Globecast and particularly Reuters 11.462GHz suffer digital dropout/freezing much more readily. My dish tracking is okay and this could be a Reuters move to minimise viewing of their signals by smaller dish enthusiasts!

Students of the French language can do no better than flick over the *Telecom* sats at 5° and 8°W. *Telecom 2B/D* - 5°W - carries several main line TV programme channels and all in real analogue - M6 12.522GHz-V; France-2 12.564GHz-V; TV5 France 12.585GHz-H (PAL); ARTE/La Cinquie 12.606GHz-V; TV5 France 12.648GHz-V (PAL); France-3 12.732GHz-V, all using audio @ 5.80MHz and SECAM other than TV5 who're in PAL. *Telecom 2A* @ 8°W tends to carry telecomms/satlink traffic, though there are occasional regional sightings - very recently 11.518GHz-H, SR 6111+3/4 'AKK D-SNG VE4' German football; 11.526GHz-H, SR 6111+3/4 French football; 11.619GHz-H, 6111+3/4 with more local football, Montpelier v Marseilles, this for France-3 Sud via 'F3 SUD CONFIG DEFAU' - and the BBC regional UK centres are known to use this satellite around the above frequencies...

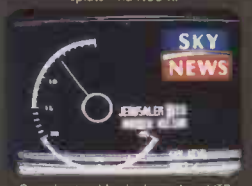
The value of digital bouquets is clearly demonstrated on *Telecom 2B*, July 22nd. At 12.604GHz-V (26500+7/8) a 4 channel bouquet was transmitted, possibly 'Le Tour de France', this featured - ch.1 FTR/REMUX/CANAL, a motorcyle mounted camera, poor helilink comms; ch.2 FTR/CANAL 1, another motorbike cam; ch.3 FTR/CANAL3, another motorbike cam; ch.4 FTR/CANAL 4, this a helicopter cam. Thus a single frequency carried four separate camera sources and related comms.

Roy Carman (Dorking) watched the birth of seven babies from a single mother mid July, pictures from Georgetown University Hospital, South Carolina, were carried over *NSS-K*, 11.564GHz0V, 5632+3/4. Weights were above 900g and after the birth sequence (total time three minutes!) were all destined for intensive care since they would have all had under-developed organs - this a CNNI VTR package for distribution world-wide.

From nature at its gentleness to the raw power of nature - Mt. Etna has been spraying lava, rocks and smoke into the skies over Sicily as it provides an awesome entertainment for visitors and concern for the locals. Telespazio has been uplinking pictures of this spectacle for several days at the end of July with 10.968GHz-H with an unusual SR 6400+3/4 parameter. By the 21st, the mountain had split and molten lava was seen spewing down the slopes burning and enveloping all in its path - live pictures as Etna burns!

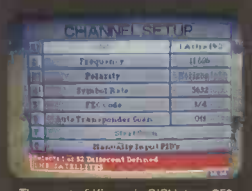
Equally violent, but for other reasons, were the G8 Summit talks in Genoa, pictures of cars afire, folk rampaging and the police equally violent at 'suppressing' the violence, both *NSS-K* carries pix live into the 'States (11.518GHz-H) and more live to camera reports for the BBC - Gavin Hewitt linking into the 2200 UK news via *2F3*, 12.536GHz-H 5632+3/4 NB use of *2F3*'s Telecom band, uplink truck was Tadiran Scopus.

Le Tour de France packaged playout awaits to roll into an American cable sports network, note the digital drop-out splats - via *NSS-K*.



On-going troubles in Jerusalem, VTR standby for edited package via *Eutelst 2F3*.


President Putin addresses the nation, feed into Europe from Reuter's Moscow bureau, via *NSS-K*.

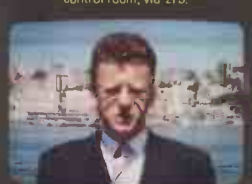


The sport of Kings via SISLink on 2F3 with receiver setup data.

Sky News on standby for the Queen Mother's visit to Maryleborne Hospital, via *2F3*.


"And it's goodnight from us", Meridian OB from Canterbury Cricket Ground, via *Intelsat 801*, 31.5°W.


SISLink in Belfast as crisis talks develop, reporter in touch with the control room, via *2F3*.


Genoa burns, Sky News reporter updates the viewers, via *2F3*.

