

FOR THE
RADIO LISTENER

QSL SPECIAL ISSUE

Reporting for Rewards

Words of wisdom to help you get that QSL

shortwave magazine

March 1992 £1.75 ISSN 0037 - 4261



Regular Features

Airband, Scanning, Junior Listeners, SSB Utility Listening, Propagation and Broadcast Enthusiasts

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Why listeners should QSL

● **Logkeeping and the Short Wave Listener**

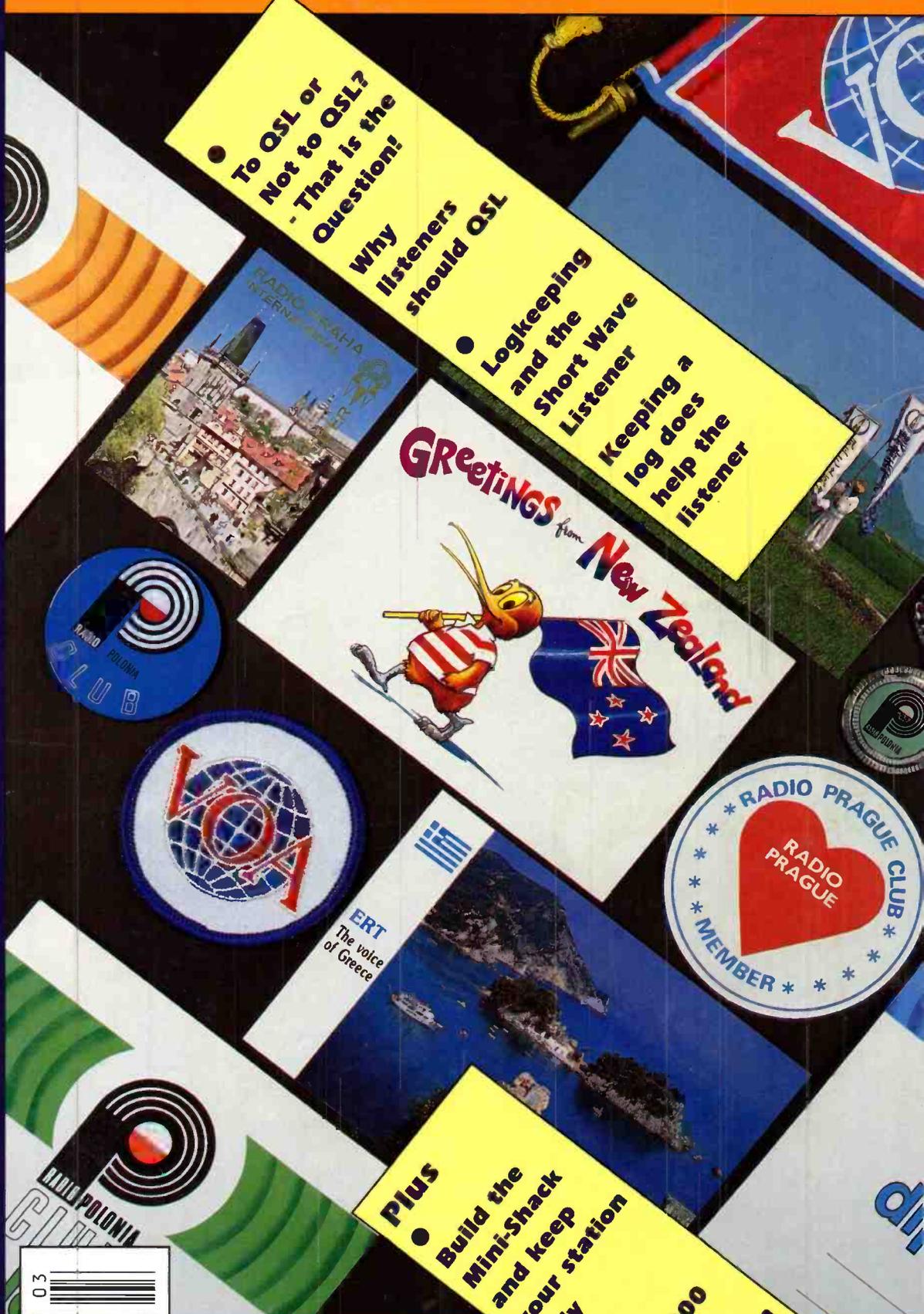
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contents

- 10** Antennas for Short Wave Listening
Paul Essery GW3KFE
- 12** Portable Mini-Shack
F.G. Garraway
- 15** Logkeeping and the Short Wave Listener
Leighton Smart GW0LBI
- 16** Reporting for Rewards
Roy Spencer
- 21** **SPECIAL OFFER**
Buy the 1992 Edition of World Radio TV Handbook and save £3
- 20** To QSL or Not to QSL?
M.J. Sables VP8CEO
- 28** Electric Blanket Interference
J.E. Brown
- 33** PROSAT 2 Review
Lawrence Harris
- 40** Panasonic RF-B45 Portable Receiver Review
Mike Richards

QSL SPECIAL

REGULARS

Cover:
QSLing is an important aspect of the SWL hobby. Our special feature should help you to get better returns from your reporting. The cover is a montage of QSL cards, pennants, badges and other 'goodies' sent by broadcasters and amateurs in response to reports. Here are a few more from our files.



- | | | | |
|----|------------------------|----|-----------------------|
| 53 | Airband | 7 | Listen With Grandad |
| 48 | Amateur Bands Round-up | 63 | Long Medium & Short |
| 46 | Bandscan Australia | 67 | Maritime Beacons |
| 74 | Book Service | 6 | News |
| 60 | Decode | 43 | Propagation |
| 50 | DXTV Round-up | 31 | RadioLine |
| 2 | Editorial | 4 | Rallies |
| 25 | First Aid | 47 | Satellite TV News |
| 4 | Grassroots | 54 | Scanning |
| 56 | Info in Orbit | 2 | Services |
| 76 | Index to Advertisers | 45 | SSB Utility Listening |
| 5 | Junior Listener | 55 | SWM Subscribers' Club |
| 2 | Letters | 77 | Trading Post |

...GOOD LISTENING

**TIMESTEP SPECIAL OFFER
COUPON SWM MAR 1992**

**WRTH 92 SPECIAL OFFER
COUPON SWM MAR 1992**

editorial

SWM SERVICES

Subscriptions

Subscriptions are available at £21 per annum to UK addresses £23 in Europe and £25 overseas. Subscription copies are despatched by Accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both *Short Wave Magazine* and *Practical Wireless* are available at £34 (UK) £37 (Europe) and £39 (rest of world).

Components for SWM Projects

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

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

Back Numbers and Binders

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

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

Orders for p.c.b.s, back numbers, binders and items from our Book Service should be sent to **PW Publishing Ltd., FREEPOST, Post Sales Department, Enefco House, The Quay, Poole, Dorset BH15 1PP**, 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 or Visa) are also welcome by telephone to Poole (0202) 665524. An answering machine will accept your order out of office hours.

I have been looking out for a suitable cartoon strip to try to add a bit of humour to Short Wave Magazine. Quite by chance - all these things seem to happen by chance - I mentioned it to one of our authors, David Leverett, who said "I do cartoons", or words to that effect. "What sort of cartoon do you want?"

The result is a regular cartoon with Grandad as the central character. Grandad is a radio enthusiast with two grandchildren, a boy and a girl, who also happen to be twins. I hope that you enjoy their adventures.

Apologies

In the Airband Special issue (February) something went amiss here in the Editorial Offices and the article 'Air traffic Control' in the UK was wrongly attributed to Ben Knock. The real author was Philip C. Mitchell, who also wrote the 'HF Airband Communications' article in the same issue. My apologies to both of these authors. The articles on the non-directional beacons has generated a lot of interest. A lot of you out there obviously listen to these and want to know more about them.

Competitions

In this issue (page 27) you will find the results of the 'Win an AOR 2000 Scanner' competition. This was a resounding success with all of the entries being of a high standard. Some of the ideas put forward were very interesting indeed. Alan Gardner and myself spent a whole evening studying the entries before deciding on the winner of the AOR 2000. Because the entries were so good I have decided to award two runners up prizes and these will each receive a signed copy of Peter

Rouse's book *Short Wave Communications*.

The results of the other two competitions - the crystal set and the Radio Times Poem - will be announced next month.

At the express request of the newly installed President of the RSGB, Terry Barnes G13USS, I am signing off with my call sign. It seems that very few people actually read the masthead on the Contents page, so, for the members of the Bangor ARC - regardless of the impression given in your Newsletter - I do have a call sign, albeit only a Class B.



letters

Dear Sir

In the January '92 issue the Icom R71 is reviewed by Andreas Pirog, but there is no caveat about the so-called passband tuning. The receiver came out in 1984 as a replacement for the R70. In 1988 a patent dispute arose and Icom dropped the p.b.t. control and circuitry in March '89, but continued to make and market the receiver under the same model name! This means that some second-hand R71s will not have the p.b.t. control. Look for it in the lower right-hand corner of the front panel - it's a very valuable feature, as is the optional and expensive FL44A filter for the p.b.t. A typical price for a used R71 with these features would be about £500. Surprisingly, perhaps, the R71 is still in production at £875 and what is essentially the same p.b.t. is back again.

The 'confusion' concerning the p.b.t. seems to be in Andreas's

Dear Sir

I am only writing to say how pleased I am with one of your advertisers, namely AOR (UK) Ltd., Derbyshire.

I sent my AOR1000 to them for repair, etc., and the service received was excellent. Nothing was too much trouble even to the extent of advice over the 'phone.

I would recommend them to friends and wish them the best for the future as they certainly know scanners.

**Bill Ross
Tewkesbury**

own mind! Icom initially made an unfortunate choice of words when they described the control as p.b.t. (I have the original specification sheets and they do not use the term v.b.t.) The circuitry makes it quite clear that the control enables the pass-band to be varied in width, i.e. v.b.t. This variation happens to be asymmetrical so there is some slight movement of the centre frequency, but this is quite incidental. In no way does the

R71 have 'conventional i.f. shift', as Andreas would have us believe.

By the way, I was astonished to note the use of S-meter readings to compare sensitivities. Geoff Arnold, a former Editor of *Practical Wireless*, said it all in an excellent article in the July '85 issue of *Practical Wireless*, which would bear reprinting some time!

**Gordon Bennett
Bramhall**

letters

Dear Sir

Some years ago at a car boot sale I purchased what I was told to be a 33 Set TX and RX separates for £7. With the help of a fellow amateur an h.t./l.t. p.s.u. was 'lashed up' and soon wafting 1W of r.f. around the UK and across into the 'continent'. Eventually the set was assigned to the attic.

On reading June Stirrat's superb article, I find I am the lucky owner of a 128 Set. So, inspired, it was dug out and dusted off and again active on a limited number of plug-in crystals, 7.022, 7.030 and 3.560MHz. Reports of the 'wine glass' tones would be of interest to me if heard by s.w.l.s on these frequencies.

I would now like to resurrect the RX and operate the set as a complete unit, and would be grateful for any assistance and information namely, any circuits, and details of the 8W patch lead mentioned.

So, now there are two 128 Sets, one in the article and mine. Perhaps there are more awaiting resurrection hidden away in dark cupboards and attics. Maybe the start of the 128 Set Owners' Group?

Martin Ward G4ZXN
Coventry

Dear Sir

First of all the flattery; many thanks for an excellent magazine to which I returned a couple of years ago, after an absence of some tens of years!

The topic I wish to pursue is that of 'scanners'. You will note that I have used inverted commas, because in my dictionary (albeit a very old one), the word scan is defined as 'to examine with critical care'; thus a scanner is properly someone, or something that 'examines with critical care'. Thus presumably, a microscope is a 'scanner', as is a video camera. The point I am trying to make is - we have once more, as in the case of 'Hoover' and 'transistor' allowed a word to mean something it is not, and this could create a wrong impression in the mind of a non-technical person to the effect that any receiver sold as having the facility to scan, is 'naughty'.

Now, should the Government decide to ban 'scanners', have we shot ourselves in the foot, by not making it abundantly clear that it is not the facility of 'scanning' that makes a receiver 'naughty', but the fact that some receivers with that

facility cover frequencies to which the powers that be would prefer we do not listen. A blanket ban on 'scanners' would render illegal some highly respectable h.f. receivers, which do not even cover 'sensitive' frequencies.

I trust that, should the need arise, the RSGB and/or all specialist magazines will make that point crystal clear to the Government departments concerned. Surely, the present laws regarding listening are sufficient, because law-breakers, by definition, ignore the law anyway and would continue to use the offending type of receiver.

If you do manage to find space to print this letter, I will be very interested to see whether any other readers agree with me.

G. Chance
Redruth

Chambers 20th Century Dictionary gives "**Scan** scan, v.t. to analyse metrically: : to examine critically: : to examine all parts in systematic order: : an instrument which scans. - n." My car radio can be set to scan the memories (all six of them!) or search up and down a band for a signal, but does that make it a scanner? Ed

Dear Sir

Congratulations on a great all round magazine, which makes interesting and informative reading. I've only bought the last two issues and was very impressed!

I have recently taken up the art of s.w.l. just to occupy some time. I have only a basic receiver, Realistic 200, and about 80m of wire out of the bedroom window. I want to know how I go about sending QSLs, etc., as most of the time I only get the callsign used. I've received VK, VE, PP, etc., and want to send them my SINPO report. As far as I can see, the only way to do it is either buy the *Call Book* or join the RSGB, which is too expensive for me.

When broadcast stations are heard and I look in a book or your magazine for, say, Radio Australia on 25.750, where is that on a simple thing like the 200? It has the 500kHz calibration tone, however, sometimes there are 3 or 4 high pitched tones even when the antenna is out, which one is it? I tried setting it up to my friend's Yaesu FT-101ZD, we got it spot on, however, whilst scanning through the frequencies I was picking up broadcast stations on the amateur bands. We were both on the same frequency but all he got was amateurs and not broadcast stations, which seems to really spoil it for me.

Is there anyone out there who could give me a taste of their experience and show me or tell me how to do things the proper way, logs, etc. Or is there anyone of your readers who also have experience with a Realistic DX200 and live in the Lincoln area?

T.T. Davidson
Tattershall

I hope Mr Davidson finds this issue more help than usual. If anyone would like to offer help, send all your letters care of the Editorial Office and we will pass them all on to Mr Davidson. Ed.

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

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

Dear Sir

I manage to keep up with most of the British news by listening to the BBC World Service on short wave. But can anyone tell me why the reception invariably deteriorates as soon as the soccer results come on?

Celia Almeida
Portugal

I don't know about this - what is soccer, anyway? Why is it that, when I'm listening to the radio in the car on a Sunday evening returning from a radio rally, the newsreader starts the sports report with the winner of the Grand Prix? It always seems to me that, no matter how poor reception has been, it is perfect just at this point. As I cannot turn the radio off fast enough, my enjoyment of the highlights on television later in the evening are spoiled by knowing the result! Ed.

Dear Sir

I have just finished reading your January *Short Wave Magazine*, and I would like you to know, I think its the best radio magazine on the market.

I subscribe to two short wave clubs at the moment, but now having read your January issue, I realise I don't need to pay money out on other boring articles or clubs.

I see you are now doing articles on the marine frequencies

also, which is a favourite of mine, and I loved your story about the sailing ships.

Please don't change your magazine in anyway, I have just retired and bought myself a Kenwood R5000 and an AOR1000 scanner, so you can see how much I look forward to buying my *Short Wave Magazine* every month.

R I Holland, Nottingham

grassroots

rallies

* Short Wave Magazine & Practical Wireless in attendance *

***March 1:** The Great Northern Rally, otherwise known as the Trafford Rally, will take place at G-MEX, the Greater Manchester Exhibition & Events Centre. All the usual attractions, including free draw and Bring & Buy. Morse Tests will be available, licensed bar, hot & cold meals with lots of traders. Doors open at 10.30am and close at 5pm. Admission is £1.50. Talk-in on S22 via GB1GMX.

March 7: The TARS annual rally will be held at a new venue this year, the Temple Park Leisure Centre in South Shields. Jack G0DZG. Tel: 091-265 1718.

***March 7/8:** The London Amateur Radio Show will be held at Picketts Lock Centre, Picketts Lock Lane, Edmonton, London N9. Free parking, On-deamnd Morse testing, Talk-in on both 2m and 70cm. Bars and restaurants, free prize draw each day, free lectures, etc., etc. Admission £2.00 (disabled & children £1.00). Opening times are 10am to 6pm on the Saturday and 10am to 5pm on the Sunday.

March 14: The Lagan Valley ARS annual Hamfest will be held at the Nurses Recreational Hall, Lagan Valley Hospital, Lisburn.

***March 15:** Norbreck Radio Rally will again be held at the Norbreck Castle Hotel Exhibition Centre, Queens Promenade, North Shore, Blackpool, Organised by the Northern Amateur Radio Societies Association, this is claimed to be the largest covered single day show. Free car parking, Bring & Buy, talk-in on S22. Admission £1.50. (over 65s £1, under 14s free.) Doors open 11am to 5pm. Peter Denton G6CGF, 051-630 5790.

March 15: Wythall RC will be holding their annual rally at Wythall Park, Silver Street, Wythall. Doors open from 11am to 5pm.

March 29: Bournemouth Radio Society will hold their 5th Annual Radio, Electronics & Computer Sale at Kinson Community Centre, Pelhams, Millhams Road, Kinson, Bournemouth. Doors open 11am, admission 50p including prize draw ticket. Light refreshments available. Vic G4PTC. Tel: (0202) 516593 after 1800.

April 5: The Launceston 6th Amateur Radio Rally will be held at Launceston College. Doors open 10.30am. Maggie. Tel: (040921) 219.

April 12: The Cambridgeshire Repeater Group are holding their annual rally at the Philips Communications Systems - Catering Centre, St Andrews Road, Chesterton, Cambridge. Doors open at 10.30am. Mike G6COQ. Tel: (0223) 440373.

April 19: The Centre of England Easter Sunday Radio & Electronics Rally will be held at the National Motorcycle Museum, Bickenhill, near the NEC junction 6 M42. Doors open 10.30am (10am for the disabled) and admission is £1 (concession for RAIBC members and senior citizens). Over 60 traders in three large halls, ample free parking, Bring & Buy, talk-in of S22, bar and restaurant facilities. Frank Martin G4UMF. Tel: (0952) 598173.

April 26: Bury Radio Society will be holding Hamfeast '92 at the Castle Leisure Centre, Bolton Street, Bury. L.H. Jones, Mosses Community Centre, Cecil Street, Bury.

Acton, Brentford & Chiswick RC: 3rd Tuesdays, 7.30pm. March 17 - Preparation for QRP/NFD Discussion. Paul Truitt G4WQD. 071-938 2561.

Aylesbury Vale RS: Wednesdays. The Village Hall, Hardwick. March 4 - AKD Products, 18th - AGM.

Barnsley & DARC: Mondays, 7.15pm. Darton Hotel, Station Road, Darton, Barnsley. March 2 - Shack Night, 9th - Junk Sale, 23rd - AGM. Ernie G4LUE. (0226) 716339.

Bromley & DARS: 3rd Tuesdays, 7.30pm. The Victory Social Club, Kechill Gardens, Hayes. March 17 - Cycling in the Himalayas. Geoffrey Miine. 081-462 2689.

Chelmsford ARS: 1st Tuesdays, 7.30pm. Marconi College, Arbour Lane, Chelmsford. March 3 - Marine Electronics with G8ADX. Roy Martyr. Chelmsford 353221 ext 3815.

Conwy Valley RC: 1st Thursdays, 7.15pm. The Studio, Penrhos Road, Colwyn Bay, Clwyd. March 5 - 24cm Amateur TV by GW3JGA. Merfyn Jones GW4NNL, 72b Princes Drive, Colwyn Bay, Clwyd. (0492) 530725.

Derby & DARS: Wednesdays, 7.30pm. 119 Green Lane, Derby. March 4 - Junk Sale, 11th - Talk by G3XFD, 18th - AGM, 25th - Technical Topics. Richard Buckby. Ambergate 852475.

Grafton RS: 2nd & 4th Wednesdays, 8pm. Holy Trinity Club Hall, at the rear of Holy Trinity Church, Granville Road, London N4. Rod G0JUZ. 081-368 8154.

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

Hoddesdon RC: 1st & 3rd Thursdays, 8pm. Conservative Club (side entrance), Rye Road, Hoddesdon. March 5 - Open Night Social with Grafton, Welwyn and Stevenage Clubs, 19th - Meet the RSGB General Manager Mr Philip Smith. Peter Fairhurst. (0992) 33036.

Hordean & DARC: 1st Thursdays, 7.30pm. Hordean Community School, Barton Cross, Hordean. March 5 - Junk Sale. S.W. Swain. (0705) 472846.

Keighley ARS: Thursdays, 8pm. The Cricket Club, Ingrow, Nr Keighley. March 5 & 19 - Natter Night, 12th - Night on the Air, 26th - An Introduction to Satellites by G7HJT. Kathy Bradford. (0274) 496222.

Lagan Valley ARS: 2nd Wednesdays, 7.30pm. Harmony Hill Arts Centre, Lambeg, Lisburn. Other Wednesdays, 7.30pm. Club Shack, Ballynaminch Road, Lisburn.

Lincoln SWC: Wednesdays, 8pm. City Engineers Club, Waterside South, Lincoln. March 4 - Committee Meeting/Activity Night, 18th - Activity Night. Patrick G0OSO, QTHR.

Maidstone YMCA ARS: Alternate Thursdays. YMCA Sports Centre, Melrose Close, Maidstone, Kent. Feb 28 - Introduction to Computers by G4AXD. C.L. Roberts. (0622) 670936.

Mansfield ARS: 1st Thursdays, 8pm. The Polish Catholic Club, off Windmill Lane, Woodhouse Road, Mansfield. March 5 - Radar by Dennis G0KIU. Mary G0NZA. (0623) 755288.

Norfolk ARC: Wednesdays, 7.30pm. The Norfolk Dumpling, The Livestock Market, Harford, Norfolk. March 4 - Simple HF Antennas & ATUS by G3XYO, 11th - Real Radio Evening, 18th - Informal & Committee meeting, 22nd - Surplus Equipment Auction/Bring & Buy 10am, 25th - Weather Satellites by Richard Gedge. Jack Simpson G3NJQ. (0603) 747992.

North Ferriby United ARS: Fridays, 8pm. North Ferriby United Football Social Club, Church Road, North Ferriby. March 6 & 27 - Club station on the air, 13th - Key & Keyers, members night, 20th - Home Construction Part 1 by G3YCC. Frank Lee. (0482) 650410.

ARC of Nottingham: Thursdays, 7.30pm. Sherwood Community Centre, Mansfield Road, Nottingham. March 5 - Forum, 12th - Packet Radio for Beginners by a Beginner G2SP, 26th - ShortWave Listening by G6ABU. Rex Beastall. (0602) 733740.

Poole RAS: 2nd & last Fridays, 7.30pm. Lady Russell Coates House, rear of Jelico Theatre, Poole College of Further Education, Constitution Hill Road, Poole, Dorset. March - 13 - Introduction to Satellites by G7AZP, 27th - On the Air. V. Cotton. (0202) 760231.

RSGB City of Bristol Group: last Mondays, 7pm. The Small Lecture Theatre, Queens Building, University of Bristol, University Walk, Bristol. March 30 - Use of Bristol Contest Group, any ideas? Dave Coxon G0GHM. (0275) 855123.

Salisbury R&ES: Tuesdays, 8pm. Grosvenor House, Churchfield Road, Salisbury. David Kennedy. (0722) 330971).

South Bristol ARC: Wednesdays. Whitchurch Folkhouse Assoc, Bridge Farm House, East Dundry Rd, Whitchurch. March 4 - PC Software with G0DRX, 11th - QRP Workshops, 18th - Beginners in Packet Radio with G4WRW, 25th - 28MHz FM Activity Evening. Len Baker. Whitchurch 832222.

Southgate ARC: 2nd & 4th Thursdays. Winchmore Hill Cricket Club Pavilion,

Firs Lane, Winchmore Hill, London N21. March 12 - Talk by Mike Dennison G3XDV from the RSGB, 26th - Club Debrief After the LAR&C Show. Brian Shelton G0MEE. 081-360 2453.

Stockport RS: 2nd & 4th Wednesdays, 7.45pm. Room 14, Dialstone Centre, Lisburne Lane, Offerton, Stockport. March 11 - Jandek Kits, 25th - Surplus Equipment Sale. John Verity G4ECI. 061-439 3831.

Stourbridge & DARS: 1st & 3rd Mondays. Robin Wood's Community Centre, Scotts Road, Stourbridge. March 2 - On Air & Discussion Evening, 16th - AGM. Dennis Body G0HTJ. QTHR.

Stratford upon Avon & DARS: 7.30pm. The Home Guard Club, Main Road, Tiddington, Stratford-upon-Avon. March 9 - Open Evening, 23rd - Pacific crossing on operation Raleigh by G4AAL. A. Beasley G0CXJ. 060-882 495.

Thornbury & DARC: Wednesdays, 7.30pm. United Reform Church, Chapel Street, Thornbury. March 4 - Grand Junk Sale, 11th - General Meeting, 25th - Activity Night. Tom Cromack. Thornbury 411096.

Three Counties RC: Alternate Wednesdays, 7.30pm. The Railway Hotel, Liphook, Hants. March 11 - Cellular Telephones and Personal Communications by Ian Lamb, 25th - A demonstration of Packet Radio. Dave G4VKC.

West Kent ARS: 3rd Fridays, 8pm. The School Annex, Albion Road, Tunbridge Wells, Kent. March 6 - Informal Meeting, 20th - BT Communication Wide Area Radio Paging by Bob Fairbairn. John Taylor G30HV. (0892) 664960.

West of Scotland ARS: Fridays, 8pm. Scout Shop, 21 Elmbank Street, Glasgow. March 13 - Debate - Does Our Present Band Plan Scheme Work or Require Change, 27th - Radio Astronomy - Decoding Signals from Space with Dr Geoffry K. Fox. Jack Hood. (0698) 350926.

Wimbledon & DARS: 2nd & last Fridays, 7.30pm. St Andrews Church Hall, Herbert Road, SW19. March 13 - General Activity Evening, 27th - Surplus Equipment Sale. Chris Frost. 081-397 0427.

Wirral ARS: 1st & 3rd Wednesdays, 7.45pm. Ivy Farm, Arrowse Park Road, Birkenhead, Wirral. March 4 - Sale of Surplus Equipment

Club Secretaries:

Send all details of your club's up-and-coming events to;
'Grassroots',
Lorna Mower
Short Wave Magazine, Enefco House,
The Quay, Poole, Dorset BH15 1PP

junior listener

Michael Groucher of Redditch has written with details of his station and interests. Michael is 14 years old and has been interested in radio for just over a year now. During this period he's built-up a good range of receiving equipment. For l.f. and h.f. broadcast listening he uses a Realistic DX-350 twelve-band receiver. To enhance the reception, particularly on short wave, he's connected a random wire to the telescopic antenna of his DX-350. Judging by his log, this seems to have worked very well.

In addition to the DX-350, Michael has Quadro 905 mini TV and radio - I'm sure this is handy for DX TV reception. The latest addition to his station is a Realistic PRO-2006 scanner for the v.h.f. and u.h.f. bands. For an antenna he's currently experimenting with a TV type active antenna. However, he may well find that he gets better results from a discone. As several readers have asked for advice on antennas, I though I'd include a design for a simple discone.

The Discone

For those who haven't already worked it out, the discone gets its name from its construction i.e. it comprises a disk and a cone! For the technical amongst you, this type of antenna operates as a wide band impedance matching transformer. The idea being to match the 50Ω impedance of the coaxial feeder to the much higher impedance of free space. The performance of a discone is very similar to that of a quarter wave vertical antenna except that the discone operates over a much wider frequency range. Most discones are usable over about an eight or ten to one range. This is the reason discones are so popular with scanner enthusiasts.

If you'd like to try building your own discone I've included some basic details in Fig. 1. The dimensions shown give a theoretical lower frequency of 125MHz and a high frequency limit of about 1000MHz. In practice you'll find that the antenna works quite happily down to at least 100MHz. The high frequency limit is largely dependant on the materials used and the quality of construction. Probably the most important point is the connection between the cable and the antenna. If you want to use the antenna at 1000MHz you should make sure you use a good quality connector. The best types are BNCs or N series and you should avoid cheap PL-259/SO-239 types. Alternatively, you could fix the cable direct to the antenna elements.

Moving on to the construction of the discone, I've been deliberately vague in the diagram. There are many different techniques that can be used successfully. Perhaps one of the simplest is to make the disk

Contest Time!

How would you like to win yourself a copy of the *1992 Passport to World Band Radio*? If your answer is yes, I've made it as easy as possible for you. All you have to do is write giving me details of a tip for improved reception that you've developed and tried yourself. Examples of the sort of thing I'm looking for could be a novel antenna system or perhaps an ingenious speaker system - I'll leave the choice to you. When sending in your entry make sure you include your name, address and age. Also make sure you send your entries to the address at the head of the column. The closing date for entries is April 1, so don't delay.

and one out of a card covered with aluminium foil. Another popular alternative would be to use fine mesh chicken wire. Both of these two construction techniques are only really suitable for making a loft mounted antenna. If you'd like to build an external unit the best bet is to make the disk and cone in skeleton form using aluminium rods. I would suggest you use 6 or 8 rods for both the disk and cone. This is the technique that's used by many commercial antenna manufacturers. The antenna described here can easily be adjusted to work to a different lower frequency limit. All you have to do is scale the antenna from the design frequency of 125MHz. For example, if you wanted an 80MHz lower frequency just multiply all the dimensions by 125/80. If you do try building one of these antennas, I'd be very pleased to hear how it performed. I'd also like to hear of any constructional tips you may have.

Digital Audio Broadcasting

This is the latest in broadcasting systems that's bound to have a significant impact over the next few years. Let's start by taking a look at some of the problems with the existing broadcast systems.

The most common system throughout the short wave bands is amplitude modulation or a.m. This system is both easy to generate and decode - hence its popularity. There are, however, one or two problems with this system. The first is its susceptibility to impulsive noise such as ignition interference. Although there have been many ingenious techniques devised to minimise this interference, there is no total solution. A second problem is that of the distortion caused by the fading experienced on the short wave bands. The latest solution to this problem is the use of synchronous demodulators. When you add to these problems the narrow channel spacing and resultant narrow bandwidth, the overall loss of quality is enormous.

These limitations have resulted in broadcasters moving to frequency modulation (f.m.) for their high quality services. The results have been very good, with most major stations boasting digital links between the studio and transmitter. I suspect that most listeners feel that the v.h.f. f.m. service represents a very high quality service. Despite this excellent performance, there are a few significant limitations. The network as designed works fine to fixed receivers with good quality antenna systems. However, there are a great many listeners that demand a high quality service from cars and portable receivers. This brings interference in the form of multi-path propagation, where signals arrive at the receiver by more than one route. This is further compounded as you move from one reception area to the next.

The answer to all these



Jon Jones
PO Box 59
Fishponds
Bristol BS16 4LH

problems comes in the form of Project 147 of the European 'Eureka' programme. This was set up in 1987 specifically to overcome the problems I've highlighted. The partners in the project come from broadcasters, research institutions and public broadcasters. The countries involved include Germany, Holland, France and the UK. From the UK the BBC is playing a major role. Development of the system is progressing well and it's been demonstrated in several locations world-wide. The system has been designed to be transmitted from both satellite and terrestrial stations. It's main broadcast potential is likely to be realised using the satellite option.

One of the keys to success is to have the specifications ready early, so giving the manufacturers time to develop suitable receivers. The latest news suggest that the specifications will be complete in the next few months and receivers should be on the market by 1995.

If the satellite option is to be a success, it's important that segments of the spectrum are made available as early as possible. It's hoped that this will be done at this year's World Administrative Radio Conference (WARC-92). At the moment the service is most likely to be allocated spectrum at around 2.5GHz.

One of the main differences between DAB and other broadcasting systems is that a single system carries several different programmes. The most likely format will use a 2MHz wide block and carry six high quality stereo signals.

There are likely to be many problems introducing the system, not the least of which is the availability of frequencies for terrestrial broadcasts. The hope is that a temporary allocation can be found to enable the systems to be introduced. Once the service has been established it could then migrate to the existing bands for terrestrial broadcasting.

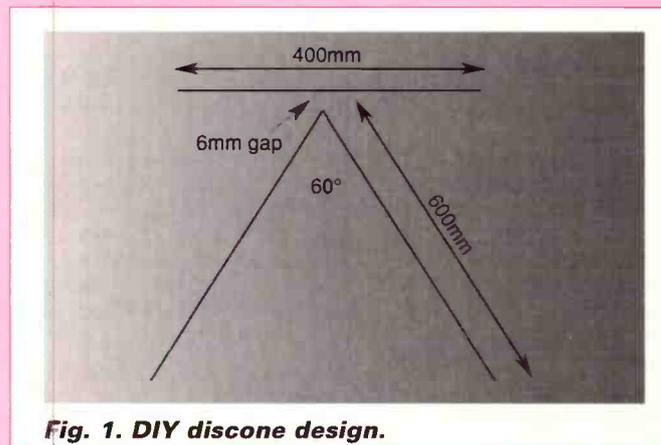


Fig. 1. DIY discone design.

IRTS Special Award

The Irish Radio Transmitters Society are celebrating their 60th Anniversary in 1992. As part of the celebrations, they are sponsoring a 'Diamond Jubilee Award' that will be issued to any radio amateur that makes contact with 20 of the 26 counties in the Republic of Ireland during 1992.

Short wave listeners can apply for the award on a heard basis. There are no mode or band endorsements. QSLs are not necessary, send a log extract signed by two amateurs together with IR£3.00 or equivalent to:

The WEIC Award Manager, PO Box 462, Dublin 9.

EI amateurs will be active on all bands from all 26 counties in EI from March 14-17 for St. Patrick Day celebrations. Many clubs will be activating the rarer counties both on h.f. and v.h.f. This event should be very helpful to stations trying for the Award.

New TVDX Club?

Mike Evans is interested in starting a TVDX Club with other related off-shoots like v.h.f./u.h.f./s.h.f., satellite and ATV. He lives in Loughton, which is on the Central Line and is near the M11/M25, so has easy access from London and Essex. If enough people come forward, he knows of a venue (which has ample parking spaces) where a room can be hired for £15 a night where there are TV/video/35mm slide/film projector facilities plus refreshments. The most important feature is

that there is also a means of erecting temporary antennas during the season.

He feels that members could discuss their related hobby, show videos, photographs, etc., and help each other with projects. There is also the possibility of setting up a telephone link when DX is coming in during the season.

Anyone interested, send an s.a.s.e. to: **Mike Evans, 120 Loughton Way, Buckhurst Hill, Essex IG9 6AR.**

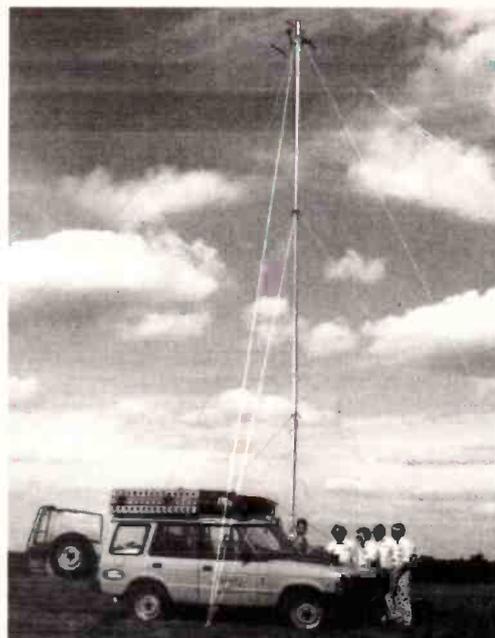
New from Yupiteru



The VT-225 is a civil and military airband receiver, covering 108-142MHz v.h.f. and 222-391MHz u.h.f. Its main features are:

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- 3-way power supply

For more details on the Yupiteru VT-225, contact: **Nevada Communications, 189 London Road, North End, Portsmouth, Hants PO2 9AE. Tel: (0705) 662145.**



The Camel Trophy

South Midlands Communications Ltd has been awarded the contract to supply communications equipment and a communications management team for the 1992 Camel Trophy to be held in the remote Brazilian and Guyanan forests in April.

The Camel Trophy is an annual event involving teams from all over the world driving Land Rover Discoverys over 1600km of some of the most inhospitable landscape.

The communications vehicle is equipped with the Inmarsat satellite communications systems and virtually every type of mobile communications systems. It will carry v.h.f. f.m. radio for inter-vehicle communications, airband v.h.f. radio to communicate with support helicopters and h.f. using a 2.4m whip and auto-ATV for long distance communications on the move, as well as hand-helds and transceivers, etc.

The SMC communications team will accompany the Camel Trophy drivers and will also be based at Manaus, Brazil for the start and Georgetown, Guyana for the finish.

New Catalogues

Universal Radio is pleased to announce a new expanded edition of its famous Communications Catalogue. The new catalogue 92-01 contains 100 pages. It covers equipment for the amateur, short wave and scanner enthusiast. An impressive selection of antennas, headphones, books and accessories is also featured.

The catalogue is available outside North America for four IRCs.

Universal Radio Inc., 1280 Aida Drive, Reynoldsburg, Ohio 43068 USA.

New Foreign Language Radio Programmes

The Voice of Young Albanians in Exile (Zeri I Rinise Shqiptare Ne Mergim) is a radio programme in the native language of Albania heard at 2200UTC on Fridays on 15.690MHz. This foreign language broadcast of local music and news is aimed at listeners in Albania, broadcast on WWCR short wave with transmitters located in Nashville.

On Mondays at 2330UTC on 12.160MHz, WWCR also

broadcasts Radio Khalistan in the Punjabi language of India. This programme, produced by Jagjig Boparai, is designed to be received in the early evening hours.

Also on Mondays at 1215UTC on 15.690MHz, WWCR broadcasts in many languages with programmes produced by nationals from each country.

George McClintock, WWCR, 1300 WWCR Avenue, Nashville, TN 37218, USA

With the changes in what was East and West Germany to a unified Germany, there are changes to transmitter allocations.

The main network ARD-1 (West) service is transmitted over all former DFF-1 (East) transmitters. The ARD-3 service is transmitted over all former DFF-2 transmitters. The ZDF transmitters now transmitting (or about to) in the former East region of Germany are:

Marlow Ch. E46; Helpterberg Ch. E52; Calau Ch. E57; Leipzig Ch. E42; Dresden Ch. E46; Lobau Ch. E56; Chemnitz Ch. E49.

All are 500kW e.r.p., assumed horizontal polarisation.

Helpterberg and Calau are 200kW, 100kW respectively until September '92.

Additional ZDF outlets planned, again 500kW e.r.p. are:

Saalfeld Ch. E50; Wittenberg Ch. E38; Frankfurt/Oder Ch. E50; Robel Ch. E56; Schwerin Ch. E54; Stralsund Ch. E21.

(Info via BDXC).

WRTH 1991 Awards

This is the fourth year of a prestigious award scheme organised by the *World Radio TV Handbook*. In over 40 years, the *WRTH* has received many awards itself as the industry reference standard in the field of international broadcasting. They believe in recognising excellence in other parts of the international broadcasting industry. They hope these will act as a stimulus to provide the market place with even better products.

At the moment, thousands of hours of programming are being broadcast from stations round the world. It is **not** their intention to give awards to the programme makers, or individual stations. To be fair they would have to understand a multitude of languages and have an in depth knowledge of the studio facilities available to the producer. The *WRTH* is a reference book and they do not feel it is right to pick out a broadcaster as being 'best'. In the equipment field, however, they **do** think that awards are needed.

Best Analogue Portable Receiver 1991:

Grundig Yacht Boy 206

Full marks to Grundig for designing a simple portable radio for those with a tight budget. This set combines good audio with a wide choice of short wave bands.

Best Digital Portable Receiver 1991:

Panasonic RFB-45 (see the review starting on page 40 in this issue)

Nicely styled, this radio combines ease of tuning with pleasant audio structure for the price. Now that Panasonic have adjusted their pricing structure, this set become excellent value.

Best Communications Receiver 1991

Japan Radio Company NRD535 (see Nov 1991 *SWM*)

There's no doubt in the minds of the *WRTH* test bench team. High performance, excellent computer connectivity and ease of use make this set a clear winner.

Most Innovative Software 1991:

Bandview 1.501

This is a very versatile computer program for IBM computers and owners of the JRC NRD525/535 or Kenwood R-5000. Tom Kashuda has worked very hard to make this program work completely independently from the radio. The NRD 535 version is by far the best. Tom Kashuda, 2000 Commonwealth Avenue, Suite 1407, Boston, MA 02135, USA. Tel: +1 617 782 6660 (14-20UTC).

The *WRTH* editors are open for nominations for the 1992 awards, published in the 1993 *WRTH*.

WRTH, PO Box 90271006 AA Amsterdam, The Netherlands.

Faeroe Islands TV

Since January 1, Faeroese TV viewers have been able to watch 10 hours of programmes from TV2/Danmark each week. An agreement between TV2/Danmark and Sjóónvarp Føroya (the Faeroese television) ensures a large supply of films, sport and factual programmes from TV2.

In late summer 1991, a similar agreement was settled between Greenland Radio (KNR) and TV2/Danmark.

Short Wave Magazine, March 1992

Radio and TV DX News

Czechoslovakian TV are now carrying intensive testing between colour system PAL and SECAM and it is thought that there will be an announcement to opt for the PAL standard rather than the existing SECAM. Originally, consideration was also for adoption of the System B/G soundvision spacing as used in Western Europe of 5.5MHz, though the costs are thought prohibitive and unlikely to be pursued. At this time most TV receivers in Czechoslovakia are dual standard colour switching so there will be few problems.

The French TV network 'La Cinq' filed for bankruptcy late December with losses this past year amounting to 1 billion Fr. francs. The network plans to stay on-air for the immediate future whilst a refinancing package is being sought, though the channel could close during the Spring if finance is not found. The Italian TV magnate Silvio Berlusconi is thought to be considering involvement.

Cable systems in both London and Luton are carrying a British originated 'coloured' channel - 'The African Caribbean Television Channel' - which started test programming over Christmas with both locally originated and bought-in programmes. It is financed by an African consortium of Bahamas-based financiers and several UK based coloured community groups.

The new commercial TV network in Sweden was given the 'OK' in November and the first transmitters should be on air by March '92 with a population coverage of 65% reaching to 95% within 2 years. NORDISK TELEVISION (TV4) will carry about 50% of home grown programming within a 40 hour weekly framework, rising to 50 hours by '94 - 10 hours being news and current affairs.

Independent TV now for Czechoslovakia with their new Broadcasting Bill which allows several new groups the facility of regional broadcasting. The new franchise winners will probably gain access to established transmitters in the OK3 and TA3 system (Czech and Slovak regions respectively) which currently provide satellite programming. Transmissions are not expected before the end of this year.

The recently closed Telecine Romandie Swiss pay-TV channel is now on-air again from the transmitter high on La Dole. Its failure was due to poor coverage from the 1 transmitter which reached only 20% of the potential French speaking Swiss audience and only 11 000 subscribers were booked. The service was based on movies only but now the new owners have spread the programme format to include sports, quiz and other popular programming for 30% with movies comprising the other 70% of content time. Telecine can carry advertising from April and there are thoughts of taking a satellite channel later in '92. Meanwhile over the border at Annemasse near Geneva a French regional channel 'Huit Mont-Blanc' is establishing an office for a rival TV service into Switzerland.

The Spanish government and national broadcaster TVE are to provide finance and facilities to improve the 'Canal 7 TV Boliviana' in La Paz, Bolivia.

Following the demise of the Irish TV3 network recently, the Irish government intends that a Gaelic TV channel should be in operation by Winter 1992 carrying Gaelic news and entertainment produced by RTE and other regional TV studios. The government it seems will organise much of the funding.

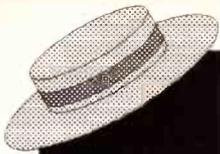
Singapore will have her first introduction to PAY-TV with three subscription channels opening later this Summer '92, these will comprise - a news, a movie and a sports + general entertainment/LE channel. The Singapore Broadcasting Corporation will be providing the technical facilities and programme presentation for the three channels.

A commercial radio network, the China Huayi Broadcasting Company has now opened in Fujian Province at Fuzhou, SE China. The Chinese language service operates in both medium, short wave and v.h.f. f.m. bands for 8 hours daily intended for Chinese nationals both within and outside of China.

Improved radio reception for listeners to Radio France International (RFI) in East Africa, the Indian Ocean and Middle East with the proposed construction of a new relay at Djibouti once agreement has been reached with the local government, it is hoped to commence building Winter 1992 with on-air late 1995.

Tanzania is to introduce regional broadcasting at Medium Wave late in this decade with the establishment of four new studio centres at Nachingwea, Dodoma (central - Tanzania's new capital); at Kigoma in the West on Lake Tanganyika and at Songea in the South West region.

Roger Bunney



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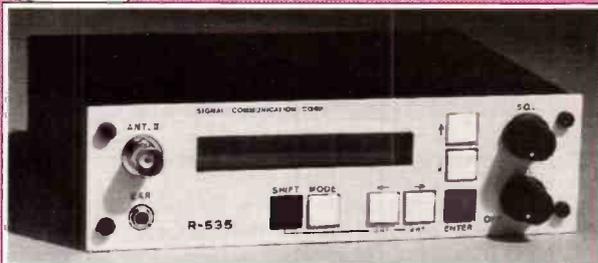
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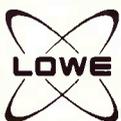
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Short Wave Magazine, March 1992

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The NRD-535 General Coverage Receiver

Latest in the line of NRD receivers, the NRD-535 is a triumph for JRC and represents a true step forward in features, performance and facilities for the dedicated listening enthusiast.

The smooth tuning is the first thing you notice and JRC has developed a direct digital synthesiser (DDS) system which tunes in 1Hz steps. The accuracy and stability are of laboratory standard. There is of course the front panel keypad for swift frequency setting.

All mode reception covers AM, USB, LSB, CW, FM, RTTY and even FAX with IF filter bandwidths to suit the modes.

For winking out the weak stations, the NRD-535 excels. Pass band shift enables you to slide the IF filter around the signal so as to eliminate the adjacent signal and a totally new notch system gives tunable rejection with a 40dB notch depth. There is also an optional Bandwidth Control board.

For the keen broadcast DXer, there is also an optional plug-in ECSS board for locking on to an incoming AM signal and then picking off either sideband.



There are 200 memory channels, each of which stores, frequency, mode, bandwidth, attenuator and AGC settings, comprehensive frequency sweep facilities and no less than 16 different functions which can be programmed from the front panel by the user.

For the advanced user, the NRD-535 is fitted with a RS-232C interface for 28 computer controlled receiver functions. Available for demonstration at Matlock

and the regional centres.

NRD-535 HF Receiver £1,095 inc VAT
CMF-78 ECSS option £202 inc VAT
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Short Wave Magazine, March 1992

Antennas for Sho

If we forget all the theory and come down to hard practice, there are five things about an antenna that we can alter. Its length, height, direction, where we feed it, and what sort of wire we use. In this short tutorial article Paul Essery GW3KFE explains some of the mysteries.

Up to a half-wave long the antenna will radiate or receive best at right-angles to itself. If we have an antenna which is a half-wave long at 3.5MHz (around 39.6m) and we try to use it on 28 MHz, we will observe that the favoured direction has changed; it now seems to favour directions more towards the ends. So, if we put up a half-wave on 3.5MHz and use it on all bands we will have one wavelength on 7MHz, two wavelengths on 14MHz, and four wavelengths on 28MHz. The preferred direction swings round progressively from right angles at the lowest frequency to favouring the ends at the highest. (Figs 1 & 2) That, at least, is what the theory says! However, in practice, we live in a world of non-radio wires, cables and buildings; so our half-wave may have its two major lobes pushed to one side. We say it 'squints'. Worse, we cannot say that a squint affecting one band will have a predictable effect on another band. 'Suck it and see' is the motto, then - particularly if we are antenna-farming in a loft.

Height

There's not a lot to say about the height of an antenna, save that the higher the better! This is simply because for long range we want our antenna to favour signals from low angles. That's not to say that a low antenna won't hear signals from faraway places - it usually will, but they will be weaker and the Euro-choir louder. The argument that a quarter-wave and odd multiples thereof are 'bad' is based on diagrams assuming a perfect earth. Our practical earth, perfect it ain't!

Direction

To assess direction, you need to use a Great Circle Map based on the UK. The Great Circle projection makes a hash of shapes, but for our purposes it has the outstanding advantages that it gives true direction and distance. With a half-wave which has been put up with its ends at the north and south, the main lobes will thus be east and west, plus or minus about 45 degrees. By and large this covers Europe, Asia, N. America and S. America. Australia and New Zealand may in fact be heard over either the long or the short path depending on time of day. That leaves out Africa, but by changing bands or whatever we may be able to fill in the gaps. Not that there is much activity from mainland Africa outside of ZS.

Feed Point

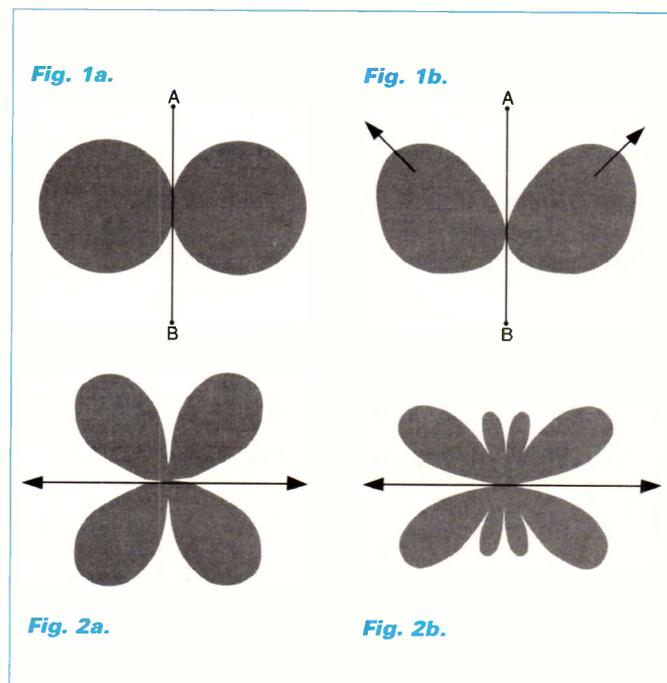
Does one centre-feed or end-feed? Usually, the house is at one end of the plot; alternatively your shack may be in the garden shed at the other (Yes, we know you like a little relief from wives, screaming kids and the telly!). Either way, you are stuck with end-feed. The transmitting types have different problems, to wit a solid-state p.a. stage compounded with a dash of TVI for flavour. This mixture prefers a coaxial feed into a 50Ω antenna impedance. We, as s.w.l.s, can end-feed happily enough, with some sort of tuning unit to turn whatever the wire just happens to be into what your receiver prefers, namely 50Ω. Indeed some s.w.l.s disdain the use of a.t.u.s, though I think that this foolish.

If we consider a half-wave

dipole slung, say, between a couple of masts, then clearly the coaxial feeder hanging down from the middle tends to drag the middle part (which does most of the work of receiving) down towards the ground. We can only reduce the sag of such a coaxial-fed dipole by over-tightening the halyards, or cutting off the weight of the cable! Draw a Triangle of Forces and you will immediately see why. Halyards that tight are an invitation for something to break and dump all back on the ground. Usually that means dropping the mast to reeve a new halyard as well. Clearly, end-feeding has a lot going for it, in practice.

Wire

Obviously, the wire of a half-wave dipole supporting the weight of umpteen metres of coaxial cable needs to be pretty strong. On the other side of the coin, I have used 28s.w.g. enamelled copper wire to make an end-fed Top Band half-wave which lasted well and was almost invisible. It relied on the insulation properties of the nylon string - quite good enough, but the weight of a ceramic 'egg' would have had it down in hours, while a coaxial cable's weight would have made sure it broke while hoisting it. So - wire strength to suit the arrangement. I'm not too keen on pvc insulated wire, but if you've got some - use it! However, if you must make joints, solder them and if they're outside, paint them as well, lest they later create noise due to electrolytic corrosion, or worse, cause the apparent antenna length to change. Thin wire may be a bit lossy, but it's not as lossy as



Short Wave Listening

Abbreviations

a.t.u.	antenna tuning unit
dB	decibels
m	metres
MHz	megahertz
p.a.	power amplifier
pvc	poly vinyl chloride
s.w.g.	standard wire gauge
s.w.l.	short wave listener
TV	television
TVI	TV interference
Ω	ohms

no antenna at all!

How about the half-wave centre-fed dipole on other bands? Fed with coaxial cable, no way! (You can, as a bodge, use a 7MHz dipole on 21MHz, though). Thus a dipole used as a multiband antenna is fed with a twin feeder instead of coaxial cable. Twin feeder, though, brings its own problems - the stuff breaks at the dipole feed point because the wind gives it such a thrashing; and it doesn't survive all that long before ultra-violet 'sees off' the insulation. So, for twin feeder, make some proper open-wire line and/or take great care to be sure that a gale can't break off the connections up aloft. (Only yesterday an s.w.l. friend rang me to bewail that the gale had not only snapped off his balanced feeder at the antenna but - worse - had wrapped it around the neighbour's TV antenna! At the bottom, use a balanced a.t.u. connection, and make

the a.t.u. also transform to 50Ω unbalanced (coaxial) to offer the receiver.

Lower Frequencies Yet!

If we have an end-fed half-wave for, say, 7MHz, we can make it match on 3.5MHz and even Top Band (1.8MHz) with our a.t.u. It will tend to favour the same directions as on 7MHz, but for best results you **must** 'go for broke' in the way of earthing. For a centre-fed with coaxial or twin feeder we can go lower by joining each

leg of the feeder before they reach the a.t.u., put the joint to the a.t.u. antenna terminal, and feed the result against earth as though it were a single wire. You may find it

receives quite well all round the compass but it has become somewhat unpredictable. Don't forget a little theory: the difference between a dipole and an isotropic radiator which is infinitely small, is a mere two-and-a-bit decibels. Practically then we are talking, first last and all the time about reducing losses. If the antenna impedance is a couple of ohms, and the earth impedance 100Ω, it doesn't take a genius to work out that most of the incoming signal will appear across the earth impedance rather than the receiver input! ■

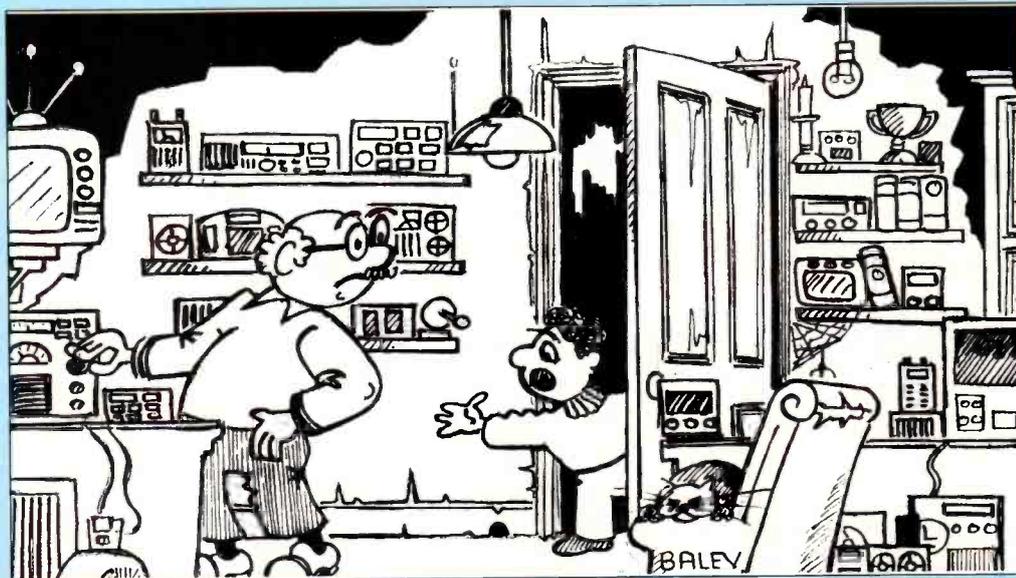
Summary

A half-wave at the favoured band should be oriented for preference to North-South, so that it fires East and West. However, in practice it will 'squint' a bit depending on your surroundings; higher in frequency, the main lobes will tend to slew round towards the ends of your wire. For lower frequencies strapping the feeders produces useful and interesting if somewhat unpredictable results. With an end-fed antenna, work on the earthing side will be found useful.

Listen With Grandad

By Leon Balen and David Leverett

Enjoy the antics of our newest addition to the Short Wave Magazine staff. 'Grandad' and his family will be appearing regularly from now on.



Do you relate to any of the situations the old chap gets into? If so then why don't you let the Editor know, there must be loads of strange and funny experiences you could share with our readers. £5 SWM Gift Vouchers for any published.

Grandma says if you don't beam yourself up for dinner within two minutes she will transmit it direct into the rubbish receiver.

Portable Mini-Shack

It is a great advantage to have the receiver, a.t.u. and other accessories in one unit as the interconnecting leads are short and can be permanently made. The ingenious Mini-Shack, designed and described by F.G. Garraway, will be of help to those whose receiver has 'no fixed abode'.

To ensure that everything fits into your Mini-Shack with no wasted space, a scale drawing of all the components of the station should be made. This article describes the simplest version of the Mini-Shack, as the design can be expanded quite simply if required. No dimensions are given, other than the thickness of materials, as the actual size of the completed Mini-Shack will depend on your equipment.

Further Ideas

Modifications could include an enclosed section for a larger speaker, leaving space behind for batteries or a p.s.u.; an upward extension of the sides at one or both ends to serve as book ends for *WRTH*, etc.; an antenna change-over switch on a bracket at the rear, operated by a shaft and front-mounted knob; a speaker/phones changeover switch operated from the front and a large hook at the rear for hanging the 'phones on. A

telescopic, or even a rotatable ferrite rod, antenna could be fitted on the top of the Mini-Shack at the rear. A drop-in, or clip-on, front cover would help to subdue any possible domestic disapproval! The tilting of the receiver helps to improve viewing and make for ease of operation as well as provide space beneath for logbooks, paper, etc., while pens and pencils can be dropped through suitable holes in the top shelf.

Accurate and Square

Success depends on the chipboard shelving being cut accurately and squarely to length. The 40mm chipboard screws through the sides must enter the mid-thickness of the shelves to avoid splitting. Ordinary wood screws will probably split the chipboard, hence the use of chipboard screws. Drill through the sides and into the shelves with a suitable pilot drill for the screws, followed by opening

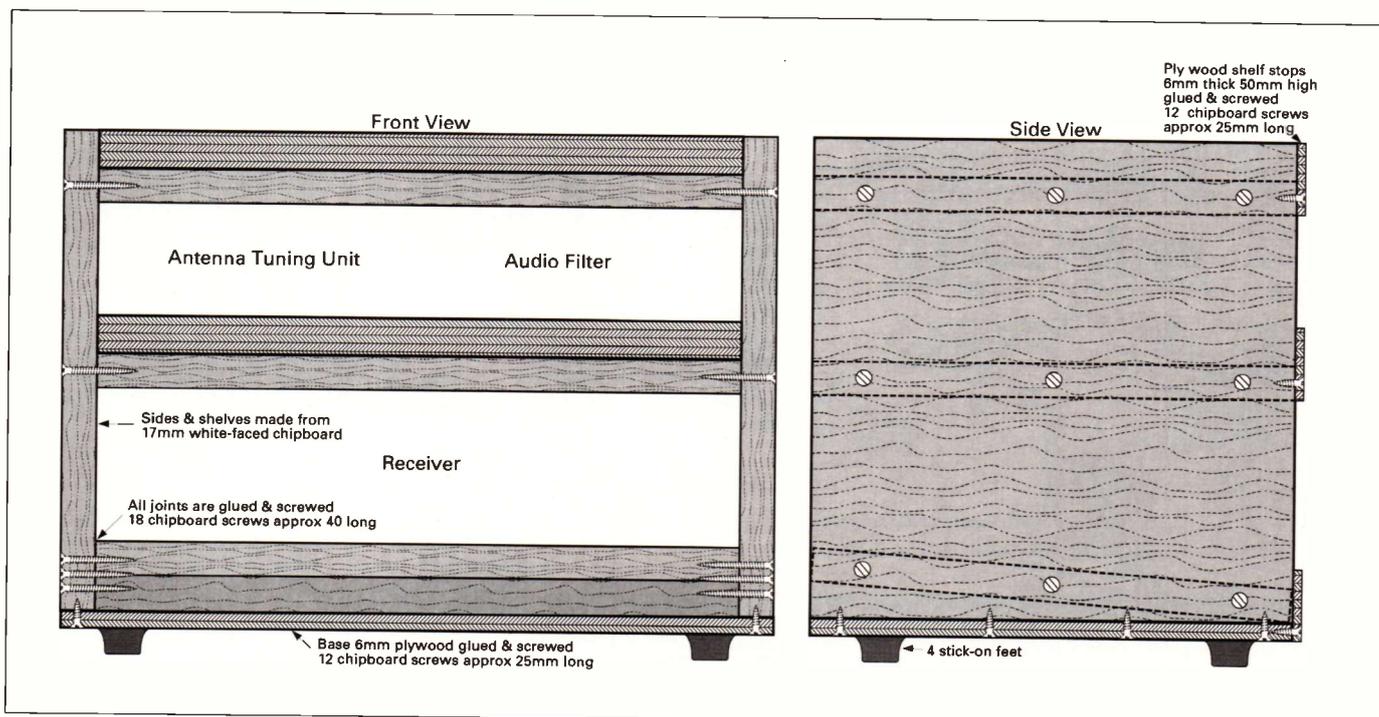
out and countersinking the holes in the sides to clear the screws. If it is thought necessary to strengthen the shelf holding the a.t.u. and audio filter, steel brackets can be fitted. These should be checked to ensure that they are truly right angled before screwing them in place. Don't forget to drill pilot holes to start the chipboard screws holding the brackets in place.