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■ E-MAIL: info.orbit@pwpublishing.ltd.uk ■ WEB SITE: http://www.itchycoo-park.freeserve.co.uk

Info in Orbit

Arriving at a new home, known to require considerable attention, only to discover no telephone connection despite assurances from BT, left us wondering where to start. The weather satellite (WXSAT) equipment amounted to considerably more than I had realised - just how much hardware can one collect in 15 years! The room allocated for my computers and receivers seemed rather smaller than I had remembered.

However, within a few days, the crossed-dipole was mounted on a temporary mast fitted to the end of the shed and a cable was fed from the window, straight to the dipole. I took my first 'Southampton' pass within the hour. As anticipated, reception characteristics were different. Instead of a hill blocking off the entire north-east, the antenna was merely lower than normal, with the east just waiting to be experienced!

The WEFAX system (used for receiving low-resolution images from METEOSAT) was second on the list. I now use the small dish and down-converter marketed by the Remote Imaging Group (RIG) - probably the cheapest possible method for receiving live images from the satellite. I positioned the dish at ground level, pointing very roughly south, and fed the cables from the same room down to the dish mounting. After connecting up a second receiver and applying power, I was surprised to hear a loud, clear signal from the speaker - I was right on *METEOSAT-7*! The image flow was of excellent quality.

The two remaining pieces of hardware - the high resolution picture telemetry system and the Primary Data system - were next. I was keen to re-install the h.r.p.t. system, so I re-built the mount in a temporary position near the house. The dish was a little disfigured after its March gusts experience, so I applied some pressure to at least partly correct the buckle. It was then mounted and the cables fed down from the 'computer' room.

After setting the dish approximately due south and running through the calibration process, I waited for the first pass. I was uncertain whether the frequency was correct because I had not checked the NOAA site that lists these, and I knew that one satellite had been changed. Watching the satellite prediction program indicate that *NOAA-16* was about 6° or so above the horizon. I was absolutely amazed when the data lock light came on! I took my first h.r.p.t. pass since the crash last March when the dish and mount were damaged by that gust.

Over the following few days I established that the system was working fine, so plan 'B' now entails fitting a new permanent steel mast to the end of the shed, with the h.r.p.t. dish and Yaesu controller on top. Meanwhile, some recent passes have proved extremely good - oh for a *FENGYUN-1C* module!

(For beginners who might be unfamiliar with some of the terminology, *FENGYUN-1C* is a Chinese satellite that transmits h.r.p.t., but in a slightly different format - there are more channels! My h.r.p.t. system requires a modified Timestep receiver and extra module to enable FENGYUN reception - and a test unit has been anticipated for...well some weeks!).

Fig. 1: Etna erupts - an h.r.p.t. image on OSEI web site from *NOAA-14* 22 July 2001 by Ferdinand Valk.

Fig. 2: Etna erupts - image from the *ISS*.

Operational WXSATs

My own station was dismantled in early July, prior to the re-location to Southampton, but reports on the Internet WXSAT forums indicate that the only significant problem during recent days has been a recurrence of the occasional *NOAA-15* image synchronisation failure. Many people have continued to receive excellent images from many of the WXSATs.

NOAA-12 and *NOAA-15* are 'morning' satellites, both transmitting a.p.t. on 137.50MHz, with *NOAA-15* as the 'prime' WXSAT. The footprint of *NOAA-12* catches up with that of *NOAA-15* during August and NOAA officials announced in advance that *NOAA-12*'s a.p.t. would be switched off around 7 August, rather earlier than expected. The overlap occurs over the poles first, and is experienced world-wide several days later.

Fig. 3: Etna erupts - *NOAA-15* image on 23 July from Trevor Davies.

High resolution picture telemetry transmission (in the 1.7GHz band) is not affected because reception requires a narrow-band antenna. Using a satellite tracking program to predict passes in future weeks, footprint separation can be expected around mid-October.

Fig. 4: Etna erupts - IKONOS satellite image of 31 July by spaceimaging.com

Volcanic Eruptions - Monitoring By WXSAT

Following the eruption on 17 July, Europe's most active volcano, Mount Etna, produced rivers of lava and this has been a source of great interest by those actively monitoring transmissions. Thick ash clouds caused airport closures and forced residents in the nearby city of Catania to use umbrellas while walking outside. A large sulphur dioxide plume came from the summit of the volcano. Several images were produced by regular correspondents to the WXSAT forums on the Internet, a few of which are shown here.

Originally produced by **Ferdinand Valk** from his h.r.p.t. system is **Fig. 1**. The scene was captured by *NOAA-14* and processed by Ferdinand, then passed to the Operational Significant Event Imagery Team which displayed it on their web site. The picture clearly shows the plume of smoke and ash stretching eastwards from Sicily across the Mediterranean sea.