The lifting handles should be bolted in place, not screwed, for safety and - most important - strips of wood should be pinned or screwed to the shelves around the base of each unit to prevent any movement. No responsibility can be accepted for bent receivers or bruised toes!

MATERIALS

- 17mm thick x 230mm wide Melamine covered shelving
- 6mm ply for base and shelf stops
- 4 off 50 x 50mm steel brackets
- 18 off 40mm chipboard screws for shelf fixing
- 40 off 12mm chipboard screws for base, shelf stops and brackets
- 4 off stick-on rubber feet
- 2 off handles with 4BA or similar bolts, nuts and washers

All the above items are readily available at any d.i.y. outlet.



South Midlands Communications Ltd.

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The **FRG9600**, a premium scanning receiver covering 60-905MHz, SSB, CW, AM & FM modes. 99 memories. 5, 10, 12.5, 25 & 100kHz scanning steps. Keyboard frequency entry. Optional converters to extend range from 0.15-30MHz and 800-1300MHz

Yaesu's serious about giving you better ways to tune in to the world around you. And whether it's for local action or world-wide DX, you'll find our HF/VHF/UHF receivers are the superior match for all your listening needs. When you want more from your receivers, just look to Yaesu. We take your listening seriously.



The **FRG8800** HF communications receiver. A better way to listen to the world. Continuous coverage from 0.15-30MHz optional module for VHF coverage from 118 to 174MHz. SSB, CW, AM & FM modes. Direct frequency entry keyboard.

NRD535 from JRC

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



JRC
NRD535

DRAKE
R8E



DRAKE R8E

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

A COMPREHENSIVE RANGE OF RECEIVERS AVAILABLE AT MOST BRANCHES



SMC are pleased to be able to offer the SONY range of Multiband Receivers. They feature all the latest technology allowing unequalled coverage of both broadcast and shortwave bands, yet remaining both compact and easy to use. All the models illustrated cover VHF broadcast, SW

broadcast, and some models cover other bands as well. The very latest model available from SONY is the ICF-SW77. This receiver covers LW, MW, SW and FM stereo broadcast bands and has SSB reception on the SW bands. A comprehensive keypad and LCD display give easy control over the massive array of features available. Other SONY products available include the minuscule ICF-SW1, the versatile ICF-SW7600, the popular ICF-2001D and for airband enthusiasts the AIR7 and ICF-PRO80.



AOR AOR AOR

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



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

The top of the range model must be the AR3000 which covers 100kHz-2036MHz without any gaps. The mid range model is the AR2800 which is a convenient unit for mobile or base operation and covers 500kHz-600MHz and 800-1300MHz. Last but not least is the AR2000



which is an extremely flexible handheld scanner covering 500kHz-1300MHz.

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

OTHER MAKES AND MODELS



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



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



- Free Finance on selected items, subject to status. Details available on request.
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SMC Midlands
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ALINCO's "Professional Grade" Scanner DJ-X1. 500kHz-1.3GHz "A Scanner of Unrivalled Performance"

Specification:

Modes: AM/Narrow FM/Wide FM
Steps: 5, 9, 10, 12.5, 20, 25, 30, 50, 100kHz
Antenna: 50Ω BNC
Supply: 24mA (Internal 9V AA) 6-15V DC (Internal 9V AA) 24mA (Battery save.)
Dimensions: 110 x 53 x 37mm
Weight: 370g
Configuration: AM/FM Triple conversion
Sensitivity: NBFM -80dB (12dB SINAD) AM -2dB (10dB S/N)
Memories: 100 in banks.

STOP PRESS!!!
Sensitivity far better than its obvious rivals!
See Japanese magazine review

£269

Up until now most handheld scanners have been large and cumbersome with low grade plastic cases using technology that has been around for several years. The arrival of the ALINCO DJ-X1 has changed all that.

The new exciting DJ-X1 should be available now at your local dealer. Try it out for yourself, experience the superior design and performance. Compare it with "yesterday's" models and find out just how far advanced the new ALINCO scanner is!

- * 3 scanning speeds * 3 scanning modes * 100 memories in 3 banks * Auto memory loading * Priority channel * Dual rate battery saver * Large battery pack * Rotary frequency control * Illuminated key pad * Auto illumination mode * Dual antennas * 5 programmable bands * Widest range of frequency steps * Super front end sensitivity * Memory lockout * Mode scanning * Auto power off * Wide range of battery packs * Wide range of accessories * Intelligent mode programme * Rapid tuning rates of 1MHz/10MHz.

*Each unit now comes with the UK Gold Seal Warranty. Look for the sign on the box!



From the longest of long wave to the top limits of the short wave spectrum, the HF-150, is designed to give you everything you needed in a real radio receiver. There has quite literally never before been a receiver like the HF-150, because only now have technology and engineering been combined in such an effective package.

mechanical strength carries the bonus feature of ensuring excellent stability and shock proofing. Take the HF-150 anywhere - it will handle more beatings than you can. Its performance in electrical terms is impressive, and the specification comprehensive. Tuning range is all the way from 30kHz to 30MHz, with variable tuning rate according to the speed of rotation of the main tuning knob.

ANTENNAS AND PRE-AMPS

AA2 ACTIVE ANTENNA for 150kHz to 30MHz

The HOWES AA2 is the active antenna to use for general coverage HF reception. Broad-band performance that does not fall off at the higher frequencies. The neat, compact answer for those with limited space, holiday use, mobile operation etc. Two selectable gain settings, local or coax powering (12 to 14V) IP3 >38dBm. Easy to build and much liked by customers!

AA2 KIT: £8.50

AA4 ACTIVE ANTENNA FOR SCANNERS

The HOWES AA4 gives full coverage from 25 to 130MHz in a neat compact package. The antenna is only just over 16 inches long, and is designed to be the answer to space/visibility problems for home or portable operation. A low noise microwave IC is used as the active element. This "high tech" approach gives good performance with a low parts count, making construction straightforward. Reviewed in the November '90 Short Wave Magazine. Excellent performance in a small space!

AA4 KIT: £19.80

SPA4 BROADBAND PRE-AMP

The HOWES SPA4 is a low noise IC pre-amp covering 4 to 130MHz for use with wideband passive antennas (dipole etc). If signals tend to be rather weak in your area, then the SPA4 could be just what you need!

SPA4 KIT: £14.90

ADD-ON DIGITAL READ OUT

The new HOWES DF04 Digital Frequency Display adds "Digital Readout" to analogue type receivers and transceivers. If you own an FRG7, FT101, TS520, etc., then we had you in mind when we designed this kit. You can even add digital readout to a surplus WW2 receiver, or domestic broadcast set.

The DF04 can accommodate any IF frequency offset, VFOs that tune normally or "backwards" - all with a resolution of 100Hz. Versatile indeed! A small buffer module for easy connection to the radio is included in the kit. Why not give me a ring to discuss its use with your rig, or send an SAE for more details?

DF04 KIT: £39.90

PLEASE ADD £1.75 P&P to your total kit order (£3.00 for hardware).

NEW HARDWARE PACKAGES

Now your home brew gear can look as good as factory equipment with our interlinking range of kits. It has always been possible to expand one of our simple receivers into a transceiver by adding the relevant transmitting kits. Now we can also offer custom made metal work to give the project a really high standard of finish.

Receiver kits start at £15.90 for single band SSB/CW. Transmitters start at £14.80 for single band CW. A transceiver "hardware pack" costs £29.90. If you are just starting shortwave listening, studying for a Novice Licence, or an experienced operator needing a QRP rig for home or holiday use, we have a good selection of high quality, easy to build kits for you to choose from. The beauty of HOWES KITS is that you can start with a beginner's receiver and upgrade to a transceiver in easy stages. A full range of matching accessories is also available. Please send an SAE for further information. We have too many kits to even list them here!

OUR BEST SELLING BOOKS

SHORT WAVE LISTENERS CONFIDENTIAL FREQUENCY LIST Bill Laver. Covering the services and transmission modes that can be heard on the bands between 1.635 and 29.7MHz New 1991 Ed. £8.95

THE COMPLETE VHF/UHF FREQUENCY GUIDE 1991 Edition This book gives details of frequencies from 26-2250MHz with no gaps and who uses what. Recently updated, there are chapters on equipment requirements as well as antennas, etc. £5.95

THE SECRET OF LEARNING MORSE CODE Mark Francis Designed to make you proficient in Morse code in the shortest possible time, this book points out many of the pitfalls that beset the student. £4.95

MARINE UK RADIO FREQUENCY GUIDE Bill Laver A complete guide to the UK s.w. and v.h.f. marine radio networks. Useful information, frequency listings and the World Marine Coastal Phone Stations. £4.95

HF OCEANIC AIRBAND COMMUNICATIONS 3rd Edition Bill Laver HF aircraft channels by frequency and band, main ground radio stations, European R/T networks and North Atlantic control frequencies. £3.95

THE POCKET GUIDE TO RTTY & FAX STATIONS Bill Laver Just updated. Invaluable to all data users, information includes Embassies News Media, Military Marine aircraft etc. £3.95

P&P £1 EACH BOOK.

MORE BEST SELLING RECEIVERS

Table listing receiver models and prices: AOR-2000 500kHz-1300MHz Hand-held NO GAPS £269, R2000 Kenwood super short wave receiver £549, R5000 Kenwood top range super sensitive receiver £395, FRG8800 Yaesu short wave receiver £549, ICR71E Icom super top performer £875, ICR72E Icom's budget short wave receiver £659, HF225 LOWE Budget price - superb performance £425

FREE DELIVERY - ANY RECEIVER

The NEW MVT-7000 1MHz-1300MHz



- AM-NBFM-WBFM
● Multiplesteps
● Better than 0.5µV
● 200 Memories
● Rotary Dial
● S-meter
● Fast Scan Speed
● Lockout/Priority
● NiCads
● Charger/AC PSU
● 12V Lead

AR2000

Hand-held wide band scanning receiver. Improved specification. The coverage is 500kHz - 1300MHz with no gaps. Modes are AM, FM (narrow) and FM (wide). The AR2000 features 1000 memories for spot frequencies and 10 search banks. The receiver is powered from its supplied internal nicad batteries but these may be removed and dry batteries substituted to allow extended operation in the field. The AR2000 may also be charged and powered from the car cigar lighter socket using the supplied lead. Also supplied as standard are the DA900 wide band aerial, soft case with strap and AC charger.

R.R.P including VAT £259 (p&p £5).



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PHOTOACOUSTICS

Logkeeping and the Short Wave Listener

There may be many reasons for not keeping a log of what is heard. For example, they may not be entirely dedicated to the hobby and it may be just a passing phase until something else captures their imagination. Or they may find logkeeping takes up too much time and is tiresome. Whatever the reason, the s.w.l. who does not keep a log misses one important point - logkeeping is an integral part of short wave listening and it gives the keeper documentary information that can be recalled at any time.

Unlike a licensed radio amateur, who is compelled by law to keep a log of his activities, the s.w.l. is not bound by these rules and can therefore log as many or as few stations as he or she prefers. As all s.w.l.s know, if one were to log all the stations one hears, the logbook would be filled in one afternoon, so the logical thing to do would be to log only the most interesting stations that are picked up.

I know that it would be nice to log all the countries in the world in one single afternoon, but I personally would prefer to log them over a certain period of time, and log a new country from time to time.

What do you log?

What you log depends, of course, on the individual s.w.l.'s preference, as broadcast listening may be the order of the day for some, amateur band listening for another, and so on.

I keep just one logbook for s.w.l. purposes; I list broadcast stations, the occasional amateur, some maritime stations, medium wave local radio stations and a host of other transmissions. After all, variety is the spice of life, and short wave is home to an extensive variety of signals, is it not?

As I mentioned earlier,

some s.w.l.s may not be sufficiently dedicated to the hobby and, therefore, may decide to leave s.w.l.ing to move on to other pursuits. In cases like these, I believe keeping a logbook would provide some incentive to remain in the hobby and to work at it whilst the logbook becomes an ever growing treasure chest of information.

The Logbook

A basic logbook, of necessity, is required to show the time, date, frequency, band, mode, signal quality, location and, of course, station callsign or identification.

One may wish to design a more elaborate logbook to include the station being called, QRM, QRN, QSB, local weather, language used as well as the obligatory remarks column. Of course, it is left to the individual s.w.l.'s discretion as to how he/she designs the logbook, suffice to say that the basic format is essential, the latter more or less optional.

As mentioned earlier, it would prove virtually impossible to log all the stations that one hears, so the s.w.l. should only log those station which would provide a really comprehensive list of what can be heard via short wave. Imagine having a visitor in your receiving station who has no experience of short wave radio. You open your log to demonstrate what you have

heard; Radio Australia, KH6SED in Hawaii, Skybird 123 - a civil aircraft over Calcutta, 4K1ABA operating from the Antarctic. Your visitor leaves the station very impressed indeed, and is enquiring where he can get one of these short wave radios. Thus, short wave has yet another devotee.

To any s.w.l. who has not yet started logkeeping, I would advise them to seriously consider doing so, especially if the QSLing pastime is to be entered into. It is essential that the s.w.l. keeps a permanent record in his station of the report he/she has sent to the transmitting station or stations.

I must confess to not sending reception reports or QSLs arising from my listening activities nowadays, but I find that logkeeping is an essential part of short wave listening - short wave listening just would not be short wave listening without it!

Abbreviations

QRM	interference from other stations
QRN	interference from noise
QSB	fading
QSL	acknowledgement of contact
s.w.l.	short wave listener

To most established short wave listeners, the thought of s.w.l.s not keeping a logbook may come as quite a surprise, yet Leighton Smart GW0LBI personally knows of a number of s.w.l. stations who do not bother logging what they hear!

QSL SPECIAL FEATURE

Reporting for Rewards

So, what is a QSL? In simple terms it is a certificate to confirm that a listener has received the radio station concerned. These certificates are most often printed on the reverse of a picture postcard and usually carry the date, time and frequency of the broadcast heard, together with the name and address of the listener. If QSL cards are not issued by a station, a report may be verified with a letter

containing similar details. Some QSLs are signed by the station engineer, an executive or even a programme presenter!

It should perhaps be noted at this point that not all radio stations need or want reception reports, although most international broadcasters welcome them. An increasing number have their own monitors but will tolerate reports as a way of fostering good audience relations.

broadcasters may be written in English or the language of the programme heard. If possible, they should be typed and photocopied reporting forms, of the kind that are often produced by listening clubs, should be avoided as these remove the personal touch preferred by most stations. Some of the more long-established stations have their own forms for this purpose and will send a few of these when your first report is received.

Head the first sheet of your report 'Reception Report' and enter your name and address at the top right-hand corner. It is good practice to ensure that these details appear at the top of each sheet used as your report may be read by several different departments at the station and the pages could become separated.

Beneath your own address but on the left of the page, put the name and address of the station you are reporting on. The report should be addressed to the appropriate language department, e.g. English Section. Full station addresses are often announced at the end of broadcasts, as well as being listed in publications, such as *World Radio TV Handbook*, that may be found in some of the larger reference libraries if you don't have your own copy.

Make a Good Impression

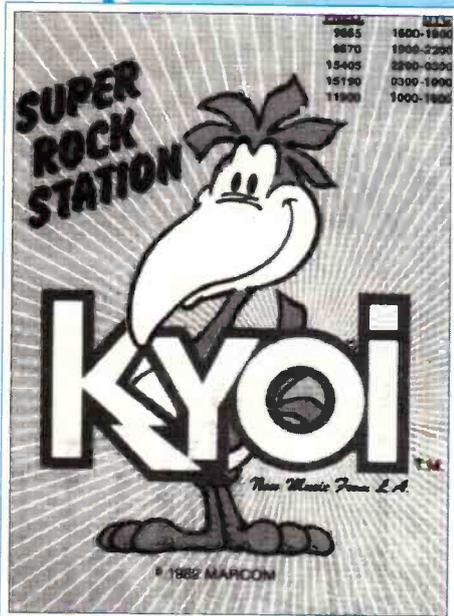
Reception reports are still important to most international station as they provide the only means available to help the engineers to determine future transmission times and frequencies. For this reason it is very important that the information contained in a report is as detailed and accurate as possible.

As you are concerned with obtaining a QSL verification from the station, it is essential for your report to make a good impression. A well thought out and neatly-presented report will be more appealing than a quickly scribbled note on the back of a postcard - no matter how pleasant the view on the front!

Reports to international

Although often overlooked as a part of the radio hobby, collecting QSL cards and verification letters can be very rewarding. Despite this, there is very little readily-available information to help the frustrated new DXer who hears that a mysterious item called a QSL will be issued by a particular station in return for a correct reception report. Roy Spencer offers some words of wisdom on the subject.

Super Rock Station KY01 appreciates your reports.



Deutsche Welle is another international broadcaster that QSLs your reports.



Table 1. The SIO Code

Signal strength	Interference	Overall merit
4 - good	4 - nil or very slight	4 - good
3 - fair	3 - moderate	3 - fair
2 - poor	2 - heavy	2 - unusable

QSL SPECIAL FEATURE

Reporting Codes

There have been several internationally recognised reporting codes over the years, but the one presently favoured by stations is the 'SIO' code. This allows the listener to provide a brief guide to the quality of the signal received, rated according to Table 1.

When rating a signal it can be helpful to work backwards from O to S, deciding on the overall merit first, then considering the reasons that the 'O' rating justified. As an example, if 'O' was rated as 3 (fair), then this may have been because of heavy interference ('I' rated as 2) although the strength ('S') of the signal was good (4). It is useful to stations if you provide a brief explanation of the 'I' rating. Perhaps the interference was caused by another station using the same frequency (co-channel interference) or a frequency very close to that reported on (adjacent channel interference). If the intruding station can be identified, include details in your report.

Programme Details

A brief description of the programme heard should be given, but **must** contain enough information to prove that the station has been received. Include the names of programmes and features, pieces of music, performers and announcers, together with a note of the subject matter covered.

Comments

What you really thought of the programme heard comes under the heading of 'comments'. Was it interesting or very boring, easy to follow or difficult to understand? Will you tune in again? Don't be afraid of being truthful - stations want to know exactly what their audience think of their programmes! This part of the report may sit more

comfortably as part of the covering letter, which is dealt with later in this article.

Receiver

Some stations find it useful to know what type of receiver is being used to listen to their output - was it a sophisticated table-top communications receiver or a portable transistor radio with an 'SW' button.

Antenna

Tell the station the type of antenna used - it could be erected indoors or outside, a random longwire (state the approximate length) or a specially-constructed device such as a dipole. Do you use an amplified active antenna or an antenna tuning unit (a.t.u.)?

Location

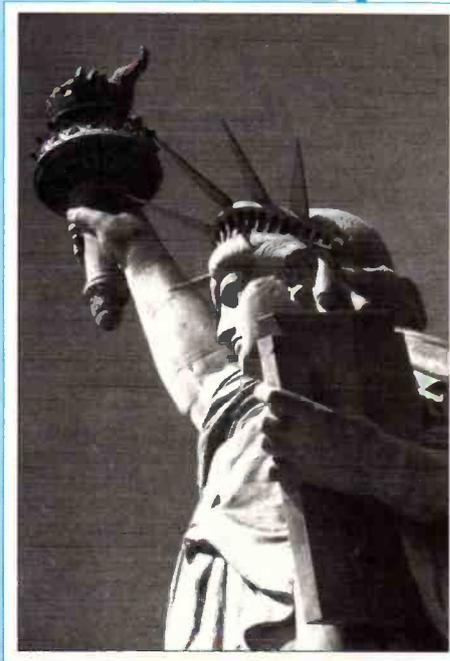
The location of the receiver may influence reception condition - someone living on a hill will generally enjoy better reception than a listener in a valley. Similarly, an inner-city tower block poses problems not encountered by a DXer living in a country village.

When your report is complete, sign it off at the bottom. It is now time to turn your attention to an accompanying letter. The letter is the place to request that your report be verified with a QSL and may also be used to add comments or suggestions about the programme heard or to ask any questions which you might have.

Many international stations have programmes in which they offer answers to listeners' questions. If you request information about the station or its country, you could have the bonus of an on-air reply!

Promotional Items

Nowadays, most stations produce a number of



The Statue of Liberty featured on a Voice of America QSL card.



HCJB, Voice of The Andes is a popular broadcaster who QSL with a variety of different cards.

promotional items but it is not always a good idea to ask for a large quantity on one occasion. Few stations have a large budget for pens, badges, posters and the like, but will usually mention any items which they have during the course of their programmes.

A few years ago a certain station quoted from a letter in which the listener had requested about thirty different items, none of which were available. It was pointed out that the listener had written to a radio station, not a supermarket! Having said that, when a station is satisfied with a reception report, small items

Waters & Stanton Electronics

UK's largest stockist of specialist receivers



MVT-5000 scanner £229
25-550MHz & 800-1300MHz AM/FM

The MVT-5000 is a superb budget priced scanner with amazing sensitivity added to which it is very simple to use. The only gap in its range is the TV broadcast band and if you can live with 100 memories it offers incredible value! Hundreds are in use, many by professional users and like all Yupiteru equipment it has proved to have unsurpassed reliability. Available from stock with our 12 month parts and labour warranty.

SONY ICF-7600D £149
200kHz-30MHz + FM BC SSB/CW/AM
Includes free AC supply aerial and case!

The classic portable for those on the move who want to keep in touch with the world broadcasts. In addition it gives good reception of SSB and is a travellers joy! All our stocks are genuine UK Sony.



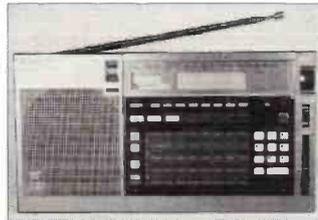
Low HF-150 £329
USB/LSB/CW/AM (sync) 30kHz-30MHz 12vDC/230V AC



The HF-150 receiver is a high performance short wave receiver that we can recommend for those on a budget. Make no mistake, this receiver really does perform. Give us a call for more information.

SONY ICF-2001D £299
150kHz-30MHz + FM + airband USB/LSB/CW/AM (sync)
Includes free universal AC adaptor

If you want a truly portable communications receiver that performs as well as base station models yet fits into the domestic scene, look no further. At 399 it would be good value. At 299 it's an absolute bargain.



SONY ICF SW77 £349
150kHz-30MHz + stereo FM AM/SSB/CW

The SW-77 is the latest short wave portable from Sony. It integrates computer technology to provide a programmable data base of station names in its memory bank. Also included are 5 different timers and 162 preset stations. Fabulous!



**Free Coffee!
Free Advice!
Free Quotes!**

OK, so we're not giving away any earth shattering freebies! What we are giving you is good, honest before and after sales service with all the help you could ever wish for. Now you might claim that old "Joe Bloggs Shack" is quoting you a better price, so why come to Waters and Stanton. The fact is that several "Joe Bloggs Shacks" went down the "Swannee" in 1991. (No it's not a pub!) Some still shouting their bargain prices as they went. Is that the kind of dealer you really want to risk doing business with? So next time you see any super bargains remember, somebody has to lose. Make sure it's not you! For nearly twenty years we've been selling radio communications equipment at sensible prices. Prices that enable us to still be there when things go wrong. That doesn't mean we're expensive, it simply means we give you a good deal. And you can't ask for better than that. So give us a ring or pay us a visit today; tomorrow; or even next year. We'll still be around!

YUPITERU VT-150 £169
142-170MHz FM

Includes ni-cad pack and charger

The VT-150 is a purpose designed scanner that covers the marine, and 2 metre amateur band plus a bit more! There is no doubt that a scanner dedicated to a particular part of the radio spectrum will out perform one that is designed to cover everything. If your interest is in this frequency range, look no further. It's loaded with features including 10/12.5/25kHz steps, 30 memories, fast scan speed ultra sensitive front end, low battery drain, etc. It is supplied complete with re-chargeable batteries, AC charger, aerial, carry strap and handbook. A full 12 month's warranty is also included.



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Yes it's true, a hand held scanner that gives you SSB and CW reception. We are hoping to have supplies available by March of this self contained all mode receiver. New from AOR, this promises to be the most comprehensive scanner yet. If you want full details, phone or write for the full specification. And remember as the UK's largest stockist of receivers, we can offer you the kind of back-up service that such an advanced product needs.

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"A Scanner of Unrivalled Performance"

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Memories: 100 in banks.

UK "Gold Seal" Warranty
Now With Every Unit
Look for the sign on the box!

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QSL SPECIAL FEATURE

Abbreviations	
a.t.u.	antenna tuning unit
DXer	listener who looks for 'long distance' stations
IRC	international reply coupon
QSL	acknowledgment of contact
SIO	Signal strength, Interference & Overall merit

**Radio Japan
NHK Tokyo
150 QSL
received by
Roy Spencer
May 1985,
15.235MHz.**



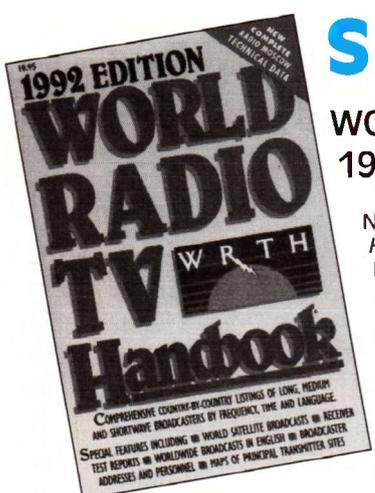
such as stickers and pennants tend to be issued automatically, so the best policy is to wait and see what the post brings.

Return Postage

It is not usually necessary to include return postage with your report to an international broadcaster, but in today's cost-cutting climate, it is polite to do so if possible. This

should be in the form of an international reply coupon (IRC), which may be bought over the counter at any Post Office.

When your report is received, it will be checked for accuracy against the station log. If these guidelines have been followed and your report is found to be in order, before long you will be rewarded with a QSL and who knows, maybe more besides! ■



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To QSL or Not to QSL? - That is the Question!

Well, how many of you think like that? Quite a few, or so your letters in the August issue imply. I am not a short wave listener. I am not even a UK licence holder. As VP8CEO I would like to say thank you to all the s.w.l.s who have sent me reports and I hope that you have all received my QSL card confirming the contacts listed in your report.

R. Thomson wrote the rules for G3MCK, I haven't seen that letter and can't comment, but here are some facts as I see them.

Not everybody can be a rare DX station!

Not everybody can pass the RAE!

Not everybody can afford a TX/RX!

Not everybody can have an antenna outside!

Not everybody can get about!

Not everybody can use their hands!

Not everybody can see!

Not everybody can talk!

Not everybody is as fortunate as you and I!

Harry Scrase states that, as a disabled ex-army signal operator, he is competent with Morse but hasn't taken the RAE, so he could have been a Class A licence holder for, I dare say, 50 years. Yet through the years he has obtained a lot of pleasure from being an s.w.l. - and long may he do so. Should his ability with Morse place him above a Class B licence holder? Maybe the Class B licence holder has difficulty with the use of his hands so that he doesn't bother with Morse.

There is no pecking order, there is no winner, no race to be won. Our hobby is one of personal achievement with the aim, set by oneself, of using our ability to communicate with others. If that means that you get a report from old Fred just across town when you're pushing the linear to the legal limit chasing DX in a pile-up, so what? If Fred didn't know

your QTH and sent the card via the bureau, well, it's a good excuse to just drop the reply card in next time the band is quiet. You might get a nice piece of cake and a cup of tea! You may get a nice surprise, old Fred's garage is full of all sorts of goodies collected over many years of dabbling with radios. He knew you were local and was hoping you would reply quickly. He's moving soon to a new home and can't stand the thought of all those goodies going to the tip! Either way he shares an interest with you - you have something in common. If you can't spend the time of day communicating with strangers what are you in this hobby for?

The Best Report

What is the best form of s.w.l. report? As a VP8 I tend to be in a pile-up a lot of the time, working stations by taking a list of the last two characters of their callsign then working through the list. I can't give you a definitive answer, but I can give some examples. Take the early morning of 8 December 1990, when I worked 140 contacts between 0405 and 0853Z - to save you working it out, it's approximately one minute per contact with list taking. Yes, I agree, a nice ragchew is good and I've had plenty of them when I wanted. But let's be fair, many people want a VP8 for DXCC so I spread it about.

I had been working as a DX station on the 222 DX Net and

as the net closed down I was given the frequency. With the beam turned to the north-west over South America into the Pacific. I worked a few West Coast USA, a 3D2, UA0, UM3 and some Js among the VKs. At 0500 I was into HL and the Japan stations were really piling in. The ZLs had tuned in also, causing a bit of beam swinging over the South Pole.

At 0543 I handed over the frequency to Jim VK9NS for the net which he organises and had a brew till he handed it back at 0628. With the beam still to the north west, I was picking up Europe with the I stations calling. I finished off a few more Japan and swung the beam 30 degrees east of north. First in was the Italians but either after a short list I started calling for countries and managed to get around a bit before the pile-up was too thick. Getting a few of each, I, OM, HB, Y, F, OE, DJ, SM and CT.

By 0716 the pile-up was in full chorus and I was getting tired, also starting to lose my

QSL SPECIAL FEATURE

Members of The Royal Air Force Amateur Radio Society can use its distinctive QSL cards.



**What use is a report from a short wave listener to a DX station?
Why bother sending a report?
What do you hope to gain from the expense involved?
Who cares if you heard a QSO - you can't reply?
Why should a full licence holder even bother with a short wave listener?**

M.J. Sables VP8CEO gives his side of the story to try to answer these questions.

QSL SPECIAL FEATURE

Abbreviations

DX	'long distance'
IRC	International Reply Coupon
m.u.f.	maximum useable frequency
QSL	acknowledgment of contact
QSO	two way radio contact
QTH	home or station address
RAE	Radio Amateurs' Examination
RSGB	Radio Society of Great Britain
s.w.l.	short wave listener
UTC	Universal Co-ordinated Time
Z	Zulu (UTC)

Many radio amateurs have their own distinctive QSL cards.