A digital still image - **Fig. 2** - was recorded by one of the Expedition Two crew members on 22 July. Smoke and ash combine to create a plume extending from the erupting volcano on Mt. Etna in Sicily.

Trevor Davies processed an a.p.t. image from *NOAA-15* at 0745UTC on 23 July to produce **Fig. 3** - an excellent image showing the smoke plume drifting eastwards.

Finally in this feature on the Etna eruption, **Space Imaging** gave permission for me to include this spectacular picture taken by the IKONOS imaging satellite on the morning of 31 July. The satellite was 677km above earth. The company's web site is: **http://www.spaceimaging.com** where further details about IKONOS imagery can be found.

Tropical storm Barry gave a dramatic display in the Gulf of Mexico, and was routinely imaged by the American *GOES-8* WXSAT. **Barry Brandenburg** saved an image of the storm as it came ashore. **Figure 5** was received by Barry's home-built receiver - an RX2 unit supplied in kit form by the Remote Imaging Group. Barry uses the *WXSat* software (version 2.5 revision 9.2) by Christian Bock and the colour was obtained automatically by adjusting the INI file. This is an initialisation file that the user needs to 'tune' in order to obtain satisfactory images. The program includes an automatic colouration option, and Barry has provided a set of these files on his web site, including those from other RIG members. *METEOSAT-7* WEFAX users receive re-transmitted images from *GOES-8* several times each day.

John Everist of Dartford in Kent describes himself as a "new boy to this world of weather satellites". He uses a Timestep Proscan system with Timestep software and is getting good results. John received the a.p.t. image from *NOAA-15* at 0818UTC on 19 July and processed it using *Photoimact* software. He sent it to *SWM* as a 'first attempt'.

John Silver has been monitoring the north-bound daily *METEOR 3-5* passes using his home-brew receiver and a Wamo turnstile antenna. He reports "I've been receiving pretty good *METEOR 3-5* pictures of northern Greenland. On the 1457 passes I get a complete picture from Greenland to the Russian coast. According the *WXTrack* scanner line, these passes easily include the north pole".

John lives in Whiteley on the south coast between Portsmouth and Southampton (we must be near-neighbours!) and commented that he was "quite surprised to receive that far north - I've been able to get full pictures of Greenland with Novia Scotia next to it. Luckily the frequency of *METEOR 3-5* at 137.3MHz allows minimum interference from pagers, etc.".

Fig. 5: Tropical storm Barry on 6 August 0919UTC from Barry Brandenburg.

Clive Finnis of Mudeford, Dorset, was delighted to spot van Karman vortices on a recent *METEOR 3-5* pass showing these 'swirls' on the lee of the island of Madeira. The pass was at 1125UTC on 18 July. They were also visible on the 19, but not so clearly. "I use a Paul Hayes QFH antenna in my loft with a home-boxed RIG pre-amp to a Timestep Receiver and decoder", he wrote.

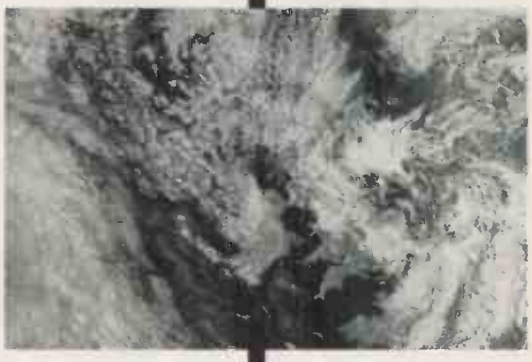


Fig. 6: *NOAA-15* a.p.t. from John Everist.

Internet Site Update

David Brooks lives in Barbados, West Indies, so he gets to see the parts of the world transmitted by the NOAA WXSATs that those of us in Britain and Europe cannot see. David has set up an experimental web site - **http://www. brohavwx.com/** - carrying a variety of links that provide sources of mostly up-to-date images of the region. The main purpose of the site is 'Monitoring the Weather affecting Barbados & the Eastern Caribbean', by providing 'Information on Tropical Disturbances, Storms, Hurricanes'. On the day in August that I checked, all were valid and produced an impressive set of images of the region. David has linked to some sites that I had not discovered, this makes me wonder how many universities and other institutions put live GOES data on the web!

SICH-1M

Volodymyr Astapenko has kindly provided me with much information about the *SICH-1M* Ukranian-built resources satellite. I have left Volodymry's text largely in its original form, with minimal editing.

Fig. 7: *METEOR 3-5* coverage of the north-pole on 7 August from John Silver.

"The satellite system *SICH-1* is of a new generation, focused on integration in the world network of satellite Earth observations. The

Fig. 8: van Karman vortices seen in *METEOR 3-5* image from Clive Finnis.

satellite is designed to aid the solution of practical problems involving the observation of vegetative and soil covers of land, and on research of the world's oceans and atmosphere, control of hydrological and ice conditions.

The equipment includes a complex of low-resolution hardware (optical - MSU, radar - RLS BO and radiometric - R0,8), working with matched imagery (overlapping frames), ensuring the global, all-weather observation of sea and continental ice, surface wind, atmospheric fronts, large petroleum pollution, etc. The complex has been successfully maintained since 1983 on the satellites of the *OCEAN*-1 and *SICH*-1.

The spacecraft *SICH-1M* is equipped with the new MTVZA to provide imagery in the visible, infrared and microwave bands, with a wide swath of 2000km, providing a global character of observations. This equipment successfully supplements the basic meteorological operational systems NOAA and Meteor within part of the measurable parameters and regularity of observation.

The installation of this equipment on *SICH-1* spacecraft allows to prolong the important number of observation of global character, both for the decision of the current tasks, and for researches of changes of a climate under the program Global Change.

Two advanced, complete sets of the MSU-EU1 & MSU-EU2 multispectral high-resolution optical equipment are established also on the satellite. The high enough spatial resolution (24 x 34m), opportunity of retargetable in a wide coverage 800km, advanced methodical and software determine this equipment as the basic operational ERS tool, alongside with the optical equipment of a similar class established on the satellites *Spot*, *JRC*, "*Resource-01*". Data transmission from SU-EU is provided via X-band (8.2GHz) downlink, standard high-resolution data transmissions.

The satellite is equipped also with "Variant" equipment complex for research of thin structure of electrical currents, low-frequency electrical and magnetic fields in ionosphere plasma. The structure of scientific equipment of a complex allows to register low-frequency types of plasma waves, change of parameters of the top atmosphere and ionosphere, simultaneously to register a plasma current, vector of intensity of electrical and magnetic fields.

The first created satellite of this system carries demonstration character, as the main task of its start is the execution of operation condition of system and technologies of interaction with the users. Distinctive feature of the satellite *SICH-1* is use of a wide set of onboard radio links 137MHz, 1.7GHz and 8.2GHz for data transmission. This is allow to accept a signal from the satellite practically all existing data receiving stations on all continents (more than 1000 v.h.f.-band stations, more than 200 L-band stations and more than 30 X-band stations).

So, now v.h.f.-band and L-band stations are used, basically, for reception of the information from the meteorological satellites NOAA, at average loading 2-3 hours per day, that allows at insignificant completions to use them for reception of RFA, MTVZA-OK and MSU-M data from *SICH-1* spacecraft, and by that it is essential to increase feedback from these means".

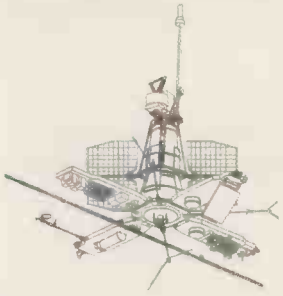


Fig. 9: *SICH-1M* spacecraft schematic - courtesy Volodymyr Astapenko.

WXSAT Station Profile - Roger Ray

It must be at least ten years ago that I first heard from **Roger Ray** when he was using a BBC computer for WXSAT image display. Over the years, Roger built a comprehensive station that included a.p.t. and WEFAX reception, but this was recently sacrificed to buy an h.r.p.t. system - see **Fig. 10**. Roger uploads a new h.r.p.t. image almost every day to his website and maintains an E-mail list for those keen to see the current images. He now uses a separate computer for reception and Internet activity.

Fig. 10: Roger Ray's h.r.p.t. tracking dish.

Shuttle Launch Schedule

One more Shuttle launch is scheduled for this year: STS-108 *Endeavour* is scheduled for launch on 29 November for a 10-day mission to the *International Space Station* carrying the Multi-Purpose Logistics Module **Raffaelo** and a change of crew.

Fig. 11: Roger Ray's station.

Kepler Elements - WXSATs & *ISS*

If you want a computer disk file containing recent elements for the WXSATs, AMSATS and others of general interest, together with a large file holding elements for thousands of satellites please enclose 50p with a PC-formatted disk and stamped envelope. A print-out is included that identifies NASA catalogue numbers for the WXSATs.