Promotional cards can be personalised to act as QSL cards.



voice. However having started it, it was up to me to try and make as many people as happy as I could. To the rescue came CT1BY who offered to take a list for me. While he did that I grabbed a brew and suitably refreshed set to again however things became fraught with so many stations calling while I tried to work the list. Many continued to call right through the QSOs they couldn't hear.

The Japan stations had found me again over the northern path, so I did the best I could between 0720 and 0853 when I called QRT. I had worked I, OM, HB, Y, DK, LA, J, 9H, G, F, EA, OZ, OE, EA8, PT, SM, CT and a ZL1 on the same heading.

Too Hasty

A great night and the QSLs are still coming in, and will all be answered. But what has this to do with an s.w.l.'s report. Simple, from those few hours I have received a number of



s.w.l. reports. From HL1-6678 he reports a very nice signal at 0630 working JH9AUB. Well I worked two HLs over an hour before his report and thought I had lost propagation around Japan. Maybe if I had asked for HL or even BVs or BYs I might of been lucky. I didn't have a contact with either - at that time also was I too hasty in swinging the beam to Europe?

Then came RS88266 Dennis in Exeter. He followed my antics from 0625 until 0759, an hour and a half. I thought I had little or no propagation into G land as I only made contact, despite requesting G stations, with G3TJV at 0808 and G3GED at 0829. Dennis reports both sides of the chat with VK9NS, Is, Js and DL. Now that shows that while I still had the beam north west over the Pacific, Dennis could hear both Jim and myself. Now that is interesting. Also it explains a bit more why I could never get G stations. I had always blamed propagation, UK Class A licence holders don't work DX nets or have better things to do at night!

Next comes OE 1002419. Now this is important. He claims that I worked CT1PY between 0717 to 0720. Now if you recall, this was the kind person who took the list for me. Checking in my log I find that I have corrected the callsign from CT1PY to CT1BY. Have I made a mistake? Which is correct? This is still under investigation so far a QSL to CT1BY has not been returned or replied to! I want to thank this person properly.

Then we have OK3-4592. His card is well laid out, having space for three contacts and lists them about five minutes apart, he has listed an SM, I and LA. None of these have QSLed, but at least I know that their callsign is probably correct.

And finally UB5 3813 reports my contact with DK3CF at 0723Z. This tells me that my signal that night on 30° spanned from Norway LA in the north to the Canaries EA8 in the south and from Dennis in Exeter in the west to the Ukraine in the east. I also had long path skip into Japan. New Zealand was probably off the back of the beam, possibly on a grey line path as dawn

was breaking at 0553 Stanley time and dusk would be around in ZL. Analysing further I could, given call books, etc., draw on a map the area covered by the skywave. Finally, Brazil on a ground wave. Some may have other theories about the propagation but that is not at issue.

Useful

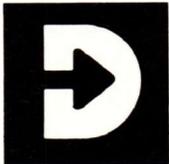
So, you see, a report is useful on its own. On face value, those who know little about what they have been doing will consider it pointless. But, when used in conjunction with a good log of what you were doing at the time and given accurate information, it is of equal value, if not more, to another station worked. Especially if you intend trying that path again when the m.u.f. is right and you need the country of origin.

Who Pays?

As for who pays and what to send, I personally believe in the old rule that I was taught many years ago - If **you** call the station **you** QSL and the QSO is not complete until the QSL is done. However, since a short wave listener calls the station, albeit by post, it is only fair that you enclose a self-addressed envelope plus either a stamp or IRC.

QSL cards at the rate I have been sending them would cost me a fortune, but as people are fair, the cost is tolerable. I would prefer to use the Bureau and I am a member of the RSGB. I have sent a card, via the Bureau, to all the G stations that have contacted me, but not yet QSLed. Its up to them if they want them, they don't need to be a member to receive cards. However, I would like a card from them - after all most contacted me and I assume they needed a VP8.

I hope this has shown a different aspect of the validity of a s.w.l.'s report. And answered the questions I posed at the start. To each their own, some will throw an s.w.l. report in the bin without reading it, some will not. But don't despair, some of you will receive a reply - not all stations have a negative attitude. ■



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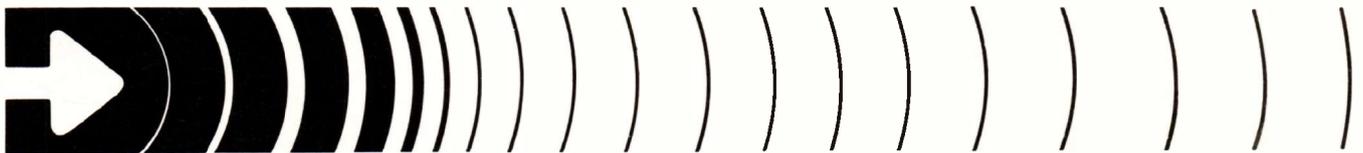
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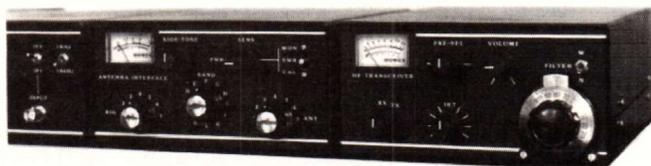
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72 & 73 from Dave G4KQH, Technical Manager

First Aid

I'm looking for a schematic and or manual for the ITT Marine receiver type SR - 401 Class B made by International Marine Radio Comp Ltd., Croydon, UK.
Costs can be reimbursed.

J.H. Kroon, Liewegje t/o No. 14, 2033AD Haarlem - 0, The Netherlands.

I recently purchased a second-hand Sony 2001D portable. This is the version **minus** the Airband. Unfortunately, there was no manual with it. Would it be possible to mention to your readers that I would be very grateful for any assistance in getting the best from this receiver?

Douglas Smith. 5 Lake Green Road, Lake, Isle of Wight PO36 9HW.

I am writing this letter in the hope that some of your readers could help me in acquiring the circuit diagram or photocopy for my Saisho 5000 short wave radio. I will pay postage or any costs involved.

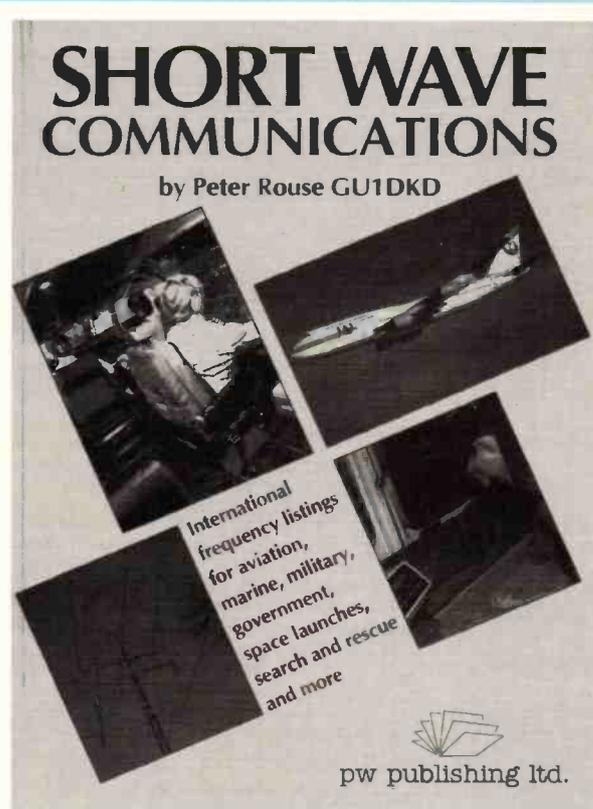
E.J. Sands. 14 Timon Avenue, Bootle, Merseyside L20 9DZ.

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Peter Rouse GU1DKD
PW Publishing Ltd
ISBN: 1 874110 00X
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Newly published, this book, as its name suggests covers a very wide area and as such provides an ideal introduction to the hobby of radio communication. Logically laid out chapters take the reader through basic radio propagation, how to work your radio, and what the controls do. One chapter deals specifically with antennas, and another with band plans. There are many pages of useful information of where and when to listen on the bands, so you can successfully receive the service or transmissions that interest you. Using simple, understandable language throughout, the author has managed to make this book a good, basic, very readable introduction to a complex subject.



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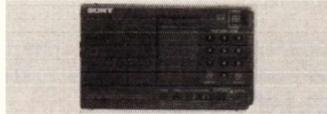


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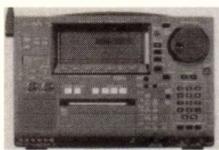
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Win an AOR2000 Scanner Competition Results



The idea behind this competition was to find out what features you would like to see in future designs of scanners. Unlike most competitions, entrants had to put down on paper their ideas, rather than select from a list compiled by someone else. Alan Gardener and myself had thought that that might restrict the number of entries, but that was obviously not the case as 94 readers entered.

The ideas varied from the very simple to very detailed. One reader even suggested that AOR should redesign the price tag! The youngest entrant appeared to be Stephen Finch, aged 15 who lives in Los Altos Hills, California. His suggestion was that the user should be able to input details of an interesting signal to be displayed along with its memory number and other details. You would then be able to recall the user at any time you liked. Stephen was one of several who had similar ideas for making it easier to find out what you have stored in the memories.

As well as Stephen from California, other entries were received from Sweden, France, Belgium and Alberta in Canada as well as Eire and some of the more far-flung parts of the UK. *Short Wave Magazine* certainly gets around the world! One entrant

suggested that the instruction books should be written by a British technical author rather than an English speaking Japanese - with which I would whole-heartedly agree.

Among the simple, but sensible ideas put forward by many entrants a couple kept cropping up over and over again. 'Why not put Braille markings on the keys for the blind users?' was popular. This, of course, would make the scanner easier to use in the dark, anyway. Several of you wanted the display to be put on the top of hand-held scanners, rather than on the front to make it easier to see. Others suggested that the display light should be permanently on for mains powered base scanners or could come on for a brief interval when a signal lifted the squelch. Another popular item was the request for more than one priority channel.

Sophistication

Now we can get onto the more sophisticated suggestions. Some of these were most intriguing and showed that a lot of thought had been put into the entries. Some of the drawings accompanying the entries were also works of art.

A digital speech store to hold the last five seconds of a

transmission was one suggestion. This would enable you to recall what was transmitted in case it was difficult to copy - a 'what did he say?' button. Certainly this would be possible with modern technology.

How about a two-in-one unit? A base station which used the hand-held as a plug-in front end. There were several interesting and ingenious variations on this theme.

However, Alan and myself both felt that the winner would come from amongst the group that had suggested the idea of using a plug-in pre-programmed card to change the bands of frequencies the scanner had in its memories. Going to an air show? Then plug in the Air show card - perhaps pre-programmed with the appropriate frequencies from your home computer or organiser. Combine this with a simplified means of actually operating the scanner and you have the eventual winner. **Mr. N. Evans** of Redlynch, Salisbury suggested a touch screen with icons being displayed. You touch the appropriate icon which causes the next screen to be displayed. You can work your way logically through the screens to program the scanner. This, along with his

suggested use of a magnetic strip or EPROM 'smart card' to load selected frequencies seemed to us to give him the edge of the two runners up. Mr. Evans's drawings were crystal clear and showed that he had really thought his ideas through.

C.F. Tearne of Oxford also suggested programmable modules for an air display, a visit to the seaside or a Grand Prix or motor rally. In fact, very much like Mr. Evans's ideas. He also suggested a new concept - a variable bandwidth broadband self-tuning receiver that could be pointed at a transmitter antenna and then rapidly tuned in to the frequency, using a novel ten-position rotary and pull switch to reduce the bandwidth to enable you to focus in on the frequency to the nearest 10kHz. A signed copy of Peter Rouse's new book *Short Wave Communications* goes to Mr. Tearne.

Our second runner up had some different ideas. His 'Super Scan' mode offers the facility to program the scanner so that it only stops on a signal if that signal has valid modulation on it. This would prevent the scanner getting stuck for long periods on frequencies that only have a plain carrier. He also suggested that the scanner

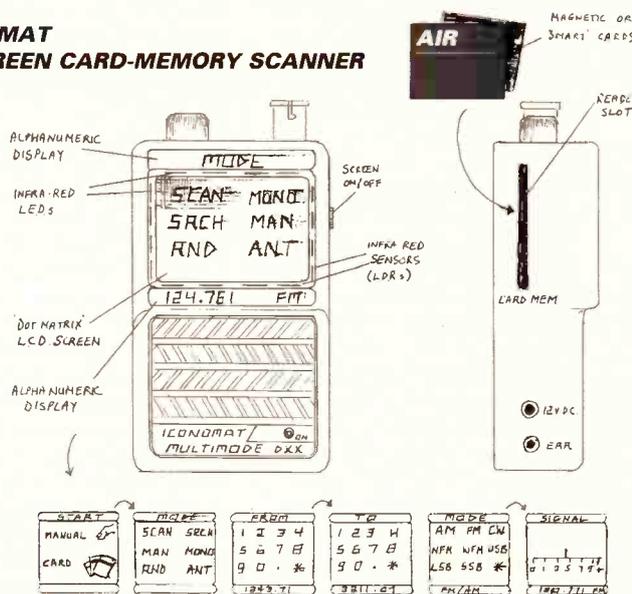
could check to see if you already have a frequency stored in a memory before storing it again. Why waste valuable memories on duplicate frequencies? So a signed copy of Peter Rouse's new book *Short Wave Communications* is also on its way to **Robin Nixon** from Beckenham, Kent.

I would like to take this opportunity of thanking AOR UK for so generously donating the first prize of an AOR 2000 hand-held scanner, Alan Gardner for jointly judging the entries with me and all those 94 readers who sent in such interesting and thought-provoking entries.

Dick Ganderton

THE ICONOMAT TOUCH-SCREEN CARD-MEMORY SCANNER

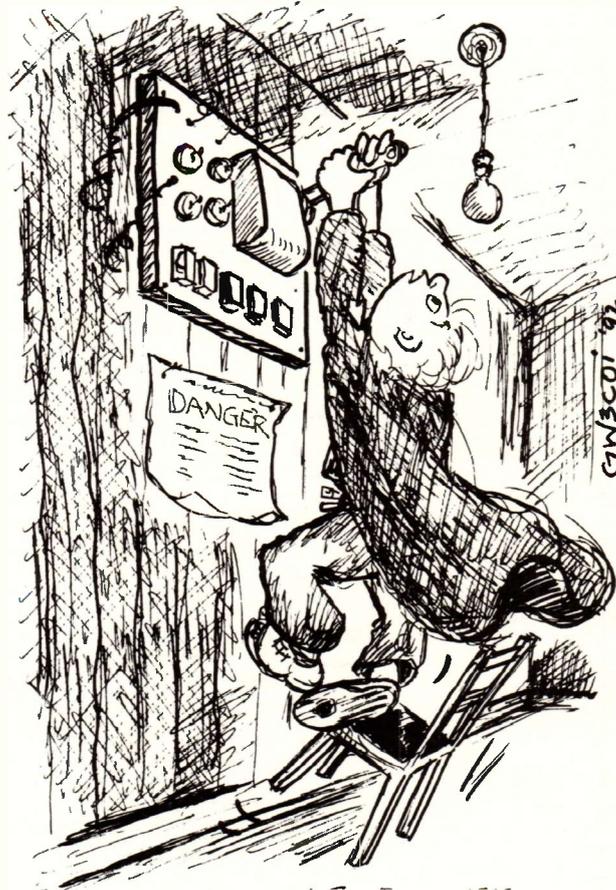
WINNER



TOUCHING THE SCREEN ON A PARTICULAR SYMBOL, BREAKS TWO OUT OF SEVEN I.R. BEAMS AND CALLS UP THE NEXT APPROPRIATE SCREEN.

Electric Blanket Interference

J E Brown



Faint cries from the blackness...

It was a typical early winter's night in the life of a radio inspector, cold, a good night to be inside beside a fire, watching television, but the old radio interference detection car was parked under a leaning city council wooden lamp post, bright orange unearthly sodium light flooding the interior, showing Young Golly the Radio Inspector Trainee with his feet up on the dash. His left shoe sole had come loose and his purple sock poked through, with a hole and a big toe.

Kilocycle Ken the Senior Radio Inspector was watching the output meter connected to the Pye broadcast car receiver tuned to a spot on the dim dial where no broadcast radio transmission were audible.

There! A burst of radio interference pinning the black needle of the milliammeter. It went on and on. "Electric blanket", Kilocycle Ken said sagely. He had had dinner in town at a Chinese place and the chicken chow mein seemed to have turned sour in his stomach. He belched quite loudly. "Let's go, Young Golly. It's probably in the old people's home".

They got out. A tangle of power and telephone wires disappeared into darkness from the post towards an old weatherboard mansion with an orange-tiled roof, surrounded by big trees dripping dew.

Both men were wearing black issue telephone overseer's oilskins, so big they

came down to their ankles, like tents, with velvet collars. They had been likened to Storm Troopers by an irate member of the public being questioned about a noisy electric drill. He had said that all they needed was jackboots, but Kilocycle Ken was wearing issue brown safety shoes with steel toecaps, while, of course, Young Golly's shoes were a disaster, like the rest of him; his trousers were too big, or he was too thin, one of his lenses in his spectacles was cracked, he wore a yellow shirt and a green tie. Anyway, Kilocycle Ken didn't look like a Storm Trooper because he wore an issue yellow plastic sou'wester to cover his bald head.

There was no bell for the house, but an old-fashioned heavy iron knocker. Kilocycle Ken lifted it and let it fall, heavily. There was a long wait. He banged twice more.

"Probably all in bed, as all

old people should be at 7 o'clock at night", Young Golly said.

Kilocycle Ken sighed. Had he ever been as young and brash as this young man? Somehow he doubted it. Young Golly was willing, sometimes cheerful, that was the trouble, he was often obnoxious, but it was difficult not to like him - most of the time. He was smart technically, a whizz kid who knew everything and let everybody know he knew everything. "One day you will be old", Kilocycle Ken said.

Young Golly only laughed.

The front door of the old people's home opened a crack, held by a security chain. "Yes?", said a pink dressing-gowned elderly female.

"We are radio inspectors. You are a source of severe radio interference", Young Golly said loudly.

"I beg your pardon?"
How could she believe?

This was the age of the conman, of burglars and rapists. Did Kilocycle Ken look like a rapist? Not with that ridiculous yellow sou'wester. A quick look to the street, a government car with a logo on the door, but did that mean anything? It could be stolen.

Kilocycle Ken showed her his official pass. It had his photograph on it, but it could have been anybody. She was still doubtful, but she released the chain. There was an umbrella stand made from an elephant's foot. "I was in bed", she said severely.

A rasping roar erupted from the old Pacemaker transistor radio Young Golly held.

"Hear that!", Kilocycle Ken cried. Young Golly rotated the transistor in his hand, seeking a direction. "Where is your switchboard?", Kilocycle Ken asked.

"Quick!" Young Golly shouted.

"Down the corridor..."

Young Golly was running. He found the electric switchboard and the main's switch and pulled the lever of the iron-clad circuit breaker and plunged the building into darkness. There were faint cries from the blackness.

"This is it!", Kilocycle Ken said. "The source is within. Oh what an awful transgression to upset radio reception by producing such a raucous sound". Kilocycle Ken hadn't been drinking either. Maybe it was the Chinese food that made him talk that way. He

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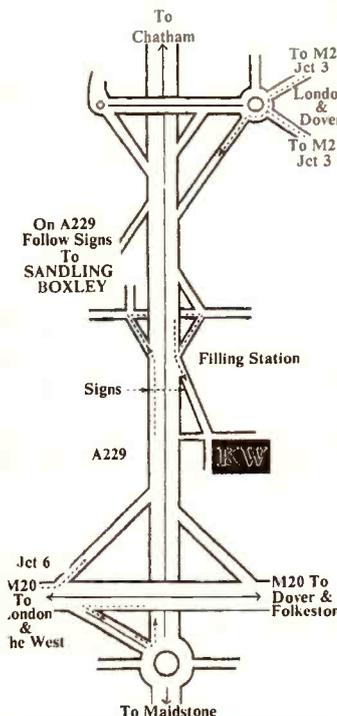
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...Opened a crack...

was usually so gentlemanly polite.

"Are you accusing me of a crime?", the woman said haughtily, but there was a quiver in her voice through the darkness.

"It is an offence under the Radio Interference Regulations 1958", Young Golly said, peering at her.

"I am a criminal".

"You are in charge of this place?"

"I am the matron".

"Then you are".

"Rule by regulation".

"We rarely prosecute.

Education is our motto".

"The old are too ancient for education", Young Golly said.

"One is never too old to learn", Kilocycle Ken said soothingly.

Young Golly restored power. The corridor was dim, weak light bulbs in old-fashioned pink fluted glass shades hung on frayed fabric-covered wires from old ceiling roses, controlled by old brass tumbler switches. "All worth a fortune to a second hand antique dealer", Kilocycle Ken said, vaguely.

Young Golly said, "We'll have to find the exact source, the room from which it emanates. The noise probably comes from an electric blanket, an old one, with a faulty thermostat, a terrible plague of the radio spectrum".

"There hasn't been a man in this house in years", the matron whispered.

"Are there any female undertakers?", Young Golly

asked.

"We must check every bedroom", Kilocycle Ken said firmly. He was implacable when he got a whiff of interference and he had to track it to its source.

Kilocycle Ken was ponderous, Young Golly was racing up and down the corridors, over the frayed, once expensive carpeting, the rubber plants shivering in his wake. From bedroom to bedroom, relentless, checking with the transistor radio. The picture of *The Stag At Bay* frowned upon them, the bobbles on the velvet drapes shuddered their disapproval. There were lace caps, curlers, cold cream, woollen nightdresses, frilly nightgowns. Some old women held blankets up to their necks, or over their heads, some grinned at them. There hadn't been anything like this in the church-run home for gentlewomen since it had been converted from a rich man's bygone age mansion.

"Have you ever seen so many wrinklies bedded in one place?", Young Golly said loudly.

Kilocycle Ken ignored him. This was a situation where the

utmost tact was needed. He'd talk severely to him, later.

"The matron is as old as the inmates", Young Golly said.

Kilocycle Ken lectured Young Golly, "Old age is to be respected".

"You old buggers should be pensioned off".

"You're still wet behind the ears", Kilocycle Ken said shrilly.

Young Golly said, "You notice all the oldies are women. Where are the men, their husbands?"

"Dead, driven to an early grave by hard work".

The matron certainly wasn't dead. She said, broodingly, "They had husbands".

There was no gold wedding band on her finger, no mark of where one might have been.

A burst of noise from the transistor. "Here it is", Young Golly shouted. An aspidistra shivered. Young Golly flung open the old-fashioned panelled door. No scream. A woman in a three-quarter wooden bed, reading by the light of a brass bedside lamp with a green fabric shade. She was wearing a frilly pink nightie, lipstick, had neatly

combed hair, as if she had been expecting a visit. She was bright eyed. "You should have knocked", she said reproving. "Though in the old days it was not done for young men to enter a lady's bedroom, ever, under any circumstances".

"This is Miss Prudence", the matron said.

There was an old Philips wireless with a large round lighted dial.

"An antique", Kilocycle Ken said. Don't see wireless sets like that anymore, with the call signs of the stations on it, 2ZB, 1ZB, 1YA - all in the wrong places".

Miss Prudence said, sadly, "Progress".

"Now, Miss Prudence, it's all right, these gentlemen wish to check your electric blanket".

She was reading the *Hite Report*.

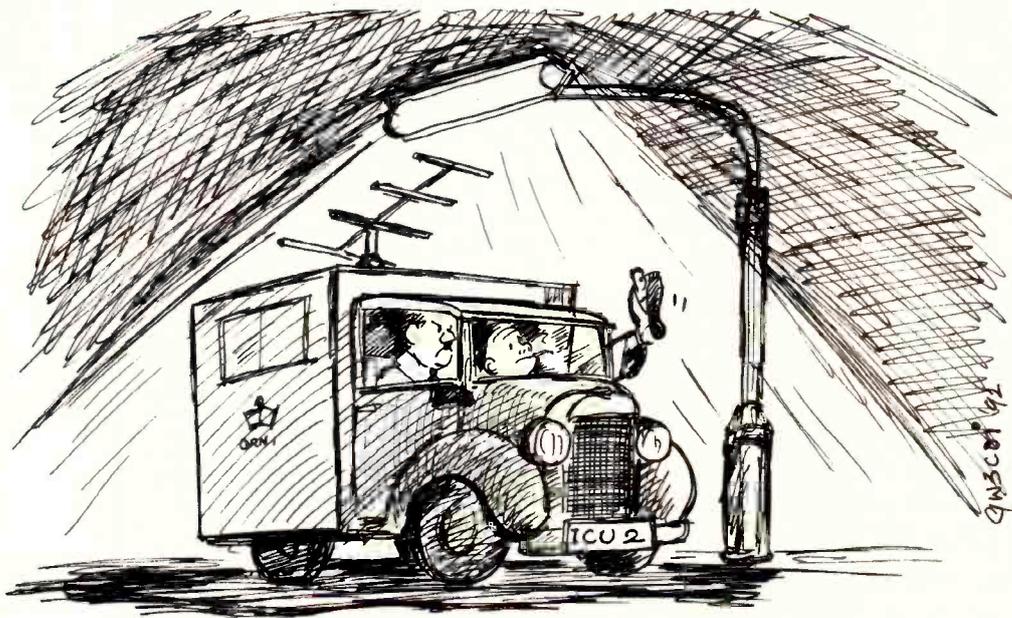
"Do they all read books like that in here?"

"We are not old has-beens, young man", the matron said sharply.

Kilocycle Ken was looking at her old blanket almost affectionately, green, flat, gridded, with its umbilical electric power cord of crumbling rubber hanging out of it, an inserted ancient bakelite switch. "They don't make them like this anymore", he said with a shake of his head.

"I've had it for decades", Miss Prudence said proudly.

"But perhaps it has come to the time when it should be pensioned off, it's very old,



A typical early winter's night

very tired". Kilocycle Ken looked at Miss Prudence. "What about buying a new model with a three-heat switch, say, no interference".

"I've noticed bursts on the wireless, almost deafening, I didn't realise". She was fingering the ancient blanket. "I've loved it, it has kept me warm as toast every night for a long time".

"Could you switch it-off for the night, make a decision in the morning about getting a new one".

"I am warm now". Miss Prudence was flushed. She giggled. "Such an exciting night".

"We'll leave you now, relax". The matron took the two radio inspectors into her quarters, for supper. Kilocycle Ken sat in an old Victorian velvet plush chair, Young Golly in a seagrass chair.

"That's a bit wobbly, but it'll hold". The matron disappeared, came back pushing a chromium-plated trolley. She had taken her curlers out, combed her hair, put on lipstick. "It's like at school", she said. "A picnic in the dorm. A midnight feast. I wonder what happened to all the girls I was at school with all those years ago".

There was a silver teapot, a large fruit cake with orange icing. The tea was weak, the cake was somewhat stale.

"Never seen Miss Prudence look so cheerful. You made her day".

"Rather late in the day", Young Golly said.

"It's never too late, young man. And you've solved a problem we've lived with for years. We all got interference, but didn't know what to do".

"A neighbour complained",

Kilocycle Ken said.

The matron looked from Young Golly to Kilocycle Ken. "Both of you are wonderful". Was she going to embrace them? Golly recoiled and the chair collapsed.

"The electric blanket thermostat goes on and off to keep it at a constant temperature", Kilocycle Ken said. "New ones don't cause interference".

"Not all my ladies have electric blankets, some have hotties".

Kilocycle Ken said, "I like a hot water bottle, it focuses the heat on the feet".

"I have both a blanket and a hot water bottle, but of course a hot water bottle gets cold in the middle of the night, and it has to be kicked out".

"What have you got, Young Golly?", Kilocycle Ken asked.

Young Golly leered. "Don't tell us", Kilocycle Ken said quickly. The matron frowned. "My wife keeps me warm", Kilocycle Ken said.

The matron looked sad, very sad. "Thank you gentlemen".

"I hope we haven't been too officious".

"Oh no, far from it. Delightful to meet such courteous public servants. So many are so callous these days, unfeeling, unthinking, sometimes they shout at us old people, they think we are deaf as well as stupid. Call again anytime."

"Anything for a laugh", Young Golly muttered.

Kilocycle Ken would really have to speak severely to him. ■

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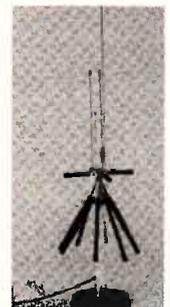
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PROSAT 2

Lawrence Harris reviews the latest weather satellite decoding software from Timestep Weather Systems.

The PROSAT 2 weather satellite decoding software has been designed to run on an IBM compatible '286' (or better) computer with a VGA (or SVGA) monitor and hard disk drive. The program can use both mouse and keyboard. The software comes on three floppy disks and includes an installation program. The hardware is the now customary board which is fitted into a vacant 16-bit expansion slot inside your computer. The hard disk must have at least 6Mb of space available.

Menu Driven

PROSAT 2 is a combination of three programs, VGASAT4, MEGANOAA and ANIMATE, which together can cope with just about every weather satellite picture format that you are likely to come across, so you can use it anywhere - from America to Australia - and decode METEOSAT, GOES and GMS geostationary satellites. A fourth program (TRACK2) is an optional extra which can be incorporated into the Menu. In addition there are some other programs included which are run from DOS. The software must be run from a hard disk, and requires one or two files to remain in the root directory of your drive. The choice from the main 'Windows'-style menu allows selection of VGASAT, which is for METEOSAT type data collection from the geostationary satellites, (it is also used for processing sections of pictures transferred from the NOAA program); or NOAA which is for all of the polar orbiter satellites - NOAA, METEOR, FENGYUN or OKEAN. The third option is Animation which allows sequences of frames from the geostationary satellites to be collected, and finally the fourth option (excluding TRACK2) is the return to DOS.

Checking the Signal Levels

Before any passes are taken, the second job (after installing the hardware and software) is to run the 'level' program. The hardware fitted into an expansion slot inside your PC has two cables coming out of the back. One is for the input of audio signal from a METEOSAT receiver and the other is for connection to your polar orbiter receiver. Each signal has a different dynamic range and so this is a useful facility to incorporate and which also saves much cable swapping. Once set up

you should not need to use 'level' again, though you may wish to occasionally re-check the settings. Running the program produces a horizontal indicator which pulsates with the signal, and adjusting the appropriate potentiometer on the back of the card allows the optimum setting. It is easy to do.

NOAA (MEGANOAA)

The name MEGANOAA seemed a little ostentatious until I realised that the program stores the whole pass, even the long METEOR 3 passes that can last up to 20

minutes, and so can generate files up to 2.4Mb hence its name. During my testing of this software I produced several large files.

The Menu

On selecting NOAA you get an almost blank screen with one line of menu along the top, from which you can select any of a variety of options. 'File' includes loading, saving, deleting and directory changing; 'Section' includes the marking of a section (512Kb) for future transfer to the program VGASAT, which has extra data processing facilities; 'Receive' allows the setting up of the synchronisation format ('sync' or 'async' for the METEORS, and 'start only' or 'line by line' sync for the NOAAs). 'Delay' allows a later start for satellites if you wish to ignore the noisy a.o.s. (acquisition of signal) period. 'Display' has further options including zooming in or out, and temperature read-out. Other temperature options are included under the 'Options' label and I feel that they could all be together. 'Grid' currently works only for the NOAAs, and allows a latitude and longitude grid to be superimposed on the picture. Without detailed information about the cameras on-board the METEORS it is not easy to draw a grid on their pictures. 'Colour' provides pre-set palettes (optimised for particular formats, such as NOAA infra-red) or d.i.y., and also 'Equalise' which has been pre-set to enhance sections of the image. Selecting this almost always produces a superior METEOR picture enhancing the land grey levels which are otherwise not seen well, if at all. 'Options' is the last label and allows the choice of satellite, direction of travel, 'channel' selection for those with Timestep's Prosat receiver, 'receiver' for their Meteosat receiver, 'temp slice'

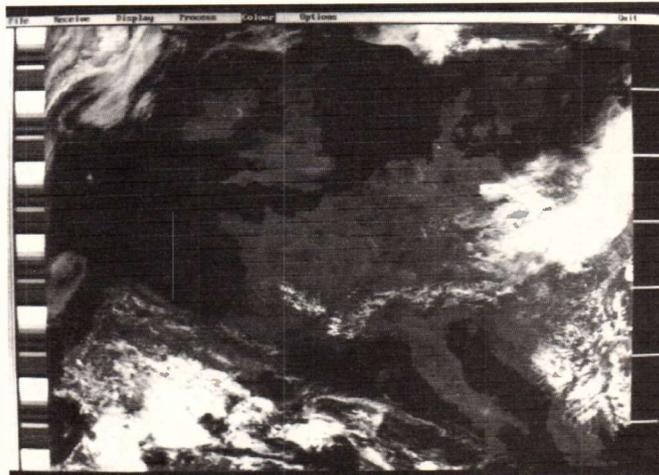


Fig. 1: UK and Europe. NOAA summer picture.

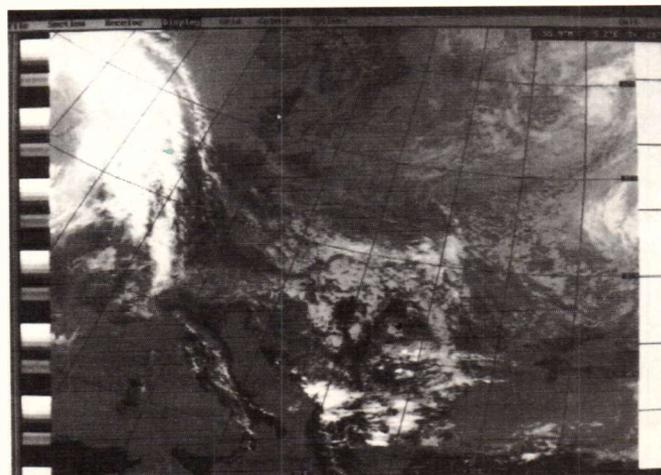


Fig. 2: Europe in infra-red. Using grid and temperature read-out.

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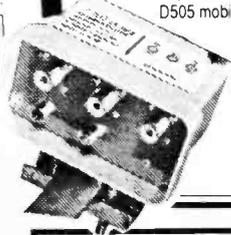
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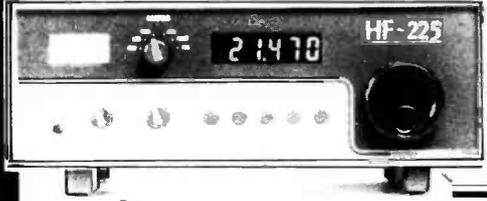
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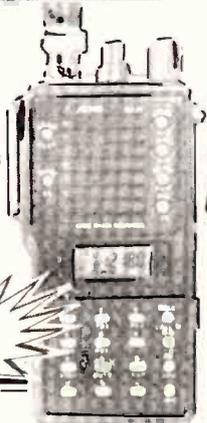
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and 'temp range' for allowing further enhancement of infra-red imagery. Finally 'grid colour' allows a choice of colours for the grid.

Picture Quality

Given all of these options the real reason for the software can get overlooked! We want to produce the best quality pictures from signals received under varying conditions. For such images you must make sure that the level program has been run and suitable adjustments made. When all is correct the program can produce a perfect picture limited only by the satellite's sensors and imperfections in your receiver. Using a VGA monitor you should get a full 64 grey level picture. With a special Hercules monitor card this equipment can give you 256 grey levels, but the card is expensive! I am satisfied with 64 greys.

Synchronisation

As well as following the instructions, I tried using the wrong settings (METEOR 3-5 settings for receiving METEOR 2-20) to see the effect, and in fact it wasn't too bad. The reverse (using METEOR 2-20 settings to receive METEOR 3-5) did not produce a fully synchronised visible picture, so care is needed when getting ready for these satellites. That could be a problem for newcomers who might not realise the subtle differences, but the manual mentions this and in practice you might well be using a predictions program as well, and therefore know which satellites are expected. One important point - METEOR 3 series infra-red transmissions require the 'asymmetrical' (METEOR 2) setting, but the visible transmission is synchronous! Consequently you cannot have a perfectly synchronised METEOR 3 series picture which includes both infra-red and visible. The best answer is using the 'asynchronous' setting if you want to collect both types - or save each section separately. The Russian OKEAN satellites have several different picture formats and synchronising a 'live' image may not be easy.

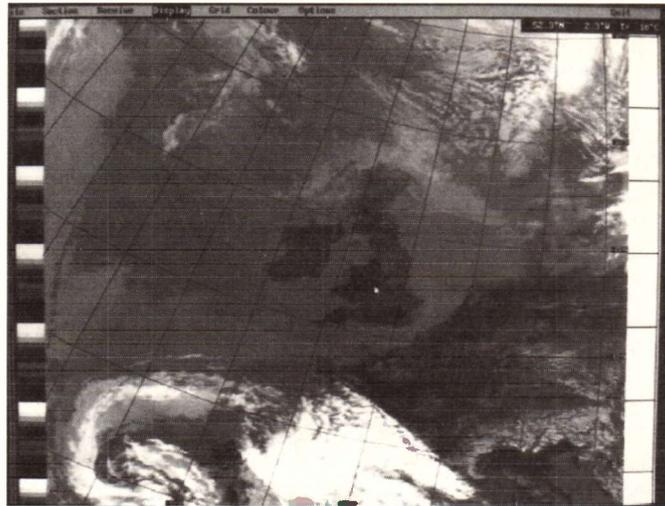


Fig. 3: UK NOAA infra-red. Measuring Birmingham's temperature.

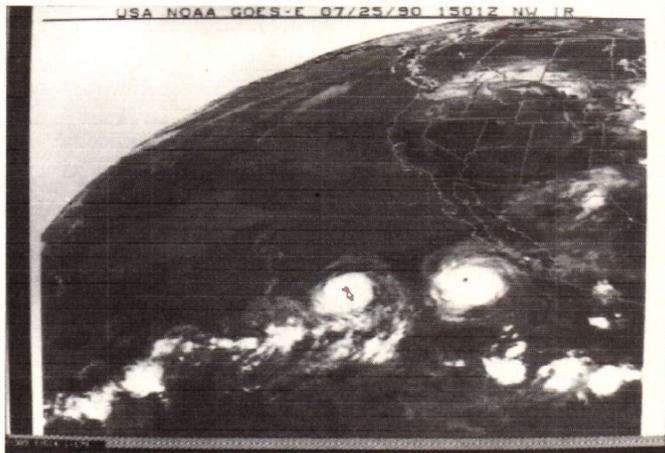


Fig. 4: Pacific Ocean off California. Measuring pixel intensity level.

The best way is to record OKEAN signals on tape and then try the options on the recording.

MEGANOAA holds the picture in RAM and it can be stored as a complete file using the save option. The picture can be inverted after reception simply by pressing the F5 key which, together with some other keys, has been pre-programmed. The options vary for the different satellites. For NOAA the manual comments that the 'start only' option gives better quality than the 'line-by-line' option, but I couldn't see any significant difference. Using the latter means that lines are individually synchronised and so poor signals near the start and end of passes are properly aligned. I gave this option a severe test during my review, when NOAA 10 was left on during its clash with NOAA 12. I set the program to decode NOAA 12 data with NOAA 10

interfering and maintain synchronisation! Using the 'line-by-line' option it passed with flying colours and I obtained some fascinating pictures.

Sufficient RAM?

As mentioned, a complete pass will occupy up to 2.4Mb RAM, but it does not matter if your computer has just 1Mb video RAM because the incoming data can be stored directly on the hard disk.

Data Collection

MEGANOAA allows you to set up your computer and receiver and go away, knowing that the entire pass will be captured. As soon as the 2400Hz tone is detected the program starts, unless a delay was programmed. So with line-by-line sync (NOAA only) the computer will receive, decode and display

the image, and at the end of the pass will then stop. You will not see scrolling, so the image remains in RAM until your return. Synchronisation can be lost during a noisy pass of the METEORS. If the signal stops for any reason (e.g., the end of the pass) then the program pauses and only continues when the signal is again received.

The screen shows the whole pass in a 'summarised' form, compressing some 15 or more minutes worth of data. It has advantages in that all the data is present for analysis at your convenience but has the disadvantage that you will have to assure your admirers that this image is only the beginning! With NOAA images you will see both sections side-by-side, so during a mid-day NOAA 11 pass you will see both the infra-red and the visible picture. You may notice that because of the 'missing' lines (stored in RAM but not shown) the minute markers show in sequences. METEOR images show the full picture width including bars and grey scale.

Grids and Temperature

MEGANOAA contains ample processing options - those facilities used to enhance or examine the whole or part of the picture. You can use the gridding option to put a most impressive latitude and longitude grid on your NOAA picture, but first you need current Kepler elements, and they **must** be current. Old elements will give wrongly placed grids. Current elements can be saved within the picture file for re-use. Elements fed in some weeks later will not be useable with your earlier image, so this is a sensible addition to the program. It will be indispensable for geography classes! The temperature read-out and slice facilities are excellent, though a mouse is required. Using the NOAA i.r. section you can measure temperatures anywhere; I traced warm water flows around the Mediterranean Sea and in the Atlantic. Cold clouds registering -30°C and warmer rain clouds could be identified. I would presume that the temperatures were

correct to within about two degrees. Calibration is performed within the satellite, and is included within the a.p.t. signal, but is rarely used in 'amateur' software because of the required programming work! With NOAAs 10 and 12 in similar orbits I checked out temperatures near Sicily measured within a few minutes of each other by each satellite. They were similar within a few degrees. For a temperature slice, you select the maximum and minimum temperatures (or use the default), and then the program ('Display/Temp slice') will colour the image according to the selected temperatures, and of course a calibration chart is shown on-screen. This facility is superb for temperature studies and one of my few moans about the package is that the manual barely hints at what can be done. I look forward to some serious temperature monitoring of Greenland's seasonal thermal changes.

Tape Recordings

In the use of tape recordings the software excels. I produce many tapes while leaving my equipment running overnight. Sometimes I want to monitor OKEAN, or see whether METEOR infra-red is still operating during the night. In these instances I may well have a tape full of data. Playback is accomplished by first running the level program and adjusting the tape recorder output to set the correct levels i.e., to match the level of the receiver output. Even if the identification of the satellite is uncertain, having a tape recording means that alternatives can be tried. It was easy to identify METEOR 3-5 i.r. data and also OKEAN 3 data by selecting the synchronisation options offered by the program. I tried using old Cosmos 1869 and similar vintage recordings but without success. To be honest I did not expect these old recordings to synchronise because the picture formats are quite different. All current and future satellites are supported.

Other facilities

Other processing facilities include 'Equalisation' as described previously. There is no limit to the amount of contrast adjustment available, including quality colour processing. You can make your own palettes or use those provided. The software parallels the data processing facilities that I used on mainframes and mini computers several years ago - costing thousands of pounds! Never did I dream that one day I would use similar software on my own machine. During my tests I found that the function keys didn't all operate as implied in the menu. I queried this with Timestep and received an update disk some days later which fixed the problem!

METEOSAT and other geostationary satellites and can be set to store individual frames at full satellite resolution, but obviously you need to check that your hard drive has sufficient space for each frame, which occupies some 512Kb. It is an upgrade of the previous program, and has new image enhancement options. Some of these are not available in the 'NOAA' mode but you can use the NOAA 'Section' option to mark and save a 512Kb portion of your polar satellite image to load into VGASAT. VGASAT files have the terminator .DAT whereas NOAA and METEOR files can be any size up to about 2.4Mb and have the terminator .NOA.

New Options

As with NOAA, the screen starts with just one Menu line at the top and has the labels File, Receive, Display, Process, and Colour. Receive allows the setting up of a table of frames to be stored later using 'autosave' mode. The setting up of these times is made very easy by the provision of helpful options, for instance if you wish to add all the D2 times at 30 minutes past the hour, then selecting 'add all hours' requires the simple entering of 30. Remember though - every image requires half a megabyte!

One criticism - there is no facility to set the time (which

VGASAT uses) - you have to do that either in the ANIMATE section, or in DOS. On some 'first use of the day' occasions the 'autosave' option did not trigger. However, it always works if you grab one image first. The 'set slip' mode is only used for GMS images which need special treatment. This ensures the international flavour of the software, for those able to receive GMS data or tapes. The Display label is similar to that in NOAA mode, with the addition of a 3D simulation which is quite effective on some Meteosat images. It interprets the cloud brightness as being height related and produces a simulated 3D image. The 'Roaming zoom' option allows you to use the cursor keys at any resolution to examine any part of the image. I found a minor bug in which the image may sometimes slip sideways so that you can also see an off-image area. Printing to an HP Laserjet 2 or compatible is available.

Image Enhancement

A new set of facilities are provided that were not in the earlier version. Mathematical processes originally developed for the statistical analysis of large volumes of data have been applied to WXSAT imagery with remarkable results. Anyone familiar with NOAA imagery knows that the afternoon winter NOAA 11 pass has an under-illuminated visible image. Similarly METEOR visible-light images provide excellent cloud detail but land is scarcely identifiable except for that of the deserts. The detail is there, but on most framestores and computers it may only occupy a few grey levels and so be unseen by the eye. Using the 'Process' option and selecting 'histogram equalise' will modify (stretch or adjust) the digitised data to reveal previously unseen detail. It works extremely well! Using this, you can get NOAA 11 winter pictures that are almost as clear as the summer ones, and METEOR land detail that is otherwise invisible is revealed extremely well. The previous issue of VGASAT can be adjusted to achieve this - the difference is that this

option does it automatically. The various other facilities have specific uses. 'Smooth' does improve a noisy image by reducing the large differences between a noise burst and its surrounding detail. I tried this on a noisy GOES image and was pleased with the improvement, but remember it cannot create good data from bad - it can only modify the appearance. Median filter removes country outlines from most METEOSAT 4 (but not 3) images. In practice, it is effective on most good images, and gave that extra realism that the processed ones lack. Edge enhancement can improve certain parts of an image e.g., land/sea boundaries under some conditions.

Animate

The ground controllers who look after METEOSAT adjust the exact position and orientation of the satellite during the 'ranging' periods on the schedule. Every scan of a particular area will therefore be identical to the previous scan of that area. The only exception is when policy decisions are taken to manoeuvre the satellite. So we can save identical frames each time they are transmitted, and so produce an animation sequence to follow the progress of weather features. There is nothing 'gimmicky' about this; the professional forecasters constantly monitor areas of the tropics using this technique in order to spot the early formation of hurricanes and tornadoes. We, too, can see weather systems develop and change as they move across the globe.

Extra Memory

This version of Animate is similar to that previously issued, using virtually the full screen for display, and supporting 16 grey levels. It is used to best advantage if you have some extended memory fitted to your computer. Many PCs have both the minimum 640Kb RAM and some expanded memory, usually taking the RAM up to 1Mb. With the minimum 640Kb RAM you can save two

images, but you can store more by using your hard disk. I now use a full 4Mb RAM which allows the storage of some 29 images - far more than you are likely to want to save. Each image (called 'name'.PA2) occupies approximately 112Kb. So each additional megabyte can hold about nine images. For reference, RAM costs approximately £45 per Mb.

Sequences

The software allows deletion of sequences and also works out how many images you can store in either RAM or on the hard disk. You can then tell the software how many frames to store. If you have plenty of space on your hard disk then you can enter a larger number of images after specifying the disk (instead of memory) for storage. There are many options. You can set up (and save) the times of each frame transmission sequence that you wish to retain - there is no obvious limit to the number of named sequences. Once set, this timetable is saved for re-use. Sequences such as the UK in either visible (using C02) or infra-red (using D2); perhaps the Mediterranean using C03 - all can be stored, and with the name of your choice. Keeping a personal list of all of the names of your image sequences allows quick selection of any particular set. One sequence that I tried was to save a large set of DTOTs - the whole disk infra-red images that are transmitted every three hours. The effect of animating these was extremely impressive!

Abbreviations

a.o.s.	acquisition of signal
a.p.t.	automatic picture transmission
d.i.y.	do it yourself
DOS	disk operating system
Hz	hertz
i.r.	infra red
Kb	kilobyte (1024 bytes)
Mb	megabyte (1024Kb)
PC	Personal Computer
RAM	Random Access Memory
SVGA	Super Versatile Graphics Array
VGA	Versatile Graphics Array
WXSAT	weather satellite
°C	degrees Celsius

Mixture

I found that another interesting idea was to select several different frames during the day, e.g., C02, C03, C2D, D8 and any others in which you are interested (assuming all on the same channel). You won't animate this sequence of course, but when you return to the computer you will be able to see exactly what is happening in your chosen areas. I called this selection 'mix' for future use.

Sections

You can set the current time and date without leaving the program, and of course you can change the section of the picture that you wish to animate. This may not be particularly easy if you don't already have an image to work on; for instance, if you wish to zoom in on the UK and don't already have a sample image then you will have to either take one image to set up - or

estimate the position and size of the frame box. The required section (zoom area) is set using the 'Display/section' option and then using the mouse to size and place the box. For this reason I find it helpful to keep one image of each frame that I regularly animate. With practice it is straight forward and some impressive results can be obtained quite quickly. This saves much time instead of waiting for the 'first' image! A missing image transmission does not crash the program. Infra-red images can have improved clarity if the 'Display/enhanced' option is selected. Otherwise, you can try the 'standard' and 'offset' options to improve your image quality. Frankly, I didn't feel the need to improve the images - I was quite pleased with them.

Skills

You can examine each frame separately by pressing

the F4 key and stepping through the sequence using the cursor keys. You also have a choice of speed which is only limited if you are using a slow hard disk. Using RAM you can go as fast as needed. My initial criticism of Animate was its inability to store frames on the hard disk without constant access, and the aspect ratio of the whole disk image - I feel that the earth looks too squashed. However, only the whole disk image reveals this short-coming. My first moan was effectively removed when I had the memory expansion fitted to my computer, courtesy of Timestep, since with 4Mb RAM I can store more images than I shall ever need! I cannot think of any additional features that one could ask for in this program.

Conclusions

I have to scratch hard to think of any real problems with this software. The manual should be enlarged to do justice to the work that has gone into the development of the product, and it contains some minor typing errors. Other than that, I feel that the capabilities of a.p.t. transmissions have now been pushed to the limit with this program suite. A good tracking program is needed in conjunction with this software.

The earlier versions of PCSAT3 etc., will continue to be sold at entry level prices - this suite is for advanced users. My thanks to Dave Cawley of **Timestep Weather Systems** for providing this product for review. ■

SAVE £100

Special Offer to SWM Readers

PROSAT 2 normally costs £399 but if you enclose the Timestep Offer coupon on the Contents page with your order to Timestep, they will supply you with a copy of PROSAT 2 for just £299. This offer closes on 27 March 1992.

New from AOR

The **NEW AR3000A** is an evolutionary step onward from the highly acclaimed AR3000 and many major improvements have been implemented at the request of enthusiasts. The tuning control is now "free running" to provide a smooth feel for SSB/CW, ×10 buttons have been added to make step size faster and more convenient. All information is contained on a larger LCD with an improved viewing angle instead of a separate LED status indication. The RS232 facility has a switch on the rear panel to enable/disable operation. Memory reset functions are available from the front panel. The re-writing of microprocessor firmware using an even more efficient language has further increased scan and search speeds.

Your listening horizons are truly extended with receive coverage from 100kHz all the way up to 2036MHz without any gaps in the range. The AR3000A offers a high level of performance and versatility from long wave through shortwave, VHF and onward to the upper reaches of UHF.

Not only will the AR3000A cover this extremely wide range, it will allow listening on any mode: NFM, WFM, AM, USB, LSB and CW. Tuning rates are selectable from an ultra-fine 50Hz step for SSB and CW, right the way up to 100kHz steps for the TV bands and Band-2.

400 memory channels are provided arranged in 4 banks × 100 channels. Each memory channel will retain mode, frequency, RF attenuator setting, and lockout status.

15 band pass filters are aligned before the three RF amplifiers (including GaAsFet). This ensures high sensitivity through the entire coverage with outstanding dynamic range and freedom from intermodulation effects.

The AR3000A is powered from 13.8V DC and is supplied complete with mains power unit, DC lead, telescopic whip aerial and comprehensive operating manual. An RS232 port is fitted as standard to enable remote operation by connection to most computers.

R.R.P. £765.00 inc VAT.
Carriage by post £5.00 extra.

ACEPAC3-A is a **NEW** and exclusively developed multi-function IBM-PC based program to further increase the versatility of the AR3000A (please note: the earlier ACEPAC3 will not function with the new AR3000A).

R.R.P. £119 inc VAT.
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The **NEW WA5000** is an ultra-wide range receiving aerial covering VLF-SHF. A MOS power FET amplifier is utilised to provide superior performance in the HF 30kHz-30MHz range.

The useable coverage of the aerial is 30kHz-30MHz/6dB max and 30MHz-2GHz/0dB max. The total length of the WA5000 is 1.3m and is fed via a PL259 connector located in the aerial base mount and out of the direct effects of the weather.

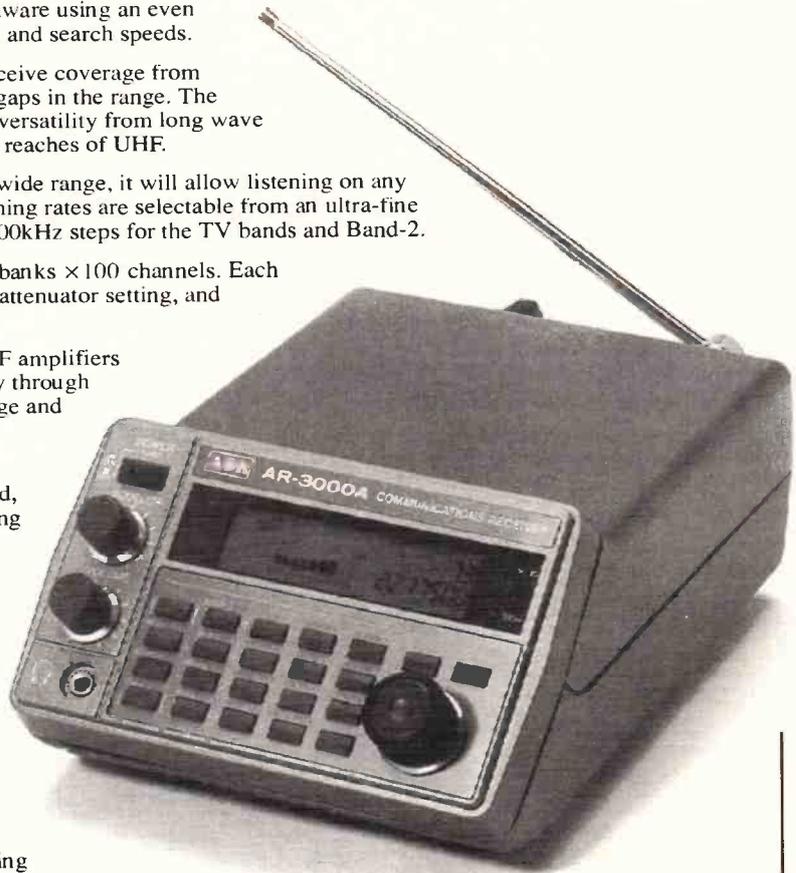
Approximately 15m of terminated coaxial cable is provided ready to plug in and start using. The aerial is powered by 12V DC @ 100mA (mains power supply provided), this being fed up the coaxial cable. A small interface box is included for connection to the power supply and receiver, this is fitted with a BNC patch lead ready to plug into any current AOR receiver. "V" bolts and clamps are included to ease installation however a small additional support pole will be required.

R.R.P. £150.00 inc VAT. Carriage by post £5.00 extra.

The **NEW WX-2000** is a stand alone radio facsimile terminal designed to produce hard copy images from various facsimile services including weather charts, maps, news media and even satellite pictures from NOAA, GOES and METEOR etc. The WX-2000 simply requires an audio signal from a shortwave or satellite receiver capable of receiving facsimile signals.

The built-in high resolution (8 dots per mm) thermal line printer produces crisp images with high resolution. The WX-2000 is also capable of simulating grey scale which is ideal for automatic picture transmission by weather satellites. In addition to the basic functions, the WX-2000 provides full operational controls such as auto start, sync, adjustment, position alignment, tuning LED etc to produce the highest quality images. The power requirement is 12-13.5V DC @ 3A, this makes the WX-2000 ideal for both on land and off shore applications.

R.R.P. £925.00 inc VAT. Carriage by post £5.00 extra.



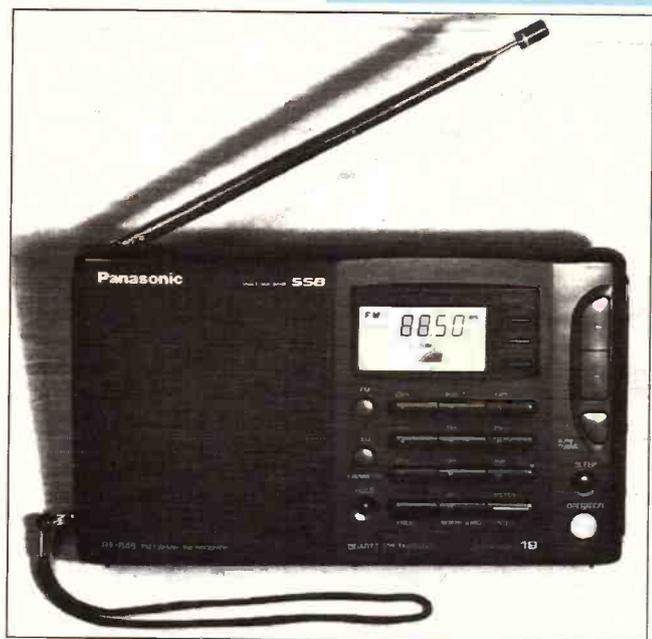
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E&OE



Panasonic RF-B45 Portable Receiver

With a fast growing hobby such as short wave listening, there is always a great demand for receivers at the lower end of the price scale. The new Panasonic RF-B45 fits clearly into this category with a price tag of around £130.00 and comprehensive short wave coverage. One of the features that sets the Panasonic apart from many other is the provision of an s.s.b. receive mode. This opens up a whole range of new communications such as amateur, h.f. air and marine bands. With the addition of suitable decoding equipment, modes such as Radio Teletype (RTTY) and FAX can also be received. In addition to short wave coverage the RF-B45 features standard l.w., m.w. and v.h.f. broadcast bands. All this in a stylish compact case makes the RF-B45 a formidable competitor.

Good Looks

As you can see from the photographs, the RF-B45 is housed in a very practical and stylish case. The main operating panel features a large liquid crystal display. This is used to indicate operating frequency, mode, time and signal strength. All the front panel functions were

controlled by push buttons. To add to the high quality feel of the RF-B45 the panel was gently scolloped so that the push buttons didn't stand proud of the panel. As well as being pleasant to use, this helped to prevent accidental operation of the push buttons.

The neat case was further enhanced by a retractable stand that angled the receiver at about 30 degrees. This was ideal for table-top operation.

The power requirements were straightforward needing just four AA cells for battery operation. For prolonged use in the shack, it's useful to be able to use an external power source. The RF-B45 included an external power socket which employed a standard coaxial connector. The required voltage was a convenient 6V d.c at 8 watts. This could either be supplied by an optional mains adaptor or by a suitable car adaptor. All serious short wave receivers need to use an external antenna if only to minimise interference. The RF-B45 uses a 3.5mm jack for the external antenna connection. This included a switch to disable the fitted telescopic antenna. The review model even came equipped with a simple 10m wire antenna that could be rigged-up to a curtain rail or similar. There was also a LOCAL/DX switch that put in a useful 10dB of r.f. attenuation.

For listening late at night headphones are essential and this was catered for with a

standard 3.5mm jack on the side panel. Although a single earpiece was provided, potential users would be well advised to invest in a pair of headphones.

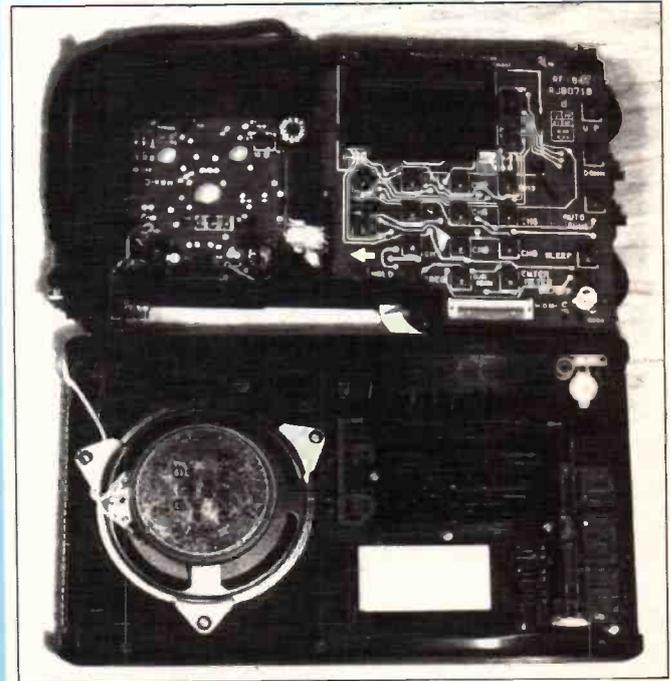
Digital Keypad

The RF-B45 employs a digital frequency synthesiser that gives a number advantages for the operator. The most obvious of these benefits is the digital frequency display. This gives a readout in tens of kHz on the v.h.f. band and kHz on all other bands. This level of resolution makes identifying stations so much easier than with an analogue dial system.