Frequencies

NOAA-14 transmits a.p.t. on 137.62MHz.
NOAA-12 and *NOAA-15* usually transmit a.p.t. on 137.50MHz.
NOAAs transmit beacon data on 137.77 or 136.77MHz.
METEOR 3-5 transmits on 137.30MHz.
RESURS 01#4 transmits a.p.t. on 137.85MHz.
OKEAN-O, *OKEAN-4* and *SICH-1* use 137.40MHz for brief transmissions.
METEOSAT-7 (geostationary) uses 1691 and 1694.5MHz for WEFAX.

■ JACQUES D'AVIGNON VE3VIA ■ E-MAIL: jacques@pwpublishing.ltd.uk

Propagation Forecasts

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.

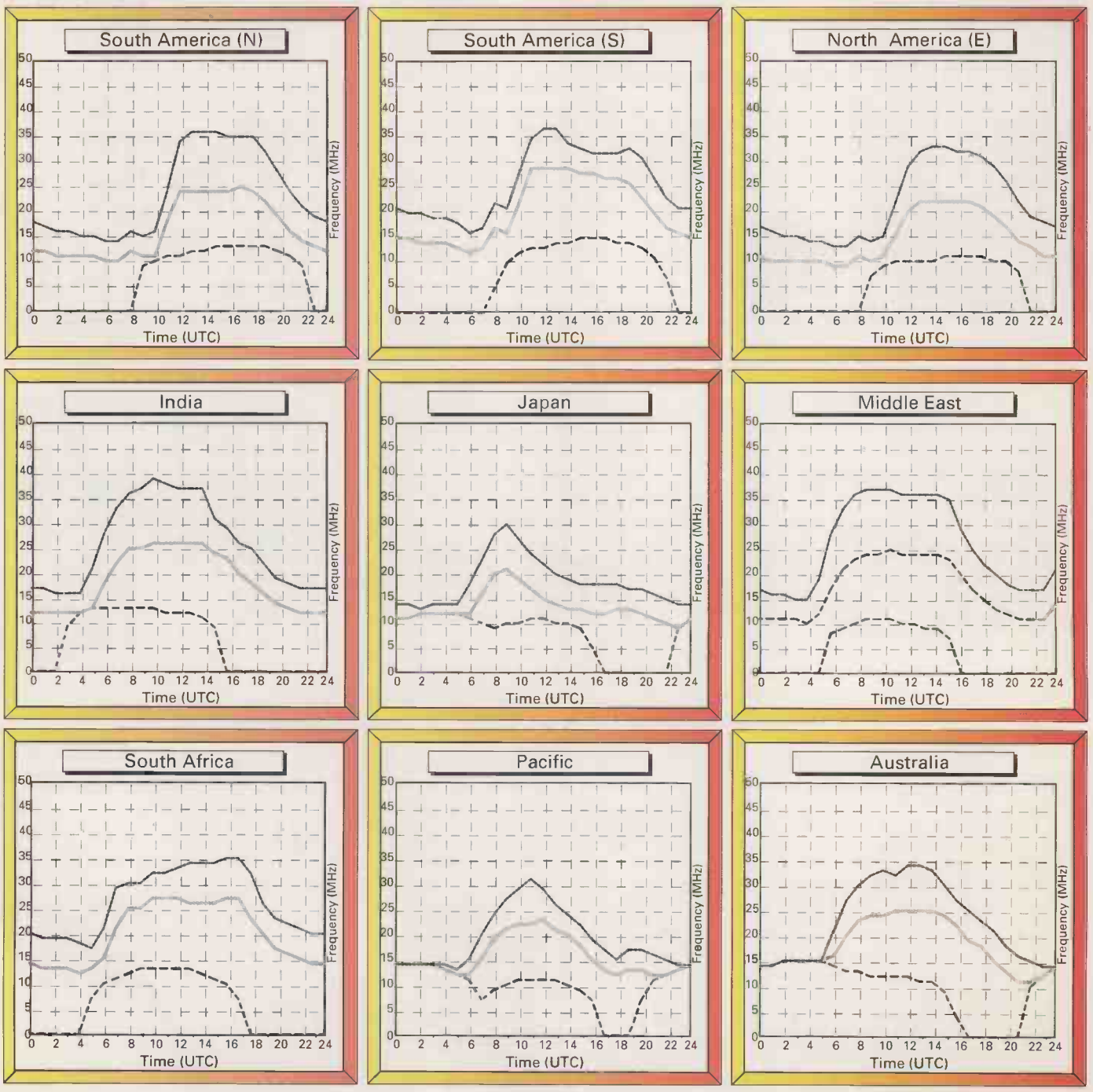
The middle line indicates the optimum working frequency (OWF) with a 90% probability of success for the particular path and time.