The RF-B45 features four basic tuning methods manual, auto, direct and memory. The manual tuning system uses two large push buttons marked + and -. These change the frequency in preset steps depending on the band in use at the time. For the long and medium wave bands the default steps were 9kHz, which is in line with the standard channel spacing. These steps can be changed to 10kHz to match the channel spacing used in the USA. When tuning on the short wave bands the steps change to a useful 5kHz, while v.h.f. gave 50kHz steps. For rapid tuning the + and - buttons could be held depressed.

There are times, especially when receiving s.s.b., when much finer tuning is required. This is catered for with a

Panasonic have just released a new portable short wave receiver that should appeal to many new listeners. Mike Richards takes a close look at the RF-B45 receiver.



The RF-B45 receiver opened up to show the neat construction.

separate fine tuning control on the side panel. The fine tuning is selected by a simple slide switch and can be used both for a.m. and s.s.b. reception. The range of the fine tuning was set so that is just overlapped the 5kHz tuning steps.

The auto tuning mode was an extension of the manual system that provided an automatic search facility. When the AUTO button is pressed, the frequency increments rapidly only stopping on stations that are stronger than the preset threshold. The auto tuning is particularly useful for tuning through the busy short wave broadcast bands.

When tuning to a specific station, the RF-B45's direct entry mode is very useful. With this system, the frequency is simply typed-in on the numeric keypad. Unlike many systems, the RF-B45 didn't automatically insert trailing zeros. This meant that when entering, say 14.1MHz, you have to type 14100 - hardly a chore!

For broadcast band enthusiasts the "metre band" facility will prove to be very handy. As its name suggests, this facility enables the direct selection of any one of the ten broadcast bands from 75m to 13m.

The final frequency selection option was to use the eighteen internal memories. These were divided into two groups of nine, one group on v.h.f. and the other for the a.m. bands. In addition

to the simple storing and retrieval of frequencies, the RF-B45 included a search function. When activated the RF-B45 stepped through each memory channel stopping on each one for approximately three seconds. The search is useful for checking activity and reception conditions on your favourite stations.

Clock Timer

In addition to the main radio functions, the RF-B45 included a very useful clock and timer. The initial setting of the clock was done via the front panel keypad using the 24 hour clock. The presence of the clock enabled a couple of useful timer functions to be included. The most basic of these was the SLEEP function that's useful for insomniacs! This can be set so that the receiver operates for 30, 60 or 90 minutes before automatically shutting down.

The second timer mode is called STANDBY and enables the receiver to be set to turn on at a specific time and play for 90 minutes. As far as I can see the main use of this mode is as an early morning alarm.

Performance

My initial impressions of the RF-B45 were that it was a surprisingly sensitive and capable receiver. In an attempt to confirm this I put the receiver through a few tests in the lab.

The first area to come

under scrutiny was the r.f. sensitivity. This produced surprisingly good results with a best figure of 0.2 μ V for 12dB SINAD at 3.5MHz. This sensitivity was remarkably consistent over the frequency range, with a worst case of 0.4 μ V at 25MHz - an excellent result for this type of receiver. This level of performance on s.s.b. was complimented by a 1.75 μ V sensitivity on a.m. and 1.4 μ V on f.m.

Another important area that many receivers fail on is the audio distortion levels. The RF-B45 gave a good showing in this area with a.m. distortion of 0.65% and f.m. of 0.44%, again, very good for a portable receiver of this type.

For the on-air tests I tried the RF-B45 both portable and in the shack. When operated using its internal antenna the high sensitivity gave surprisingly good results. In addition to being able to receive a wide range of broadcast stations there were plenty of amateurs and utilities to be heard.

Encouraged by this initial success, I moved into the shack and connected up my long wire antenna. Although this brought in more stations, it did highlight a, not unexpected, problem. The extremely high sensitivity of the RF-B45 means that it is

also very vulnerable to overload from strong signals outside the main pass band. This results in the appearance of a number of spurious signals and an increase in the background noise level. This type of overload problem is very common amongst cheaper receivers and can often be controlled by using an r.f. attenuator between the antenna and receiver. In the case of the RF-B45 switching the DX/LOCAL switch to LOCAL inserted 10dB of attenuation - this reduced the problem to an acceptable level.

When receiving s.s.b. signals, the fine tune control proved to be just right. It gave a good overlap between the 5kHz tuning steps, but was fine enough to enable signals to be properly tuned. The provision of an s.s.b. mode means that the RF-B45 could also be used to receive some of the data utility signals that abound on the h.f. bands. Receiving these signals requires a receiver with good frequency stability and the ability to tune in very fine steps - 20Hz or less ideally. To evaluate the RF-B45's

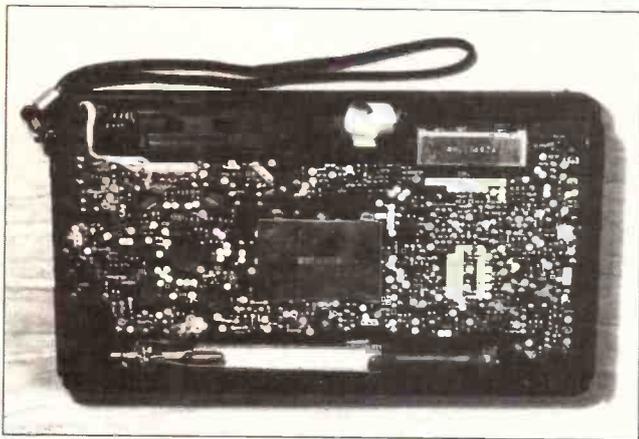
performance I used the sophisticated Hoka Code 3 package and the much simpler Microreader. As with any new receiver, I found that it took a little practice to familiarise myself with the operation of the fine tune control with RTTY signals. One tip I can give any potential users is to earth the receiver. If not, the audio output tends to contain spurious signals that confuse the decoder. I was surprised to find that the frequency stability was well up to the standard required for utility work. Using the Microreader, I was able to easily resolve c.w. and RTTY signals with a shift of 400Hz or greater. I did however, find that resolving 170Hz shift amateur RTTY signals was very tricky.

Moving on to the audio quality, this too was very good. The HIGH position of the tone control gave a very full sound that was very pleasant to listen to. Moving this switch to the LOW position restricted the high frequency performance and was useful for reducing whistles and whines on short wave broadcast signals.

Conclusion

What can I say? The RF-B45 will, I'm sure, prove to be extremely popular with anyone requiring a compact portable s.s.b and broadcast receiver. The technical performance was well up to the standard required for general short wave listening, including utility stations.

The excellent performance combined with very smart styling means that I have no hesitation in recommending this model. The RF-B45 is available from most Panasonic stockists at an average selling price of £129.95. My thanks to **Panasonic UK** for the loan of the review model.



Specifications

Frequency Range	f.m.	87.5-108MHz
	l.w.	144-288kHz
	m.w.	522-1611kHz
	s.w.	1.62-29.995MHz
Power	4 x AA or R6 batteries External 6V d.c.	
Speaker	80mm dia. 8Ω	
Output	600mW r.m.s.	
Dimensions	204 x 119 x 37mm	
Weight	620g	

Abbreviations

%	per cent
c.w.	continuous wave
d.c.	direct current
dB	decibels
f.m.	frequency modulation
g	grammes
Hz	hertz
kHz	kilohertz
l.w.	long wave
m	metres
m.w.	medium wave
MHz	megahertz
mm	millimetres
mW	milliwatts
r.f.	radio frequency
r.m.s.	root mean square
RTTY	Radio TeleTYpe
s.s.b.	single sideband
s.w.	short wave
SINAD	Signal to Noise And Distortion
V	volts
v.h.f.	very high frequency
W	watts
μV	microvolts
Ω	ohms

propagation

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

I was interested to learn that the 850mm 'dish' antenna and converter used by **Peter de Jong** (Leiden, Holland) for gathering pictures from Meteosat also serves as a radio-telescope. He tells me that, "during the equinoxes, when the sun shines right into the dish, reception is disrupted by solar noise".

Sunspot Activity

Ron Livesey (Edinburgh) using a 2.5in refractor and a 4in projection screen located four active areas on the sun's disc on November 1, 7, 11, 14, 19, 27 & 28, seven on the 9th and ten on the 2nd.

Cmdr Henry Hatfield's (Sevenoaks) observations with his spectrohelioscope revealed 3 sunspot groups, 13 filaments, 6 quiescent prominences, 2 slightly active plages & a long thin curly filament near the south-east limb at 1243 on December 6; 5gps, 12fs, 5 very small prominences & 1 active area near the south-east limb at 1122 on the 8th; 6gps, 15fs, 10 small qps & a plage almost flaring at 1156 on the 10th; 5gps, 13fs & 7 small qps at 1243 on the 14th; 2gps, 16fs, 6 very small qps & 2 active areas at 1154 on the 24th and 3gps, 15fs, 10qps & the remains of a flare at 1214 on the 27th.

Henry's radio telescope recorded individual bursts of solar noise, at 136MHz, on December 9, 22, 23, 25, 27 & January 1. He found continual solar noise at 136MHz on the 16th & 17th and individual bursts at 1297MHz on days 15, 23, 25 & 26. Henry also reports that **Bob Turner** saw a 'large flare' at the same time (1420) as he recorded the radio-burst at 1297MHz on the 15th.

Auroral

Ron Livesey, the auroral co-ordinator for the British Astronomical Association, received reports of 'glows' for the overnight period of November 2, 5, 6, 11, 13, 28 & 29, 'rays' on the 3rd, 9th, 14th & 19th, 'active forms' on the 16th & 18th, 'all sky' on the 1st and 'corona' on the 4th & 8th. The latter was reported by 111 observers ranging from Canada and Denmark to most of the UK and the USA.

Varying strengths of auroral reflected radio signals were detected by **Doug Smillie** (Wishaw) on November 1, 8, 9, 15-17, 19, 21 & 22 and by **Tony Hopwood** (Worcester) on days 1, 4, 8, 9 & 19. Tony expected the large event on the 8th following his recording of a 'big flare' the previous day. **Gordon Foote** (Didcot) heard the German beacon DKOWCY on 10.144MHz give a strong auroral warning at 0040 & 0920 on December 8. This was most likely caused by solar activity associated with one of the sunspot groups, Fig. 1, seen and drawn by **Patrick Moore** at his observatory in Selsey at 1100 on the 6th. From the 20th, Patrick had been watching the build up of sun-

spots which seemed to reach a climax on the 25th judging from the drawing that he made at 1040, Fig. 2. Therefore, there was no surprise when Tony Hopwood told me about the h.f. aurora that he observed during the evening of the 27th.

Magnetic

The combined reports from Tony Hopwood, **Karl Lewis** (Saltash), Ron Livesey, **David Pettitt** (Carlisle) and Doug Smillie showed magnetic storms were recorded by their various instruments on November 1, 2, 4, 8, 9, 11, 16-22, 29 & 30.

Propagation Beacons

First, my thanks to Gordon Foote, Henry Hatfield, **Ted Owen** (Maldon), **Fred Pallant** (Storrington), **Ted Waring** (Bristol) and **Ford White** for their 28MHz

beacon logs which enabled me to produce the monthly chart, Fig. 3. The signal from WA6APQ was heard on November 30 by Ted Owen and Fred Pallant

Tropospheric

"For the last few days a high pressure area has been stable over Ireland and Britain, giving good tropo reception all over," wrote **Des Walsh** (Ballinassig) on December 4. Des uses a Pioneer tuner and has a variety of antennas including a 4-element Yagi, which he modified to give good results in the 98/108MHz region of Band II. On the 4th he logged several stations from France and two from Germany between 95 & 106MHz.

On the 7th, 8th & 9th, **Simon Hamer** (New Radnor) received broadcast stations from Germany and all Scandinavian countries on their re-

spective spots throughout Band II. For my part, I was not surprised to hear French stations pounding during the evening of December 6 especially as the weather was cold and clear and my barograph was showing 30.6in (1036mb).

Michael Larsson (Cheadle) logged programmes from France & Ireland on December 2, Denmark, France, Germany, Ireland, Norway & Sweden on the 3rd, France, Germany & Ireland on the 13th, Belgium, Germany, Holland & Sweden on the 14th, Sweden on the 19th and BBC R4 from Wales on the 28th. I heard very strong signals from French and German stations spread through the band between 0800 & 1200 on January 11. The atmospheric pressure readings for the period November 26 to December 25 can be seen, along with allied propagation gen, in my DXTV column elsewhere in this issue.

Beacon	November										December																				
	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
DF0AAB	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
DL0IGI	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
EA3JA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
HG5GEW						X								X																	
IY4M	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
KC4DPC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
KD4EC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
KF4MS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
KJ4X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
KW7Y														X																	
LASTEN																						X									
NX20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
N2JNT	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
OK0EG															X																
OH2TEN	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
PT8AA	X	X												X																	
PY2AMI	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
SK5TEN						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
VE2HOT						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
VE3TEN	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
VK2RSY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
VK5WI						X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
VK6RWA														X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
VK6VF														X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WA4DJS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WA6APQ						X	X																								
WC8E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WJ9Z	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
W3VD	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
W8UR	X					X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
W9UXO	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
YO2F														X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ZD8HF						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ZS1LA	X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ZS5VHF						X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ZS6PW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Z21ANB	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4N3ZHK										X																					
5B4CY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Fig. 3.

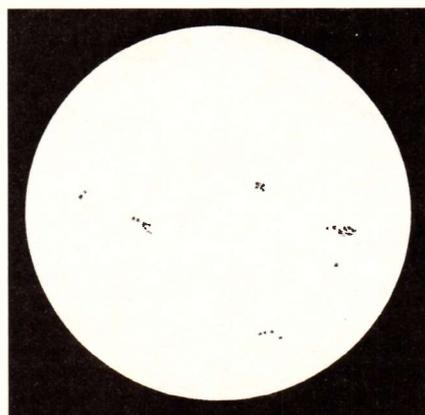


Fig. 1.



Fig. 2.

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Graham Tanner, 42 David Close, Harlington, Middlesex UB3 5EA.

Your letters and logs to Peter have now been forwarded to me. For those of you who had asked questions and sent an s.a.e., I have sent a reply. All other questions raised in your letters will be answered within the column.

Ascot Without The Horses!

A number of your letters and logs mention hearing various transmissions by the RAF. These principally come under two categories, and covers two areas; the broadcast of weather details for various RAF airfields world-wide, and providing two-way communications between RAF aircraft and ground installations.

The weather details are transmitted continuously on 4.722 & 11.200MHz by the RAF. They provide a minimum amount of weather information for most RAF airfields in the UK, followed by details for certain RAF airfields in Germany.

Two-way Communications

Since 1982 the list has also included Ascension Island in the South Atlantic. Other airfields are also included in the broadcast, such as Gatwick, Heathrow and Stansted. During the Gulf Crisis, several airfields in the Gulf region were also included when the information was available.

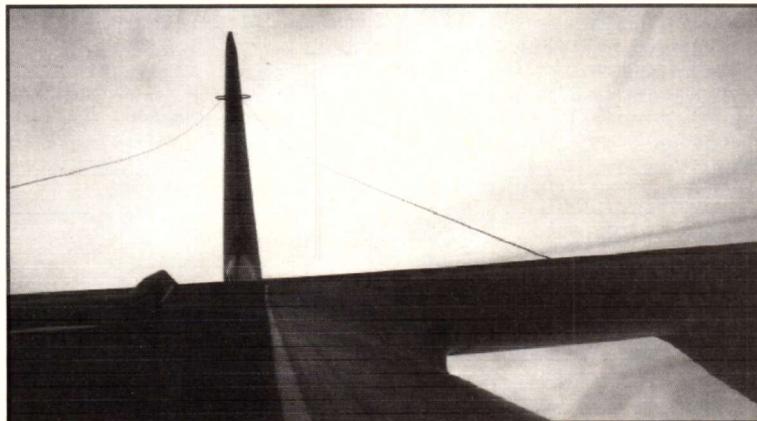
The other 'half' of the system is used for two-way communications between aircraft and various ground stations. This network is known as the Strike Command Integrated Communications System (STCICS); the parts that are of interest to this column are known as RAF Flight Watch Centres, but are more commonly known by their voice callsign of 'Architect'.

There are several sites equipped for h.f. communications, they are at Ascension Island in the South Atlantic (voice callsign 'Haven'), RAF Akrotiri on Cyprus (voice callsign 'Cyprus'), Gibraltar (voice callsign 'Gibraltar') and at Mount Pleasant in the Falkland Islands (voice callsign 'Viper'). These sites also provide a form of weather broadcast at certain times through the day, covering airfield QNHs (pressure settings) on the hour, and airfield colour states at 30 minutes past each hour. At 15 minutes past and 45 minutes past there is a broadcast of the RAF Germany flying states.

The main purpose of the flight watch centres is for h.f. air-to-ground communications and they have a wide range of frequencies available to them.

"STCICS"/UK: 2.591, 4.540, 4.742, 5.713, 6.738, 8.190, 9.032, 11.204, 11.234, 13.257, 15.031, 18.018, & 23.220MHz
Ascension Island: 4.742, 9.032 & 11.234MHz

Akrotiri, Cyprus: 4.730, 9.032, 11.234 & 18.018MHz
Gibraltar: 4.742 & 11.234MHz



'Somewhere over Southern England'. View from the astro-dome of an RAF Hercules transport aircraft.

Mount Pleasant, Falkland Islands: 4.742, 9.032 & 11.234MHz

One of the most surprising and memorable things heard on these frequencies during recent months (for contributor **Keith Elgin**, at least) has been the return of British hostages from the Middle East courtesy of the RAF. On 19/11 he heard 'Ascot 2100' (a VC-10 of 10 Sqn) contact RAF Lyneham Ops with arrangements for an h.f. link-up between Terry Waite and John Major. This all occurred on 11.234MHz, but due to interference from another station they tried to QSY to 4.742MHz, but contact was lost. Keith wonders if anyone else heard this so that he can complete his own copy.

For those of you who regularly listen to these RAF frequencies, you may like to know some more about the RAF callsigns for transport aircraft. The callsigns are all 'Ascot' followed by a 3 or 4 digit number, which usually identifies what type of aircraft is involved. The following list explains all:

700+ Andover (HS.748) or BAe125 from 32 Sqn, RAF Northolt
1000+ Andover (HS.748) or BAe125 from 32 Sqn, RAF Northolt
2000+ VC-10s from 10 Sqn, Brize Norton
3000+ Tristars from 216 Sqn, Brize Norton
4000+ Hercules C.1 from RAF Lyneham
5000+ Hercules C.3 from RAF Lyneham
7500+ Andover (HS.748) or BAe125 from 32 Sqn, RAF Northolt
8000+ Andovers from 60 Sqn, Wildenrath Germany (Northolt from April '92)

Callsigns 'Kitty' and 'Kittyhawk' are used by royal flights, and are operated by BAe146 aircraft based at RAF Benson. Many of these aircraft use the system to report their departure from various airfields, and the estimated

arrival time for wherever they are going. They can also get the latest weather forecast for their destination. Aircraft going to Cyprus usually make contact with Cyprus as they pass 15° East (approx. southern Italy) and pass on their ETA and request the weather forecast; this happened rather a lot more than usual during the Gulf War. The photo on this page was taken by me during June 1991. It shows the view from the astro-dome of an RAF Hercules aircraft 'somewhere over southern England' during the formation build-up for the Granby Flypast; the view is towards the tail of the aircraft, and the wire h.f. antenna is just visible stretching from the upper fuselage to the top of the tail.

Your Logs

Tony D of Stafford send an impressive log, listed by frequency, containing everything from Royal Flights to SAR ops in the north Atlantic. His log includes lots of USAF aircraft making phone-patches to various places, including McGuire AFB (NJ, USA). Tony's log also has a number of 'Shadow' aircraft talking to 'Woody'. 'Shadow' is the callsign of a USAF Hercules aircraft, and is always followed by the 'last two' of its serial, e.g. 'Shadow 23'; 'Woody' is flight ops at RAF Woodbridge, north east of Ipswich. The squadron is due to move to RAF Alconbury soon, I wonder if the ops callsign will change to 'Alcy'! Callsign 'Pave' is used by the MH-53 helicopters, also based at Woodbridge, your logs often report these two callsigns frequently operating together.

Spar 76

Keith Elgin mentions hearing 'Spar 76' several times during November. This callsign is permanently allocated to a

DC-9 aircraft based at Chievres in southern Belgium, at 'HQ SHAPE'. This aircraft operates all over Europe and transport VIPs to various NATO airfields. It also makes the occasional visit to the USA, but always using 'Spar 76' as its callsign.

Keith's log mentions a UN station heard on 13.205 MHz in 14/11. The United Nations have sent a peace-keeping/observer force into the western Sahara region, and naturally the troops want to phone home. They have discovered that the USAF GCCS network is ideal for this, and most nights Albrook, Ascension and Incirlik run phone patches into the USA. Various callsigns are used, but the most common one is 'UN Western Sahara' have heard them using 11.176 and 9.011MHz.

Mysteries and Requests

Now a few 'mystery' transmissions that maybe some of you can help to solve. These are all frequencies that I have heard in use, but I have been unable to identify the user(s): - brief transmissions on 11.224MHz u.s.b.; I hear interference on 11.176MHz and when I QSY to 11.224 I hear the very end of the speech; the most that I have ever heard is somebody reporting their arrival at a given time. It appears to be either Spanish or Italian; as I live very close to Heathrow Airport I suspect that it is an airline frequency, but which airline?

- on 3.11 I heard a radio test by a station on 11.288MHz, with a callsign of 'Night stalker base'; the operator had an American accent.

- on 8.913MHz I heard 'Springbok 234' talking to a ground stations and passing some times and weather details, is this a new/another South African Airways company frequency? - on 6.736MHz I heard Australian voices, but was unable to identify either station before they stopped transmissions.

AUSTRALIA
Greg Baker

I had planned to spend the Christmas - New Year period quietly at home getting my mind in order for 1992 and maybe even listening to the odd radio transmission. Instead, I ended up taking it in shifts at the bedside of Nic, our son, in hospital. So instead of a radio, I saw some very interesting medical electronics and learn a few new terms like oxygen saturation. And later on, when Nic was out of intensive care and in the paediatrics ward I also learned that some of that fancy electronics makes highly unusual patterns across a television picture. Still, I suppose television viewing pleasure was the last thing on the designers' mind.

Melbourne Greek Radio

The third largest concentration of Greek people in the world is in Melbourne and the saga of local Greek language radio appears to be coming to a close. In the late eighties, a company was licensed to transmit an encrypted Greek language service to subscribers only, but operated illegally without encryption from July 1989. Despite repeated attempts by the Department of Transport and Communications (DoTC) to have the company encrypt its signals, the station was finally forced to close in March 1991.

During its time on air, the service had gained a large listening audience but according to Warren Snowdon, Parliamentary Secretary to the Minister for Transport and Communications, "the Government regrets that the Greek community now sees itself as losing a valued service, but the Greek Radio Service has been operating illegally and the Government had no choice but to close it".

Now a new Hellenic Radio service has been launched in Melbourne with transmissions encrypted as required to enable reception by subscribers only. Though there is some expense in buying decoding devices, no doubt the Greek community is happy that its service is licensed, is legal, and is operating. Similar services to serve the Italian and Chinese communities are due to follow.

New Ministers

Political upheavals that have given Australia a new Prime Minister - Paul Keating - have also given Australia two Ministers for Transport and Communications in a period of a few weeks.

With the unsuccessful challenge to Prime Minister Hawke by Treasurer Paul Keating in mid-1991 came Mr Keating's move to the back bench and the promotion of John Kerin from Primary Industry to the Treasury job. But Mr Kerin's faltering attempts to fill this post, the deepening recession and renewed behind the scenes moves to unseat Mr Hawke eventually led to a

shuffle among the top jobs, a shuffle which moved long-time Minister for Transport and Communication Mr Beazley out and Mr Kerin in.

The December 1991 ousting of Prime Minister Hawke by Paul Keating led to a further reshuffle this time with Mr Kerin headed out of cabinet altogether. In his place in Transport and Communications came Keating supporter Senator Graham Richardson.

Microeconomic Reform

DoTC is considered one of the plum jobs for cabinet ministers because much of Australia's microeconomic reforms are taking place within this portfolio. Examples are changes to state and federal transport legislation which have hampered free interstate trade for decades and changes to telecommunications legislation with a view to increasing competition in this sector.

One such change has been the amalgamation of the overseas telecommunications carrier OTC with Telecom to produce AOTC and the entrance of a new competitor Optus Communications to this apparently lucrative field. Optus will pay the Australian government \$A800 million - about £350 million - for the opportunity to compete and for Australia's ailing satellite company Aussat. I hope that this competitor fares better than Australia's newest airline Compass which fell in a heap while trying to beat its head against the brick wall thrown up by the existing airlines.

Inmarsat Assembly

Australia hosted the eighth assembly of the International Maritime Satellite Organisation (INMARSAT) late last year in Canberra. As SWM readers are no doubt aware, INMARSAT is an intergovernmental satellite co-operative which provides maritime, aeronautical and land mobile communications services. The assembly is the organisation's peak body for determining INMARSAT's policy priorities and objectives.

170 delegates from over 40 countries attended. Among other things, they agreed that a working party be established to work out ways in which INMARSAT could respond effectively to rapid structural and technological change in telecommunications and to the challenges of competition.

Australian users of INMARSAT include the overseas telecommunications carrier OTC (soon with Telecom to be AOTC), AUSSAT (soon to be part

of Optus Communications), the Australian Maritime Safety Authority and the Civil Aviation Authority.

By the end of 1991, Australian shipping will be using INMARSAT's Global Maritime Distress and Safety Services.

In addition, Australia's overseas airline Qantas will soon make use of INMARSAT for aeronautical communications services. Such a system was demonstrated at the Congress when Olof Lundberg, the Director General of INMARSAT, held a telephone conversation with the Permanent Secretary of Singapore's Ministry of Communications and Information on a special airline flight over Singapore on September 25.

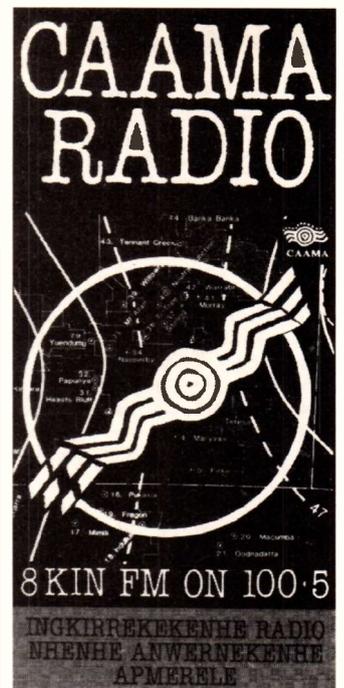
School of the Air

Some of Australia's outback children are so isolated that it is not practical for them to even think about going to school every day. To cater for these children, the various states run radio schools of the air. In my state, New South Wales, for example, there are around 1200 school age children living in isolated areas.

Until recently, school of the air radio transmissions were on frequencies in the h.f. band. This caused some problems with reception and because the system has been in operation since the sixties, equipment was beginning to be outdated and unreliable. As a result, the network is gradually being replaced with v.h.f. f.m. equipment. Each isolated property involved has been provided with a transceiver on long term loan and a radio tower and antenna to pick up and transmit signals has been built at each homestead by Department of Education technicians. Currently there are 28 radio transmission stations west of the Great Dividing Range each transmitting to a varying number of linked homesteads. For example, there are between 14 and 17 families at any one time attached to the transmission station at Korreo about 100km west of Cobar.

Aboriginal Radio & Television

Australia has its own Aboriginal radio and television and next time I will bring SWM readers details of the networks. In the meantime try listening for their a.m. transmissions on 4.835 and 4.910MHz between 2130 and 0830Z and on 2.310 and 2.325MHz between 0830



and 2130Z. Reception reports to PO Box 2924, Alice Springs, Northern Territory 0871, Australia.

Other News

In Bandscan September 1991, I talked of Australia's print handicapped radio stations. The system has now increased by one station with the opening in Perth Western Australia of 6RPH operating on 990kHz a.m.

The capital cities Sydney, Melbourne, Brisbane, Adelaide, Perth and Canberra as well as the NSW regional centres Wollongong and Newcastle currently support five television channels each with just one possible vacant slot in the u.h.f. band. A Parliamentary Inquiry has been set up to examine options for that sixth channel, one possibility according to DoTC being for televising parliamentary proceedings. That really does sound like a channel to help insomniacs to a sound night's sleep.

I've heard no more about the cry for help from the outback station hand reported in 'Bandscan' December 1991. No bodies or skeletons have turned up, at least not those that could be identified with the mystery caller. Perhaps it was all a hoax after all. The great benefit of carrying a Royal Flying Doctor Service (RFDS) radio when travelling the outback, was shown in a recent issue of a popular Australian four-wheel driving magazine. One of their writers, travelling in far western NSW, became paralysed with back pain and contacted the RFDS who were able to land nearby and fly him to hospital in Broken Hill. His message to "any of you who think they can risk travelling in the outback without a flying doctor radio - THINK AGAIN!"

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



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

Numerous letters arrive each month, most querying a certain point or other but its pleasing to receive letters with news, views or helpful advice. Take, for instance, **Cyril Willis** near Kings Lynn who is using a 1m tracking dish system. He advises that Super Channel (Eutelsat II F1) carries a satellite news page no. 270 with typically 12 pages full of satellite news and information, including 'readers' letters! The Teletext magazine is changed Tuesdays and at weekends.

Another name known in both TVDXing and satellite circles overseas is **Bindu Padaki** from Bangalore, India. Bindu has for some years been receiving the Stat T satellite transmissions at u.h.f. (714MHz) with various cross polarised and helical antennas, more recently Bindu found additional u.h.f. satellite TV signals at 754MHz. Both downlinks are from Russian satellites, the latter one time shifted, each relaying the main TSS-1 TV national channel and intended for the vast expanse of the North and North Eastern USSR for direct reception using simple Yagi antennas or for area distribution (terrestrial) via local transmitters.

I have reports of signal reception from the Stationar T craft as far west as Turkey and down into Sri Lanka. Also known as 'Ekran' (Window) the satellite orbits at 99°E transmitting into a 24MHz bandwidth channel centre 714MHz with 1 TV and 2 radio programmes. Power is up to 56dBW via 200W Klystrons feeding a 'co-phased' antenna array some 5.7 x 2.1m giving a gain of 28dB, photographs of the antenna resemble an old bedspring with helical spirals emerging. The project has been running since 1976 and provides TV for Siberia an area some 9 million square km. The u.h.f.-TV satellites have an expected operational life of 2 years - earlier craft are parked in adjacent slots 84 and 95°E, it is possible that the 754MHz transmissions could be located at 99°E (being the later craft) and the 95°E older bird is providing the 714MHz service. A great deal of mystery surrounds this satellite service, if any overseas reader can advise then please write in.

Bindu now has graduated to C Band (4GHz) using a 2.5m dish, 30K Gardner LNB, Chaparrel feed and locally manufactured receiver, with this combination many downlinks are being received including Vietnam TV via Gorizont, Oman, Saudi, NTSC Burma and several Intelsat birds.

Orbital Sightings

The USSR again hit the headlines around Christmas Day with the resignation of President Gorbachev and with this latest dramatic news so a flurry of news feeds were seen. Gorizonts' 12 and 15 (11.51GHz) at 11, 14°W respectively were, of course, very busy with Visnews/WTN feeds plus various 625-

PAL and 525-line NTSC outbound circuits to the various world's broadcasters. Even our old favourite Intelsat V F2 at 21°W was fired up with KBC/BBC feeds during Christmas Day (SISLINK were of course not in operation this day from any UK race course). January 14 produced 11°W with 'WTN Moscow Bureau' output and 14°W with 'VISNEWS MOSCOW' simultaneously.

Memories

SISLINK 2 were busy on New Years Day with a feed over 21°W out of Wincanton Race Course - brings back memories of a Wincanton Southern ITV outside broadcast rig day on Christmas Eve (1969ish) when we gathered around a monitor to watch one of the Apollo missions circle the Moon! On the 31st at 11.480GHz horizontal again on 21°W the 'Latvius' test card was carried followed with a news item showing rather tough domestic scenes of the 'new life' without Gorbachev.

SIS outside broadcast feeds are often carried over the 21°W Intelsat in the clear though due to the age and inclined orbit of the bird so signal reception is at best fair and at worse non-existent, due to the drift around its allocated slot. The signal variation can be noted over 30 minutes or so, gradually weakening and sparklies (noise) increasing. Look horizontally on 11.13, 11.17 and 11.50GHz. There will usually be colour bars with inlaid ident (eg 'SISLINK 2 WIN' for Wincanton, etc.) during system alignment and then all races throughout the afternoon - though with minimum commentary as the signal feed is intended for bookie shops via the main encrypted B MAC feed over Intelsat 27°W 11.591GHz horizontal along with other racecourse feeds that same day - that's what the dish on each bookie shop is aligned on!

After the successful launch of Eutelsat II F3, so test signals were noted in Telecom Band at 12.54GHz vertical and on various Ku band fre-

quencies from early January normally on carrier only though the 12th produced the 12.54GHz carrier with a British Aerospace logo, other enthusiasts report activity elsewhere in both Ku and other Telecom band frequencies. By the 15th many Ku downlinks were running simultaneously carrying TV material in parallel from both Eutelsats at 7 and 10°E. With the Winter Olympics but a short time away its likely that this bird will be used for sporting feeds. Another new satellite - the French Telecom 2A - has been testing at 3°E from early January with very strong Telecom band carriers - so far no picture modulation, following a successful launch mid December, again it will carry Olympic sports during early '92. Odd to relate that on December 13 here I logged very strong carriers at Ku band 11.00GHz and Telecom 12.52GHz at 1°W which defy an answer.

New Turkish Channel

What was identified clearly over Eutelsat II F2 10°E at 11.58GHz carried the test pattern 'Teleon Test' followed with various pop videos and other programming from early January - yet another new Turkish channel, but at the time of writing the colour bars with identification '144' 11.58GHz vertical still has not been identified, noted here first on Christmas Eve.

One other new change was the move of the 'Nordic' channel from Intelsat VA F12 1°W to the Scandinavian bird TELE X at 5°E (12.47GHz Left Hand circular) and now carries the corner logo 'TV5 NORDIC'. There seems to be an Italian equivalent of 'This is your Life' including live TES (transportable earth station) inputs into RAI network TV usually from numerous Italian homes, this event seems to happen on weekend evenings resulting in clusters of family sat on large settees for hours watching an out of shot monitor. If you have a satellite system capable of monitoring Eutelsat II F2 10°E you will surely know what I am discussing!

News

The Eutelsat news releases, of course, speak of the successful launch and employment of their new baby - Eutelsat II F3 at 16°E, but information was provided on their Winter Olympics coverage February 8-23. France Telecom has taken responsibility for all video/audio circuits around the various sites both via microwave link and fibre optic cable. There will be 25 TES (transportable earth stations) with dishes between 1.2-3.7 scattered over the 12 sports sites, transmitting to the main International TV and Radio Centre (CIRTV) at Moutiers, which in turn will distribute 'to the World' via the EBU dedicated leased Eutelsat transponders plus any additional facility when required.

Agreement

After much discussion an agreement has been reached over future satellite transmission standards across Europe - as from 1 January 1995 any new satellite channel must transmit in D2MAC and thence to review the situation thereafter for 3 years. Manufacturers Philips and Thomson had been pushing for a compulsory standard prior to this date (one must think motivated by business reasons) - though it may encourage satellite operators to establish new channels prior to this date and to avoid their viewers the expense of buying new equipment. The 1 Jan '95 notification will give both manufacturers and programme makers a non-pressurised guideline for HDTV research and production.

Extended Experiment

The New Zealand experimental period of TV transmission in Fiji - satellite linked just to cover the Rugby World Cup - has now been extended for a further 3 months and with the possibility that Fiji could have a permanent TV service subject to the OK from the local government. And Bahrain now is taking the 24 hour feed from the BBC World Service Television as from the start of '92 - the service ex Bahrain will also reach Kuwait and neighbouring countries.



The 'Middle East Broadcasting' test card seen over Eutelsat II F1 at 13° East, 11.554GHz, hor.

amateur bands round-up

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

Let's start with a couple of cries for help. R. Hastie has a Yaesu FR50B receiver for which he needs service data, particularly a layout of the coils, trimmers, etc., so that he can carry out a needed realignment. Please drop a line to: R. Hastie, 12 Woodland Park, Tedburn St Mary, Exeter, Devon EX6 6AE.

Matt Spencer picked up a National Panasonic RF-5000 for £4 at a car boot sale, together with a pair of 'cans' for 20p, and after mating these to about ten metres of wire found in the loft, came back to the bands after some twenty-plus years of inactivity. Can anyone help? The address is: Matt Spencer, 5 Dunraven Avenue, Salfords, Redhill, Surrey RH1 5JW.

Turning to Matt's list, 3.5MHz telephony produced AD1G, EA7AL, EA7CTL, FG5FC (QSL via F6DZU), FM5DN, VY2TD, XA1FG, 5B4XA, KC1KQ, KC1XX, K2FV, K3ZO, K4HJJ, K7EG, NA4L, WA1EKV, W10DY, W1ZK, W2FOE, W2HCW & W9ZR. 7MHz gave FE6FAI & PR7SM. 14MHz was used for TA7A, 4X4WH, KK1K, K2Z, NM4H & W2DSE, while AA50Q & LY1BD were noted on 21MHz. A scan over 24MHz showed CE3GEI, FM5EP, HK5JPS, JE2URF, PT7VB, SV5AZR, TK5BF, U5WF, U18DX, VE3FIN, VE3NYX, VE3PVO, VO1NE, VK8HN, XN1YX, 4X4FR, 7X2BK, 7X2DG, 7Z1RS, 9H1NB & all the W call areas. Finally, 28MHz: A71CH, CU2DG, EA8BYQ, EA9TL, FY4FT, FY5FJ, HL5FRG, JA3DPB, JA6WFM, JA6ZUT, JA8D50, JH2TIP, JT1BS, JX9EHA (Jan Mayen), OD5SK, OD5QX, P43LJP, PT7WA, PY1FC, RD850DWW, TA3F (QSL via DL5YQC), U18GDE, VE3GRE, VE3ICR, VE1XW, VK6HE, VK6UZ, ZR2BK, 4N7ZZ, 4U1UN, 4X6UK, 4X6YQ, 7X2DS, 9K2TC, 9K2ZZ & all W call areas. ST0, heard from Split in Croatia and giving a PO Box number for donations was probably a pirate to judge by the use of a Sudanese prefix.

Next Brian Lucas, from the training school, mentions an interesting sequence, in which a two-ring beam was built to a suggestion from G7HHA in Wellingborough, so it was doubly interesting to try it out and work G7HHA from the classroom at 150km. Other v.h.f. signals noted included G7JAG, G6NWP, G3GXP, PA0BOE, DD9EN, ON4PS, GX0PUV/P, GW7KDU, GM0LVI by Aurora, G8XVJ likewise, DC6EA/P, GB4CIN (Children in Need, at Matlock), G8KMI, GW7KTP, EI3GE, GW6JNE, GW0HOL, G6ZTU, plus the beacon HB9HB heard at 59+ on December 4 & 5.

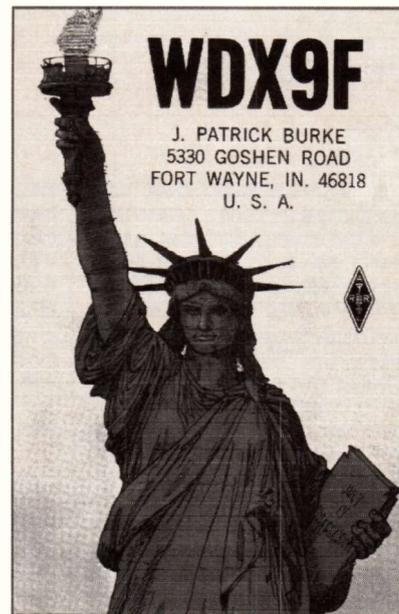
Dennis Sheppard (Earl Shilton) has now obtained an RA17 receiver, which he reckons is the most sensitive he has ever used. Top Band, WB2CLN, WB1EKO, K3LGC, W3GH, W1JO, WA3EUL, N4CQC, AA4MM, N2NZH, KA8YGL, N2KMF, RV9CDE, RV9CHI, UA9XEO, UA9LCH, T77C, RA9SFL, W2JB, A92BE, KA1H0V, KB3AF, N2KA,

WB3AVN, WA0ZHH, K3ZO, KF4YH & T14CF. On 3.5MHz the pickings included ZL1CCR, ZL2JR, ZL1TU, ZL4KF, ZL2BCG, YV5MMR, PZ1EL, PY7JTA, XE1VIC, JA6XMM, JA5EUC, JA7OEM, JA1JRK, JA1WTTZ, YS1RRD, 7X2DG, 7X2BK, 4U1UN, T14CF, C6A/G4AML, A61AC & A45ZZ. On 7MHz the coverage was CO5JE, HK3QWB, YV3DGE, PY4NY, HK3RIO, ZL2SN, ZL2APW, T12LL, LU7LAQ, VE7SZ, HJ4RSW, UYA0RR, VK4FWH & JF11ST. A short list on 14MHz included VK2LX, ZL1HS, 5N8LRG, VK3QX, TT8SA, A41JR, VK4FO, YB6HJE & VK6RI, before a QSY to 21MHz for such as XE2CRN, KP4GN, JH8CQN, HL4KZW, JA1USO, GW3CCY/5N0, JS1NDM, 8P9EM, ZL1DLR, BV2BT, ZL2BOS, 9K2IC & HL2MAV. On 28MHz we find 5N0RJM, VS6CT, VS6VO, VS6GA, RU9H/UA00GS, VK60E, ZS5JR, J68AG, C6ABC, BZ4SAA, BV2FA, JH4UHW, VU2DIG, VK5AFO, VK3ERR, JH1ZA, YZ6VV (Mali Rep), J69BB, 3X0HNU, 7Q7LA, A71CH, YV6CAX, UA0WG, J73VE, AP2MYC, JA3KVT, LU5EWO, V31RA, 4J4GK, B35MU, JT1BS, HC5EG, PY5VV, T77C, TA5C, 8P9EM, FG5FC, A61AC, JT1BG, V2/JH1ROJ, 9N1MM, 9X5SW, A92BE, 7Z1AB, EP/HA5BUS, 3B8AD & OD5CX.

Another to cover the whole h.f. range is Gerald Bramwell of Manchester. Gerald looked on Top Band for UA1AU, UB5KAX, UA3YCC, ES2ADC, UB4ULO, F6DMQ, Y22WH, EA5DFK, FD1LGV, GM30XU & the usual crop of G stations - but nary a one GW!! on 3.5MHz we find VE1KC, X01FG, VO1VE, VE2AFJ, VE2RP, shoals of East Cost Ws, UF6FXC TA1AD, 3A2LU, OY9JD, 4N7ZZ, EC3CVD, SV1ACK, 4U11TU, 4N3AA, JA6XMM, A92BE, 9Q5TE, OX3MC, 5V7DP, TA2AV, TA3W, VS6VO, EA8TH, 4Z4DX, VK6LK, JA6BJT & loads of Europeans. Turning to 7MHz we find a dearth of Ws, two VEs plus lots of Europeans, S. Americans, JAs, EA88BXQ, JY5EC/OD5, 7X2DG, HL11UA, ZS1RD, TAs, 4Xs, and soon - obviously something causing the antenna to favour the S round to E direction. By contrast, on 14MHz we see shoals of N. Americans, 9H1EU, TL8IM, 4Xs, YV5AAX, VKs, S92LB, JAs, OY4AH, JT5AA, a shoal of S Americans, and of course the smaller fry. 18MHz gave some Ws, VK7KO & the odd European and Russian. 24MHz shows X01MG, Ws assorted, YBs and TL8CK plus the Europeans and U stations. Here we have had to prune the 21 and 28MHz list somewhat.

Pat Parmentier hails from Kortrijk in ON-land, and is an all-c.w. dab. Pat gave 3.5MHz a bashing, by way of 9M8DX, ZB2X, J6DX, PJ9A, C56/G3SXW, VU2PTT, JAs, 4K2MAL, VS6/AG9A, JJ1VKL/4S7, WE7K, W1, W2, W3, 6W6JX, U180AE, YA0RR, JW0D, VP5/SM3ILG, J37ZF, VK3MR, OX3MC, EP/HA5BUS, 4U1UN, A61AC, JA1CGM by long path, ZL4IE, ZL1ATZ, UC1ZC/JW, HI8A, 3A/FD1MOC, VK1FG, VQ9SS,

QSL card from WDX9F.



VK6HD, 5U7M, ZL3GQ, HK7DSZ & J79DX. 7MHz showed 4X1NM, BY1PK, KH0AM, VS6/AG9A, W6-7, HL2IVL, YA0RR, EP/HA5BUS, A61AC, HSOAC, JAs assorted, 7P8EN & S7BA. As for 14MHz c.w. we observe V85HG, 9M6NA, KH0AM, KH6SP/P, A4XA, EP/HA5BUS & 9K2TK, while 10MHz yielded 9M8DX, OK11AI/YA, 8P9HT, C56/OH2BPPW, TU4XM, J6BAD, OY2H, V02GUY, UW1ZC/JW, OD5/LA4GHA, ZS0Z, KL7U, 3C1EA, A61AC, S7BA, 3DA0BK, FP/VE1KM, VP5/WA2IMP, 4K1ADQ & 7P8EN. On 28MHz the takings included HC5M, KP2/OH6ZS, 8R1K, ZP0Y, 9N1MM, PZ1DY, ZS0Z, EP/HA5BUS, V2/JH1ROJ, on 24MHz 5V7AK, J37MB, WN4KKN/ZP5, 8P9HT, JT1CO, TU4IM, J5AUA, VK1FT, 4U1UN, YA0RR, ZS0Z, JAs, ZD8OK, V02GU, A61AC, 3D2QB, J79DX, 8P9EM, 3B8FG, FP/VE1KM, 3X0HNU, 7P8EN, UW1ZC/JW. Finally, 21MHz for P4/N7NG, ZS0Z, EP/HA5BUS & A61AC.

Simon Griggs lives in Chelmsford, and makes a first report with an AR88LF and 16m of wire in inverted-vee configuration. The RAE was passed as long ago as 1984, but as Simon says, at 24 he has time yet! 14MHz s.s.b. gave Simon 9K2LX, ZA1HA, YV5DPO, TG9AXB, YS1ECB, 9H1FBS, ZL1AW, ZL3BT & VK2RT, plus c.w. from SV1LV; Turning to Top Band c.w. we find ON4ACG, ON4UN, SM6CPY, F6AKU, OK1DWJ, and DL1NF. OH0NA and JA1CXC were picked out on 21MHz and a foray on 28MHz came up with VS6CT.

Ted Trowell in Minster, Sheppey, wonders just what the 'thing', radiating the letter A covering 1843-1903 kHz on the hour for about five minutes. Sometimes it is T9, but usually just a raw buzz, which covers all the ON Top Band frequencies. Any suggestions?

On now to John Heys in Guestling who sticks to Top Band and c.w. John logged N1TZ, K1ZM, AA1K, K2GAL, K2WK, W3GHW, WA3EUL, W4WH, N4AR, AB4RU, W4DR, WD8LEU, T12CF, UA1TGI, UA3YCC, UA3YFL, UC1AWC, UC2RZ, UB7VA, UA9TT & UA9ATU. Other DX squeezed into the log included on 7MHz c.w. U18LB, UA9XKU,

VK3MR, VK8AV, YA0RR, while 21MHz 'came good' with YB0UGJ & FR5GG.

An R-1000, a longwire and an a.t.u. comprise the equipment of Peter Cain in Newcastle-on-Tyne, who notes his confirmed countries score now runs at 292 on sideband. 14MHz was used for AL7HX, AP2JZB, A61AC, CN8GM, CX7BC, DU1EIB, FJ5BL, F04DL, FR5FI, HSOZAP, JY3ZH, JY5IN, J88AQ, KH6BZF, KH6HAP, KH6WU, KL7GU, KL7TC, KL7XD, KP4DL, LU8EAC/D2, NL7HH, OX3KM, OY3QN, SU1ER, VU2DIG, YK1AO, ZS9S, Z2ZJE, 3B8FA, 5N9BHA, 7Q7LA, 9J2GA, 9K2HF, 9L1TH, 9X5SW. The 7MHz list mentions HC1XM, HK6ISX, HL1AHS, V51E, ZL4BO, ZS6AY & 9K2HA; the 18MHz list is shorter still at OY6FRA, VK7KO & 3B9FR. 21MHz compensated though, by way of A43XA, A92EV, BV4AS, BY4RSA, BZ4RBX, CO2WR, CX7BC, HC2HVE, HC5EA, HH2RT, HI3AMF, HL1EIZ, HL5FRG, HL0Y, JT1BG, J88AQ, KH0/JP1EUU, NP4ZC, OX3KM, PJ2HB, PZ1BK, TU2JL, VP2EY, VP2MLD, VU2QQ, VU2XX, XX9AS, YK1AO, ZF2AG, ZP5YW, 6W1EX, 8P9FF, 8R1UN, 9K2CS, 9X5SW & 9Y4RS. As for the 28MHz stuff this included AP2NK, AP5HQ, A45IJ, A61AC, A71CH, BV4VB, BY5RT, BZ4RBD, CM2OJ, CN8EC, CP6RW, FG5FC, FM5DN, FY5FJ, HC60JB, HI8A, HK3JUH, HK6ISX, HK0NZY, HR1RMG, H5AW, KP2A, KP4BZ, OD5RZ, OX3KM, OY9JD, PY0FF, PZ1EL, P43DO, P40V, TG9GI, T12TEB, T14CF, TR8GL, TT8SA, TU2GI, TZ6VV, VP5JM, VS6GA, VS6WO, VU2DIG, VU2SMN, XX9AS, XX9AW, ZA1TAH, ZF2RC, ZP5AJP, ZP5HSB, ZP6AR, ZS0Z, 4S8EF, 5U7M, 7Q7LA, 7X2BK, 8R1JV, 9K2GS, 9K2TC, 9J2FR & 9N1MM for a very nice crop.

Finale

That's the lot for this time. Deadline for the next few issues are: April 7, May 6, June 5, for arrival here. The address, as always is at the top of the column. If you have any queries, please enclose an s.a.e. if you want a direct reply; and please don't expect a 24 hour turnaround, although to be sure I try to be as quick as possible!



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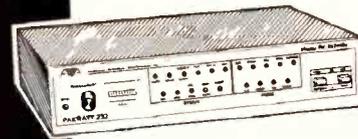
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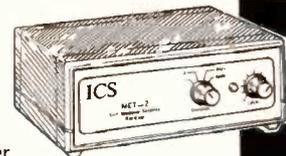
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Ron Ham, Faraday, Greyfriars, Storrington,
West Sussex RH20 4HE

A typical example of the smeary and usually difficult to identify images received via openings in the 'F2' region of the ionosphere is shown in a picture, **Fig. 1**, received by **Lt. Col. Rana Roy** (Meerut, India), on Ch. E3 (55.25MHz) on September 28. It often requires great patience watching for the prevailing conditions to vary so that the signal can offer a reliable clue as to its source. While such an opening was in progress early on December 13, **Simon Hamer** (New Radnor) identified Star Television from Australia on Ch. A0 (46.172MHz) and pictures from New Zealand on NZ1 (45.250MHz) and Malaysia and Thailand on Ch.E2 (48.25MHz).

These disturbances always create an interest and **Richard Gosnell** (Swindon) has set specific TV sound channels in Bands I and III on his MX7000 scanner, fed by an external discone antenna, to study such propagation. Richard reports that the m.u.f. (maximum usable frequency) was 37MHz at 0945 on December 14, 42MHz throughout the morning of the 25th and, on the 26th, it was 36MHz at 0800, 39MHz at 0845 and 42MHz at 1300. Later he heard stations from the USA, around 34MHz, till about 1700.

Band I (Sporadic-E)

"In the past couple of months I have logged TVE, SVT, RAI, JRT and BRT," wrote **Russ Burke** (Northampton) on December 23. **John Woodcock** (Basingstoke) heard utility stations from the USA at the lower end of Band I on the 9th & 10th. **Bob Brooks** (Great Sutton) logged programmes, via short periods of Sporadic-E, from Denmark (DR Danmark) late on December 4, Denmark and Spain (TVE, an orches-

tra) on the 14th, Italy (RAI, football) and Spain (cartoon) on the 15th and Denmark and Russia (TSS) on the 16th & 17th respectively. Bob saw pictures from Italy and/or Spain again on January 3 & 4 and Iceland (RUV Island) on the 5th. He also caught the CST (Czechoslovakia) logo and their news for the hard of hearing at 1530 on the 4th.

Meteor Scatter

Simon Hamer received 'pings' of pictures, via meteor trail reflection, from stations in Norway at 1830 on December 14, Italy at 0800 on the 15th and unidentified programmes on Chs. R1 (49.75MHz) & R2 (59.25MHz) at 0730 on the 19th. He had similar results during the Quadrantids meteor shower at 1920 on January 3 but, wrote Simon, "its not often that we get Sporadic-E and meteor scatter at the same time".

While this was all going on he logged pictures from Austria (ORF1), Czechoslovakia (CST1), France (TDF), Germany (ARD), Hungary (MTV1), Romania (TVR1) and Switzerland (+PTT/SRG1) on their various channels in Band I around 1900 on the 4th. He remarked that there were unidentified signal 'pings' interfering with Sporadic-E' throughout the band. Simon witnessed one of those rarer cases when one mode of propagation, especially in mid-winter, spoilt the observation of another.

Despite this he did recognise *All Creatures Great and Small* being transmitted from Austria on Ch. E2A (49.75MHz), *Taggeschau* (news) from Germany on Chs. E2 (48.25MHz), E3 (55.25MHz) & E4 (62.25MHz) and a lottery from Switzerland on Chs. E2 & E3.

Picture Archives

P.R. Guruprasad kindly sent a photograph of a weather report that he received in colour from SABC TV1, **Fig. 2**, last May while he was in Botswana. Bob Brooks dug into his archives and sent photographs of theidents that he received from Finland, **Fig. 3**, and Spain, **Fig. 4**, back in 1983, the logos that he logged from Germany, **Fig. 5**, in 1986 and one of their world news programmes, **Fig. 6**, in 1990. Rana Roy shows the strength of the signal he was getting from Lahore TV, **Fig. 7**, in Band III on Ch. E5, during a tropo-opening at 0745 on September 18.

Weather

In the early 1960s, **John Edwards** (Edinburgh) remembers seeing a barograph installed in a box on a wall outside the Harbour Master's house in the fishing village of St. Abbs. Like many others, John checked its readings every morning while he was there. On this subject **Steve Mildoon** (Willenhall), having recently added a barometer to his DXTV station, is among those readers who would like to know more about the association between pressure readings and openings on Bands III, IV & V. Briefly Steve, this is a frequency range of 175 to 820MHz where the transmitted signals travel through the troposphere and, of course, are subject to any disturbance within that medium. The troposphere being the home of the earth's weather.

You may wish to compare your records with the slightly rounded atmospheric pressure readings for the period November 26 to December 25,

Fig. 13, which were taken at noon and midnight from the barograph installed at my home in Sussex. December was generally dry in my area with only 0.91in of rain being recorded between the 15th and 20th inclusive, compared to the 3.85in logged in November. I recorded 13 frosts during the month, the worst being on the 14th when the overnight temperature fell to 16°F and the freezing fog showed some amazing sights as the sun came up. For instance, this can be seen on the cobwebs around my domestic TV antenna, **Fig. 8**, and the plants around my very frozen rain gauge, **Fig. 9**.

David Glenday (Arbroath) reports, "strong winds - some hurricane force at times over Scotland" at the end of December and in early January. **Peter de Jong** (Leiden, Holland) tells me that, "on the afternoon of December 21, TV5 (Eutelsat II F1, France) suffered an uplink fade-out during heavy snow," and explained that, "these uplink fade-outs only occur when the WX is abnormally bad". Peter has a 850mm 'dish' antenna mounted indoors behind a south facing window, a pre-amplifier and a DSH WX1700 converter to receive pictures from Meteosat, **Fig. 10**. While checking Eutelsat on Christmas Day, he logged 'seasons greetings' from British Aerospace Communications, **Fig. 11** and **BT., Fig. 12**.

Tropospheric Openings

John Woodcock received weak pictures from France, in Band III, on Ch. L5 during the afternoons of December 3, 5 & 9. Simon Hamer logged pictures from Denmark (DR), Germany (ARD1), Norway (NRK), Poland (TVP) and Sweden (SVT1) on many channels in Band



Fig. 1.



Fig. 2: S. Africa.

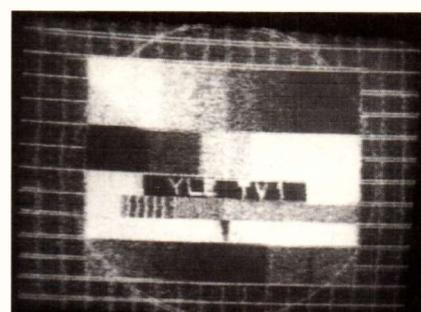


Fig. 3: Finland.



Fig. 4: Spain.



Fig. 5: Germany.

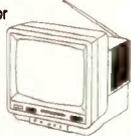


Fig. 6: Germany.

AERIAL TECHNIQUES

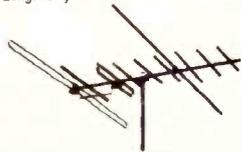
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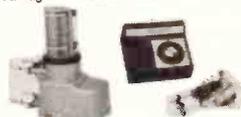


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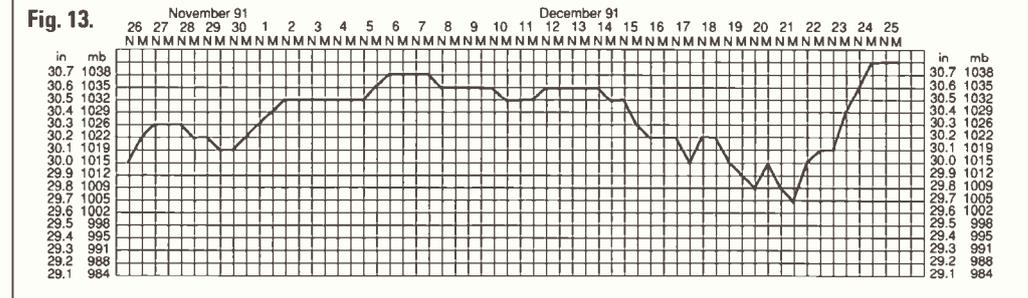
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III on the 7th, 8th & 9th and from Denmark (TV2), Germany (ARD, NDR3, Hessen 3, West 3 & ZDF), Poland (TVP) and Sweden (SVT2) in the u.h.f. band during the same period. He did well again on the 14th with Austria (ORF1), Czechoslovakia (CST1), Germany & Switzerland (+PTT/SRG1, +PTT/SSR1 & +PTT/TS1) on their respective spots in the v.h.f. and u.h.f. bands. While the troposphere was influencing both bands again on the 27th, he saw pictures from Belgium, Eire, France, Holland & Spain (RTVE1 & 2).

At noon on December 23, the pressure was low around 30.0in (1015mb) and falling, then at 1500 a rapid rise began and by midnight on the 24th the barograph was reading 30.7in (1040mb). However, not surprisingly, there was a tropospheric opening during the morning of the 25th when, at 0905, I saw a test-card from Ireland's RTE1, on Ch. 1H (207.25MHz), in Band III, followed by a carol service. While checking this band, Richard Gosnell received television sound, at varying strengths, from France on December 3-5, 25 & 26 and Ireland on days 4, 7-9, 25 & 26. David Glenday found the December tropo-openings, rather disappointing. For the benefit of new readers, I had better explain what he means, the events were patchy and there was not the usual 'punch' in the signals. David explains, "despite the promising weather maps, good strong signals refused to arrive. I've found this often happens with areas of very high pressure when DX is received as the pressure rises, it often fails to



continue when the pressure falls".

Regardless of this, during the first half of the month, he identified pictures in Band III from stations in Germany (HR1) on the 3rd & 4th, Holland (NED1) on the 4th and Denmark (DR) and Norway (NRK) on the 6th. He did better in the u.h.f. band with a variety of programmes and idents from Germany (ARD, HR3 & ZDF) and Holland (NED2 & 3) on the 2nd, Belgium (RTBF-TELE21), Eire (RTE1), England (Emley Moor) and Germany (HR3, WDR1 & ZDF) on the 3rd, England (Sandy Heath), Germany (HR3 & ZDF), Holland (NED2 & 3) on the 4th, Denmark (TV2), Germany (ZDF) and Holland (NED3) on the 6th, Denmark (TV2) on the 7th, Belgium (BRT1), Germany and Holland on the 9th, Belgium (BRT1 & 2), England (Tacolneston) and Holland (NED1, 2 & 3) on the 10th and Holland again on the 11th.