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 2001
Circuits to London

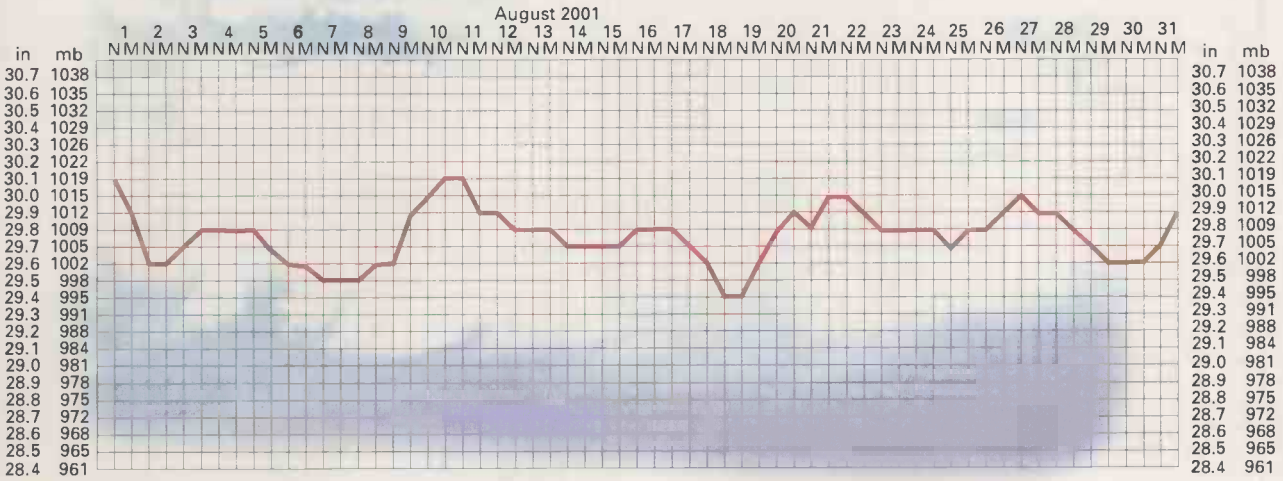


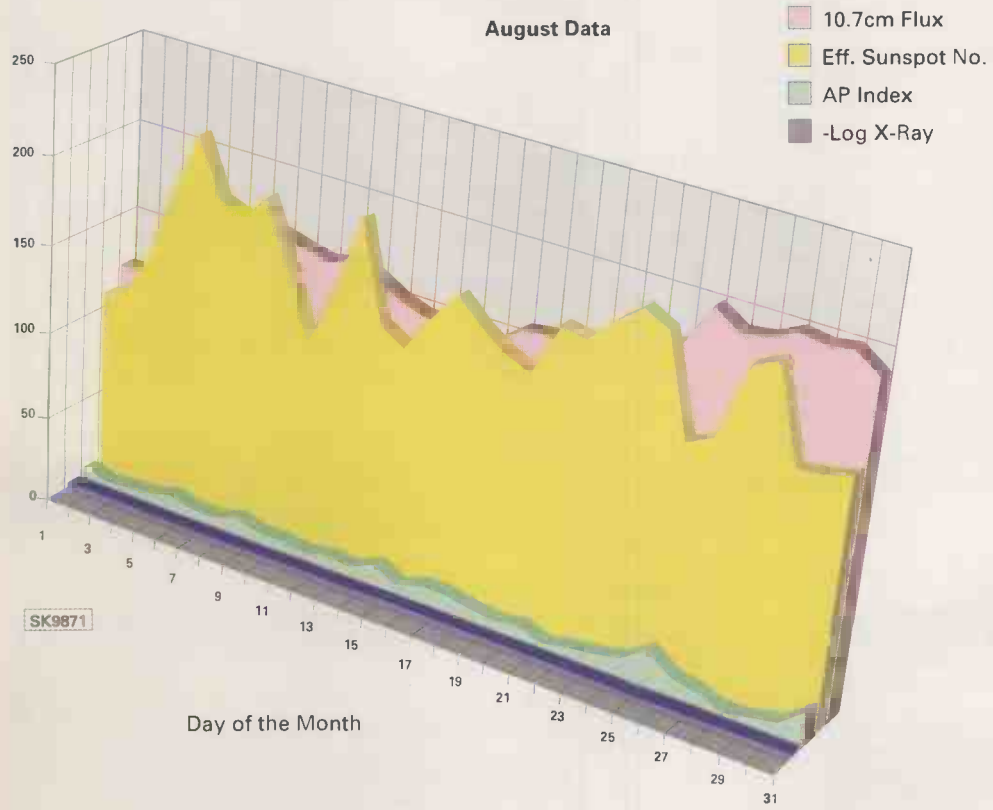
SK9870

■ KEVIN NICE G7TZC, SWM EDITORIAL OFFICES, BROADSTONE ■ E-MAIL: kevin@pwpublishing.ltd.uk

Propagation Extra

Ron Ham's barometric pressure chart, taken at Storrington, W. Sussex, August 2001.





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.

■ ENIGMA, 17-21 CHAPEL STREET, BRADFORD, WEST YORKSHIRE BD1 5DT. FAX: (01274) 77004
■ E-MAIL: enigma@pwpublishing.ltd.uk

Attention-123!

Many of us assume Numbers Stations are only used by intelligence agencies to pass messages onto their agents in the field. However, they have other functions. They are used by covert forces to direct covert operations, such as sabotage and assassinations. Britain's SAS has its secret h.f. transmitting site at Ewyas Harold (on a minor road just to the East of the village). The receiving site was within the SAS HQ compound at Stirling Lines, Hereford, until it recently moved to the former airfield at Credenhill, NW of Hereford. Transmissions are erratic and largely in Morse, never voice.

Besides special forces, until recent years, Britain was the major European player in the so-called Stay-Behind networks. These involved the setting up of cells of undercover saboteurs throughout the country in the event of Soviet Spetsnatz forces arriving on British shores. Numerous well-disguised underground bunkers were built by SAS for these cells to operate from. These contained everything necessary for conducting guerrilla warfare - weapons and ammunition, radios, food, even gold.

These networks had an offensive role in Eastern Europe, where British-trained agents (usually East European exiles) would be sent behind the Iron Curtain to conduct SOE-type work. During peacetime, these agents took part in regular exercises in Western Europe, especially to Malta, Gibraltar and Cyprus, etc. Exercises were controlled by Morse radio messages sent from a highly secret site in the middle of a forest on Montreathmont Moor, Fife, a site which was re-built and re-activated in the 1950s after its secret World War Two role.

The receiving station moved from Forfar to Laurencekirk at around this time. These sites were dedicated entirely to Stay-Behind, although, no doubt Ewyas Harold, Gawcott, Akrotiri, etc. also contributed. In the 80s, Montreathmont operated under cover of the Scottish Home and Health Department, a most odd location for SHHD hill-top site - next to useless for v.h.f., due to its low elevation!

In the last 'Attention 123!' we mentioned the French intelligence service. The French also operated a Stay-Behind Network, which retained a far greater independence than all the other European S-B Networks which were controlled by US or UK intelligence. The French went to great lengths disguising their antennas. Unlike the British, standard black plastic-covered wire (or pull-out copper braid when used indoors), the French used green-covered wire covered with imitation plastic leaves!

The Russians operated similar systems, burying their radios in remote places throughout Western Europe. The radio once dug up by a farmer in Wales was actually not Russian, as the media was made to believe, but British, and had been put there either for use of Stay-Behind or for covert exercises.

Occasionally, members of the public would accidentally find a S-B bunker, complete with its contents. Invariably, the matter would be hushed-up and the bunker moved elsewhere. A classic cover was that it was a mainland IRA arms cache! These bunkers were generally built on private estates, whose gamekeepers had joined S-B, estate owners often being senior S-B co-ordinates.

Some bunkers were built in urban areas though, one once being found concealed underneath a private garage in Leeds. It's owner had died in a plane crash and its new owner happened to start digging a maintenance pit, and stumbled upon a room full of weapons! The present state of S-B is unknown, but I would suspect that the network is being kept in 'mothballs'.

Akrotiri Lake

There has been much recent media coverage of the proposed high power h.f. transmitter being built on this RAF-run site. This is the 'home' of the E3 (Lincolnshire Poacher) transmissions. It has long been a Defence Communications Network (DCN) h.f. transmitting site (like Edlesborough (TX), Chelveston (TX) & Bampton Castle (RX) in the UK). All these sites are run by the RAF ostensibly for the use of 'vital military communications'.

E3 is not military, but strictly run by the Foreign and Commonwealth Office (Hanslope Park) who oversee the so-called Government Communications Bureau of MI6. It's unlikely that DCN has taken over certain elements of the former HMGCC (formerly the Diplomatic Wireless Service - Poundon, Gawcott, Creslow, Hanslope, etc.).

The big question is why build a massive Sturba Curtain array at a DCN site? These vast antennas, until now, have only been associated with broadcast transmitters of high power, not the low power (say 15kW) transmitters found at point to point h.f. communication sites. More likely, these new developments at Akrotiri are aimed at improving reception of MI6's agent-running transmissions.

E10 (Mossad)

'ABC' has been noted making a rare transmission. The mysterious ABC was noted on Saturday 30th June at 2043 on 6.428MHz. Sending the ABC idler until 2049, when it paused for several minutes until 2053, after which transmissions continued until 2109, ending abruptly with no message. This is probably a 'type 3' station, and is unlikely to send anything other than ABC or perhaps an additional letter or number. It's almost certain that there will be at least one other frequency used by this call. Can you find it? A further new CIO frequency has been logged on 10.778MHz.

V8 - Arabic Music Station

This appeared on a new frequency and time recently. In the past, this station has restricted itself to 6.645 and 11.290MHz. On Thursday 26th July, it was on 7.662MHz. The message, being read by a female announcer, was in progress and ended at 2108 with some Arabic-style music sent at quite low modulation. Interestingly, the carrier remained on (along with its strange characteristic clicking sound) until 2100 when the message and music were sent again. Clearly this was an important message. Went off air at 2113.

E5 In Decline?

According to the 'Spooks List', CIA transmissions of E5 and V5 from Warrenton, Virginia, ceased in March. E5 traffic continues in Europe, most probably from the Langen site in Germany. Are traffic levels in Europe dropping?

S6C

The Russians are as active as always and this rare format is still being reported. It always sends a single group without call or preamble or ending. On Saturday 28th July it was in progress at 1838 on 8.185MHz sending '11415'. This was repeated in 5-minute blocks, followed by breaks of the same length. The group sent is typical of S6C as it nearly always takes the form '11?1?'.

M50

This training schedule for the M1/M45/S21 networks is still to be heard (almost daily) on its new 5.372MHz at 1930, with its new ID of 249 - a break in its obsession for 5s.

The Buzzsaw

This oddity is still very active and seems to operate 24 hours a day. Transmissions continued between 5.1 and 5.8MHz. It has a couldn't-care-less attitude towards other users of the spectrum, On Wednesday 18th July, it was bang on top of RAF Volmet on 5.450MHz causing severe interference. At that time it was working between 5.440 and 5.475MHz. On Friday 27th June at 2100, it was centred around 5.860 (very high) and was crashing Vatican Radio (in Arabic), spreading as high as 5.898. Vatican Radio was also struggling beneath a very strong teleprinter on 5.885, which may teach it to keep out of Fixed service allocations!

Link 11

It was interesting to read that Link 11 was associated with the EP3 Spy Plane (now returned to USA in bits) which made an emergency landing on Chinese soil. In Europe, Link 11 was easy to find. Is it being used for espionage here too? Recent active frequencies include: 4.702, 5.732, 6.245, 6.880, 7.831, 8.030, 8.160, 8.303, 9.280 (often heard) and 13.420MHz.

Faders

After over thirty years of very active operation, it seems that these true mysteries of the short waves have disappeared. They were operated by US agencies.

John Walters

Did any of you see ENIGMA's 10 minute TV appearance on 21st April 1997? It was presented by John Walters, whose whimsical and relaxed style helped make our subject more easily understood by the general public. We were saddened to hear of his sudden death at the early age of 63, and we are sure that he'll be greatly missed.

M23

I can't sign off without reminding you that M23's 579 schedule is **still** sending its null message transmissions daily (0800 and 1400, 8.307//9.285MHz). I've been waiting for a message ever since March 1997!

Coming up in November *SWM*

Next month is our

'WXSAT SPECIAL'

Setting up a whole WXSAT station from scratch. Lawrence Harris reflects on his recent house move and enforced new installation.

Digital Weather Satellites - Lawrence Harris brings us the latest information from WMO, NOAA and EUMETSAT concerning the transition from analogue to digital.

Also...

The Islands of Scotland Award (IOSA) is to encourage amateur radio operators from around the world to contact or visit some of the most beautiful and remote parts of Scotland. Dave Roberts shares his recent experience.

Jerry Glenwright gets to grips with the latest WorldSpace receiver - the Sanyo WS1000.

John Wilson investigates two active l.f. antenna alternatives.

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