Andrew Jackson's (Birkenhead) tropo haul comprised pictures in Bands III and/or IV & V from stations in Belgium (BRT1 and RTBF1), France (Ca-

nal+) and Germany (RTL+, WDR1 & ZDF) on December 2, Belgium (BRT1), France (A2 & Canal+), Germany (HR3, RTL+, SW3 & ZDF) and Switzerland (TS1) on the 3rd, Ireland (RTE1 & 2) and Germany (ARD1 & ZDF) on the 4th, Ireland on the 6th, France (A2, Canal+, FR3 & TF1), Holland (PTT/NED3) and Ireland on the 9th, Belgium (BRT1 & 2), France (A2 & Canal+) and Holland (NED3) on the 10th and Belgium (BRT1 and RTBF1), France (A2, Canal+ & FR3) and Holland (NED3) on the 14th. Andrew has installed a NV148 video inverter and has ordered a D100 converter for his station.

The pressure was rising rapidly during the evening of January 10, the temperature was low, the sky clear and a widespread frost was expected, but, there was a change. Clouds built up overnight, as did a tropo-opening and between 0800 and 1200, I received strong pictures from two German stations in Band III and watched their *Heute* (Today) programme around 0810.

SSTV

James Bence (Hamilton) is equipped for slow-scan television reception with a Trio 600 receiver, 48K Spectrum computer with G1FTU software and an Alphacom 32 printer for hard copy. James plans to add a Star LC10 printer for this work.

Among the signals copied in December, around 14.230MHz, by **John Scott** (Glasgow) were idents from Germany, **Fig. 14** and **15** and a couple of amusing, but unidentified, captions, **Figs 16** and **17** transmitted while communications were in progress. John now has a Realistic scanner, with a discone antenna, tuned to 144.500MHz, hoping for SSTV signals in this v.h.f. band. David Glenday has added a Lowe HF-225 communications receiver and Technical Software's RX8 program to his DXTV station in order to probe the slow-scan world around 14.230MHz.



Fig.7: Lahore.

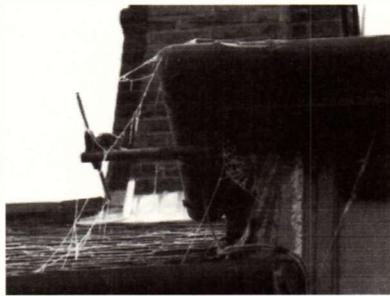


Fig. 8.

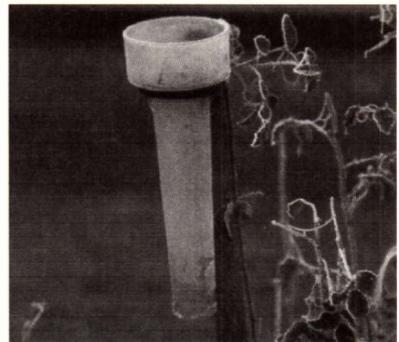


Fig. 9.

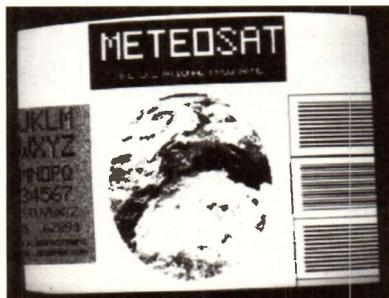


Fig.10: Meteosat.



Fig. 11: BAE Communications.



Fig. 12: BT.

airband

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Those of you who live, or travel, in the Heathrow and Gatwick areas might like to listen to Airport Information Radio (1.584MHz). This local service is intended to provide flight delay, road travel and weather news plus other general information on airport facilities. At the time of writing, the service has been reduced pending re-equipping of the studio and future improvements. In the meantime, **Bill Cody** (Senior Compiler, Airport Information Radio, c/o Radio Mercury, PO Box 1, Crawley, West Sussex, RH11 9TT) would very much like comments on how listeners wish to see the service develop. This could be a really useful facility for readers who find themselves in the coverage area; here's your chance to have a say in what's provided.

Your Experiences

An important function of this column is to help readers to understand observations they have made. From his house in Huddersfield, **Chris Haigh RS94162** has a view of B1, B4 and the approach/departure route to the east of Manchester. The boundary between lower and upper airspace is FL245. Chris was surprised by a B.747 apparently executing a holding pattern in this area. The triangular pattern he saw could be a racetrack distorted by high-altitude winds. A triangle is also officially the pattern to fly when trying to draw attention to a radio failure but this is almost forgotten about in these days of secondary surveillance radar transponders that can transmit an emergency code. Whatever the explanation, I'm sure the relevant controller could see the flight on radar and was almost certainly instructing it to exhibit this apparently bizarre behaviour.

Chris' other question is just a 'quickie'! The callsign 'Quick' belongs to Quick Airways, a Dutch third-level operator flying Piper Navajos.

The Berry Head v.o.r. looks similar to the picture in the October issue and **Jeff Hellawell** (Huddersfield) found that there was no barrier to stop him getting a close-up view when he was down in south Devon. For the record: BHD 112.7MHz with co-located d.m.e. on channel 74 and n.d.b. on 318kHz; N50C23.9° W003C29.6°.

Follow-Ups

I never did like abbreviations. For v.m.c. (visual meteorological conditions) for instance, many pilots insist on substituting 'victor mike charlie'. Phonetics taken to extremes. So, in January I answered Steve Foster with the most common expansions of the abbreviations o.a.t. and g.a.t. Well, **Steve Patrick** (Wisbech) and **Rob de Savigny-Bower** (Ruislip) have both tripped me up by supplying the alternative meanings! First, g.a.t. is general

air traffic, including all civil flights and any military ones operating according to civil air traffic control rules, and o.a.t. is then operational air traffic, a designation only available to military flights controlled by military air traffic controllers. To go back to the subject of confusing abbreviations, v.m.c. will be replaced by 'specified minimum weather provisions' under the new airspace classifications (December). Anyone for 'sierra mike whiskey papa'?

Good news for Hovercraft enthusiasts. The SRN-4s, like the one illustrated in December, will continue their cross-Channel service when the new catamarans require relief. **Peter Mugridge** (Epsom) is following the last days of these machines with interest.

When she opened the December issue (on her birthday) **Mrs. B.** (LoM) found the report of her ETOPS flight. The contraction stands for extended-range twin-engined operations and is currently the subject of debate in the pilot community. Just how far from an airfield would you like to be when out over the Atlantic with an engine failure? Also, not all 'big twins' are the same. Only some have the extra systems fitted that permit ETOPS flying. There's more than just thrust at stake; engines drive hydraulics, run generators and pressurise air. Standby generators or hydraulic pumps help. The B.767, for instance, has a drop-out power pack that hangs in the slip-stream and is turned by a propeller. The new winter Manchester/Orlando service, Britannia BY452A/B, passes over Mrs. B's house.

Medevac!

Prompted by the photo of G-HEMS (December) **Jon Middleton** (Rye) reports on the emergency helicopters seen down his way. 'MS itself all too often has cause to visit the Royal East Sussex Hospital at Hastings. Sussex Police's 'Hotel 900' G-PASX is a Shoreham-based MBB 105 (a type often used by the Police Air Service, note the registration -PAS) can carry a paramedic.

These staff aren't fully qualified doctors, but they have been specially trained in emergency procedures and can perform life-saving measures beyond the scope of ordinary first aid (such as putting up drips to replace blood loss, placing tubes in the windpipe to ease obstructed breathing, and giving an electric shock to restore the rhythm of the heart).

The MBB 105's capacity is one casualty, loaded via a rear door. The Kent Air Ambulance is a purpose-equipped Squirrel ('Kilo Alpha', G-NAAS) with a side door. Apart from police frequencies, the service's base Kentam Ops works on 132.65MHz and is at Rochester.

The military also participate with Sea King 'Rescue 166' from Manston,



Boeing 737-377 VH-CZM (24302) of Ansett Australia at 'The Alice'.

Photo: Christine Mlynec.

which often works on marine Channel 0 (156.0MHz f.m.).

Another unusual airborne service is traffic-jam reporting for local radio. Capital Radio's 'Flying Eye' is Piper Seneca G-FLYI operating out of Elstree (122.4) and often needing to work Heathrow's Special v.f.r. (119.9MHz). Presumably fixed-wing is more popular than helicopters owing to lower operating costs. I don't know the talk-back frequency for the actual traffic report, and I recommend **Dave Fairhurst** (Enfield) to contact Capital direct for more information on this.

Frequency and Operational News

First, *GASIL* of 12/91 with thanks to the CAA. Beverley (Linley Radio) is a newly licensed aerodrome at Linley Hill whose Air/Ground service is actually on 123.050MHz (not as stated last month). Eaglescott Air/Ground has a new frequency of 123.0 and Montgomeryshire Air/Ground (Welshpool Radio) of 123.25MHz. Compton Abbas has a new terminal (low power) n.d.b. (COM, 349.5kHz).

A/C 121/1991 introduces Cat II i.l.s. on runway 06 at Manchester. As a reminder, Category I is weather clear enough for all i.l.s.-equipped aircraft to land; an instrument approach terminates at the decision height and a manual landing is made. Cat II is more demanding; with a decision height down to 100ft and visibility no worse than 400m, only suitably equipped aircraft flown by trained crew can complete the landing. Cat III is only possible when the aircraft is fitted for fully automatic landings.

Further to the 134.275MHz Shannon frequency (January), **Ron Bishop** (Co. Antrim) explains that this is the authority for the Shannon Oceanic Transition Area, a section of airspace adjoining Brest FIR and covering the approach to the Channel. Improved secondary radar at Mount Gabriel now enables radar rather than procedural control of this sector.

Company ops frequencies now

from **Paul Hilton** (Newbury). Viva (see January) are handled by Servisair (130.075); Virgin is on (131.425); Delta and United send h.f. traffic via Stockholm (8.930 and 11.345) all MHz. Paul reminds us of the following 'tricky' callsigns: Rosenbalm = 'Rosie'; GB Airways = 'Gibair'; Airtours = 'Kestrel' and Air 2000 = 'Jetset'.

One that won't be heard any more: 'Clipper' was the callsign of the now defunct Pan Am. **Colin Frowen** (Burgess Hill) justifiably thinks this to be sad. He also supplies 135.575, a new LATCC frequency, and 130.925MHz, the new Gatwick departure frequency.

At Bexhill-on-Sea, **Richard Bird** is still trying to find out how Dan Air flights identify themselves on hand-over to continental controllers. None of the logical explanations have been of any help yet! Sometimes when I've visited air traffic control units, my presence has prompted the controllers to show off their knowledge of greetings in the native tongues of foreign airlines. Imagine how a pilot flying over Holland would sound when saying 'Goede dag' in a poor accent.

Rival helicopter operators, Bond and Bristow, share North Denes. A new frequency of 123.4MHz may have replaced the original of 120.45MHz at the Tower, according to **Chris Coates** (North Walsham). If this is so, pilots shouldn't use it for unofficial air-to-air talk-back! (123.45 is another favourite but is also actually allocated somewhere). Bristow's company ops are on 123.625MHz.

A thought for next time. I often throw in technical jargon - like Cat III or decision height - with no demur from readers. I do know (from talking to some of you when we've met) that there are many beginners to the hobby out there. If I come up with something you don't understand, why not write and tell me? An explanation could then appear in a future issue.

CONTINUED ON PAGE 55 ➔

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

Several new items of interest from AOR this month. By now I guess you will have seen advertisements for the AR1500 hand-held, but for those of you who haven't I will include brief details. In many respects, the new receiver is similar to the AR2000, except that it is in a much slimmer case, only 55mm wide, 43mm deep and 155mm long, which makes it only slightly larger than an Icom IC-R1. The other main selling feature is the inclusion of a b.f.o. circuit. This permits reception of s.s.b. signals that can be resolved by tuning the b.f.o. control in-between 5kHz receiver tuning steps. Operation of the receiver is very similar to that of the AR2000 with 1000 memories available in 10 banks of 10, each one capable of storing the frequency and mode. The frequency coverage is also the same as the AR2000 with a lower limit of 500kHz and an upper limit of 1.3GHz.

The next item is a revised version of an existing model. The AR3000A incorporates several suggestions made by AR3000 owners, and resolves any minor criticisms that may have been made of the original model. Physically, the new receiver looks very similar, but major changes have been made to the software operating system and one or two minor 'tweaks' have been made to the p.l.i. circuitry. The end result is that the search and scan rate has now been increased to 50 increments per second. The revised software also provides lockout facilities for up to 100 individual frequencies in each of the four search bands as well as new programmable hold and pause facilities. In addition, it is now possible to perform a microprocessor 'reset' from the front panel, which is a quick means of erasing all the memory contents should it be required.

The l.c.d. front panel display has been modified in order to provide a better viewing angle, the tuning knob is now free running and two buttons permit selection of 5 and 10 times the nominal tuning rate. The RS232 port now has a rear panel selector switch and only outputs data like signal strength readings on request. This should please anyone who has attempted to use an existing 3000 under computer control.

A new PC based control program is also under development and should be available soon. This is designed to operate with either the AR3000, 300A or 2500 and will permit uploading and downloading of memory contents, automatic signal logging, several thousand memory channels and a listeners logbook which makes computer control worthwhile.

Further details are available from AOR (UK) Ltd, Room 2, Adam Bede High Tech Centre, Derby road, Wirksworth, Derbys DE4 4BG or phone (0629) 825926.

AR3000 Reset

One or two readers have experienced problems with early versions of the AR3000 'locking up' under certain conditions, usually when entering lockout frequencies or setting the alarm time. When this occurs it is not possible to do anything with the receiver other than open it up and press the internal reset button. This cures the problem, but only at the expense of losing all the memory contents. Later models have a revised microprocessor that is much less susceptible to such problems, and replacing an early version may be a solution if your receiver 'locks up' on a regular basis.

One simple modification I have made to my AR3000 is the provision for an external reset. The existing internal reset button connects a signal line down to 0V when it is pressed. All that is required for an external reset is an additional wire between the non-earthly end of the reset switch (the end away from the chassis), and the unused centre pin of the rear panel DIN socket. To perform a reset all you then need to do is to momentarily short the centre pin of the socket to the chassis. If you are really keen you can fit a miniature push button switch inside a DIN plug for this purpose, but I just tend to use a paper clip on the odd occasion a reset is required.

Scanning Hong Kong for Bargains

I was lucky enough to be able to visit Hong Kong recently. The City and the surrounding New Territories must be one of the most interesting places in the world to visit, particularly in respect of its geography, culture, religion, politics and its reputation for electronic consumer goods - which of course is the main reason for mentioning it in this column. Although the bulk of these are now produced outside of Hong

Kong, in countries such as Korea and Taiwan there are still some bargains to be found. Most streets in the main shopping area of Kowloon have at least one shop selling photographic, audio, video and radio equipment. You have to be prepared to shop around and give yourself enough time to barter with the sales assistants, but as an example I could have obtained an AOR AR-3000 for £580, an AR-1000 or Yupiteru MVT-7000 for £170 and an Icom IC-R1 for £190. However you have to pay VAT and import duty on any goods brought back to the UK and you may not get a valid warranty, so you have to consider these factors against any saving you may make.

Computer buffs may fare better, just outside the main Kowloon shopping area in a district called 'Sham Shui Po' there is the 'Golden Computer Shopping Arcade'. This contains several hundred small companies selling just about every aspect of computer related hardware and software (a fair amount of which is pirated). Many of the companies will actually construct a PC to your specification while you wait, but the competition is very fierce and you really need to know what you are doing before you part with any cash. Ready-built branded equipment was also available and I was offered a Sharp pocket PC-3000 for £480, which is around £320 less than the price the model is likely to sell for when it finally reaches the UK.

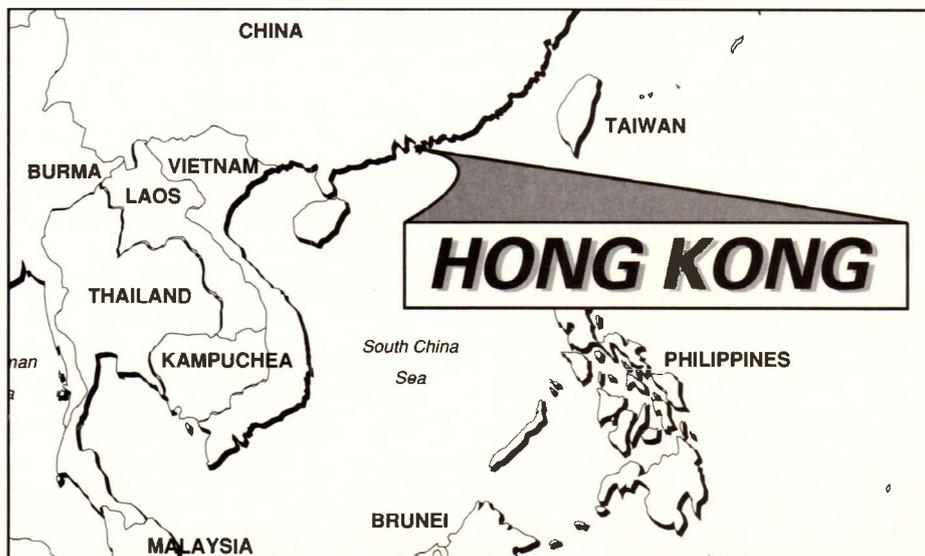
The level of radio activity in Hong Kong is very high, cellular phones are very popular and just about everyone seems to sport a display pager - or a cheap cigarette lighter disguised as a pager! One reason for this phenomenon is that the area occupied by Hong Kong is very small and the population density is very high. This makes it very economical to provide cellular coverage as very few base station sites are required. I was also amused to find that a 'New CT2 public telephone

service' was just being launched with one of the first base stations commencing operation in a park in the heart of the island business district - I wonder if they got a good deal on the equipment? (See later). Digital communications systems were also much in evidence and is yet another indication of the way communications systems are heading, so start swotting up on data transmission systems if you want to keep ahead of the technology.

Car Rally Communications

J Layden of Nottinghamshire recently sent me some very intriguing information, which I am sure will be of interest to many readers. He had been monitoring teams competing in last years Lombard RAC Rally. The communications systems in use were much more sophisticated than in previous years when most activity had been confined to either the 86MHz p.m.r. band or 169MHz short term hire frequencies. This time several of the major competitors were using aircraft as flying repeater stations to relay communications between the drivers, tyre vans, mechanics and team managers. The use of an aircraft for this purpose greatly extended the operating range of the radio systems, many of which could clearly be heard in Nottinghamshire, even when the rally stages were being held in Wales and Cumbria. Judging from past experience it is likely that these frequencies will be used again during the next rally season, so it may be worthwhile keeping an ear to the scanner when events are being staged.

Most of the activity seemed to be between 163.5-164MHz, which used to be allocated to BT for its 'System 4 Radiophone' service. However this has now been superseded by cellular telephone networks which have made the equipment redundant. The old system used to transmit from base sta-



tions in the band 163.0-164.425MHz and receive signals 4.5MHz lower in frequency between 158.5-159.425MHz. When the system was phased out some of the channels were reallocated for use by a mobile data service operating under the name 'Paknet'. Now that all the old BT base stations have been turned off new p.m.r. voice channels are being allocated with several new short term hire frequencies and trunked repeater systems operating in the band. This new band should help to take some of the strain off existing allocations which have been seriously overcrowded in urban areas.

Other Changes

New activity is also starting to appear in several other bands. The old police and fire brigade allocation between 81.5-84MHz is now filling up with trunked base stations, with the receive frequencies 13.5MHz lower in the band 68-70MHz.

The 'JRC' fuel and power industries band is also undergoing changes as more gas and electricity boards bring new trunked base stations into operation. These are appearing in the band 139.5-141MHz (12.5kHz channel spacing offset by 6.25kHz) with mobiles operating 8.5MHz higher in frequency between 148-149MHz. Old systems operating in the 138-139MHz band, with mobiles 33MHz lower in frequency between 105-106MHz will have to change to the new allocation soon.

This is in order to make way for the extension of the Band II f.m. broadcast band to the internationally agreed limit of 108MHz.

All u.h.f. p.m.r. equipment now has to be capable of operating with a 12.5kHz channel spacing. This means that the two oldest u.h.f. allocations 453-454 and 456-457MHz now have twice the channel capacity available. Once again the new channels are starting to fill up with digital data transmissions. Many of the point to point links which used to occupy the 457-458MHz band have also gone making way for new low power fire brigade communication channels between 457-457.300MHz.

Another new system - the Pan-European digital cellular network, GSM is starting a trial service in the Greater London area. This is destined to operate in the band 950-960MHz, with mobiles 45MHz lower in frequency between 905-915MHz.

CT2 was one system that didn't quite make it through last year. Designed to be the poor man's Yuppie phone it was dogged with teething troubles that delayed its launch just long enough to lose the small amount of public interest it initially attracted. Most public base stations have now been taken out of service and several examples have been spotted for sale at amateur radio rallies at ridiculously low prices. I hate to think how much money was spent by the four competing companies on developing,

installing and marketing the system but I don't think there is much chance of seeing a revival of it in this country, unless new applications for the technology are developed - cordless office PABX telephone exchanges being one example. My guess is that GSM and the move towards Personal Communication Networks will kill it off completely.

Low Band VHF

Several readers have written to me with details of their low band monitoring activities during the past few months. **Richard Gosnell** from Wiltshire has also logged about 35 of the 34-38MHz Russian signals I mentioned, and he believes that they originate about 3500-4000km east of the UK, which places them in an arc ranging from the Caucasus mountains, running up parallel and to the west of the Urals. He also comments on a favourite frequency of his 33.9MHz which often produces signals in the evening from an ambulance service in the Philadelphia area and occasionally a so far unidentified fire department.

Tim Anderson of Sussex has also been busy monitoring several American stations in the region of 39MHz. These included police in both the states of Washington and New York and on one occasion he was able to listen to the progress of a high speed car chase through New York city. One humorous transmission was a Canadian power

company with the engineers complaining that squirrels had eaten through the cables again! Another signal from Canada was monitored, this time it was a railway worker fighting to free some points that had become frozen, the weather was so cold he had to keep returning to his vehicle in order to keep warm. This was worrying his employers back at the office as a train was on the way. Tim says that as usual with these transmissions the propagation conditions changed and he never did find out if the train made it!

Tim has managed to identify many other stations by a process of patient monitoring and looking up place names in a large world atlas including one station on 34.9MHz which eventually turned out to be in Turkey. One signal still eludes him and he wonders if any other readers may be able to locate its source or country of origin. This is a large radio net which can usually be heard early in the morning on 38.650MHz. All the radio procedure is conducted in English but the actual messages are passed in another language which sounds vaguely Indian. Does anyone have any ideas?

That's all this month. My thanks to all those readers who have written to me with comments and suggestions. I anticipate that several new developments on the horizon will keep me busy during the next few months so until the next time - Good Listening.

Airband 53

The next three deadlines (for topical information) are March 6, April 10 & May 8. All correspondence to 'Airband,' c/o The Godfrey Manning Aircraft Museum, 63 The Drive, Edgware, Middlesex, HA8 8PS.

Aeronautical Broadcasts

Most airborne communications are transmissions intended for reception by one particular (ground) station. That station then replies to the specific aircraft concerned. There are occasions when ordinary air traffic control ground stations will broadcast, i.e. send a message to all aircraft listening on the frequency. An example is when the QNH barometric pressure setting changes, or when the station is about to close down. Sometimes at small aerodromes, the ground station is not always on watch. In this case, aircraft on the frequency will transmit their intentions anyway. This is called transmitting blind (I don't know why it's not called transmitting deaf) and the hope is that other aircraft will hear the message and act accordingly without the need for a ground controller to co-ordinate things.

There are, though, certain services which are only operated as broad-

casts. VOLMET weather reports are an important example. These continuous recordings consist of a speaking voice reading the weather as observed at a succession of airports. When finished, the recording restarts from the beginning. V.h.f. examples are London VOLMET (Main) 135.375; London VOLMET (South) 128.6; London VOLMET (North) 126.6; and Scottish VOLMET 125.725MHz. On h.f. there is RAFVOLMET 4.722MHz. A detailed look at the contents of weather reports will be the subject of a useful information box in the near future.

Similar in format to the VOLMET are automatic terminal information service (a.t.i.s.) broadcasts which originate at various airports (terminals). Each broadcast covers only its specific airport and, in addition to weather, will state which runway is operational and report any problems or irregularities with procedures or ground-based navigational aids. Examples are Birmingham 120.725; Cardiff 119.475; Dublin 118.25; Edinburgh 132.075; Heathrow 133.075; Manchester 128.175 and Southampton 113.35MHz. Occasionally a.t.i.s. is carried by a local v.o.r. in which case the beacon's usual Morse identification can still be heard in the background. Examples are

Bovingdon (relays Heathrow's a.t.i.s.) 113.75 and Jersey 112.2MHz. Some airborne navigation receivers have an audio passband filter which reduces the a.t.i.s. speech to a background mumble while emphasising the Morse. Pressing the 'voice' button on the re-

ceiver makes the speech intelligible again.

Lastly, there is a special purpose broadcast on 133.8MHz. The north Atlantic organised tracks vary twice a day and the current routes are listed on this frequency.

Abbreviations

AIC	Aeronautical Information Circular
B	Boeing
CAA	Civil Aviation Authority
Cat	category
d.m.e.	distance measuring equipment
FIR	Flight Information Region
FL	flight level
f.m.	frequency modulation
ft	feet
GASIL	General Aviation Safety Information Leaflet
h.f.	high frequency
i.l.s.	instrument landing system
kHz	kilohertz
LATCC	London Air Traffic Control Centre
m	metres
MBB	Messerschmitt-Btkow-Blohm
MHz	megahertz
N	north
n.d.b.	non-directional beacon
ops	operations
Pan Am	Pan American World Airways
SRN	Saunders-Roe Nautical
v.f.r.	visual flight rules
v.o.r.	very high frequency omni-directional radio range
W	west

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

The weather satellite scene seems to have become almost predictable during recent months. We have the four American NOAA's (on 137.50 and 137.62MHz) providing visible and infra-red pictures, and the Russian METEORs have continued to operate in a routine manner. Since late November when problems hit METEOR 3-5, we have been seeing reasonably good pictures from METEOR 3-4 (on 137.30MHz) which remains transmitting continuously.

The visible pictures still have some banding on them - strips of darker shading that revert to normal after a minute or so, possibly indicating problems with the camera aperture. However, the banding doesn't seem to correlate with the aperture bars that form part of the picture. Similarly METEORs 2-19 and 2-20 continue to alternate - when METEOR 2-19 (on 137.85MHz) reached the morning terminator (the change from day to night) on December 24 it was only just on over the UK for short periods. It was still on on Christmas Day in the morning at 0822UTC, but the next day we heard METEOR 2-20 (on 137.85MHz) during the afternoon, and 2-19 was off.

METEOR Launches

We have been waiting for a further METEOR launch for a couple of months, but a letter from **Geoffrey Falworth** of Preston informs me that the factory in the Ukraine which builds the SL-16 and SL-14 launch vehicles has been instructed to suspend construction of the vehicles indefinitely and to concentrate on 'domestic' products. Geoffrey points out that the SL-14 is used to launch METEOR 3-class weather satellites and so there may well be delays with future launches of replacement WXSATS. The same vehicles are used to launch many other types of satellite.

METEOSATs 4 and 5

During late November METEOSAT 4 (on 1691MHz), which is the operational geostationary satellite positioned near longitude 0°, was decontaminated. This process involves cleaning (out-gassing) the infra-red sensors. While this was happening METEOSAT 5 was used to collect images which were then transmitted by METEOSAT 4. Our Dutch correspondent **Peter de Jong** of Leiden, wrote to point out that the eastern edge of several images was again deformed. I noticed this some months ago, but on this occasion my METEOSAT equipment was intermittently faulty. METEOSAT 5 is positioned near to number 4 while it continues to undergo tests.

Fig. 2: Meteosat, low pressure over Europe from Peter de Jong.

METEOSAT 3

Positioned over longitude 50° this geostationary satellite (using 1691MHz) continues to provide pictures of North and South America plus almost all of the Atlantic Ocean. It also transmits digital pictures. On some occasions it misses out transmissions which are then listed in the next administration message, like METEOSAT 4. You can also locate it using an azimuth setting of about 228° and its elevation is about 20° as seen from southern Britain.

GOES 2

This American geostationary satellite (on 1691MHz) continues to be heard from the UK while it drifts between azimuth 236 and 247°. Its elevation varies now from about 2 to some 20° but it is not stabilised and so its signals are difficult to receive here in Britain. Using some new equipment I have been able to at least identify that it is operating.

OKEAN

I have not had any reports of anyone receiving signals from either OKEAN 2 or 3 (on 137.40MHz) for some months. For several days I left a cassette recorder operated by a receiver to record any transmissions but no data was heard. This is very unusual because OKEAN craft are invariably used to obtain radar and microwave images of the ice that forms near Norway during the winter. These pictures are used to guide shipping around the icebergs.

UoSAT-5

Last July the microsat UoSAT-5 was launched by Ariane rocket alongside the European Earth Resources Satellite (ERS-1). Controlled by the University of Surrey (UoS) this satellite carries a number of separate experiments including space radiation environment monitors, a Health-Net Communications Transponder, a solar cell technology experiment, and an Earth Imaging System. This latter consists of an experimental c.c.d. camera which, with the two integral transputers, is producing imagery with a resolution of

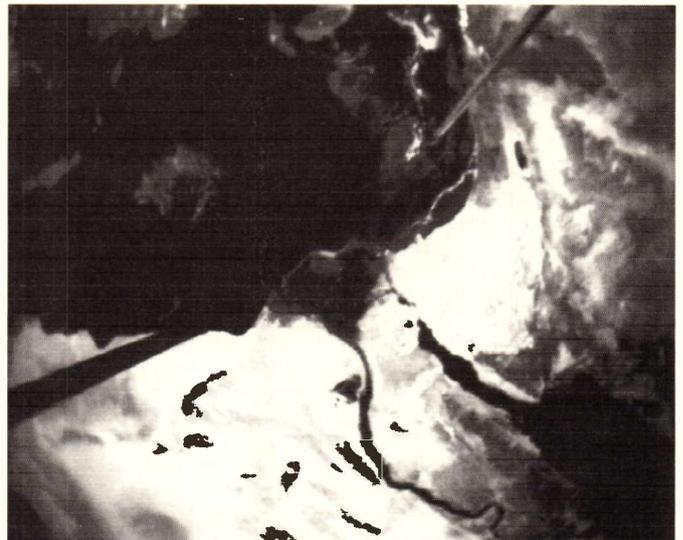
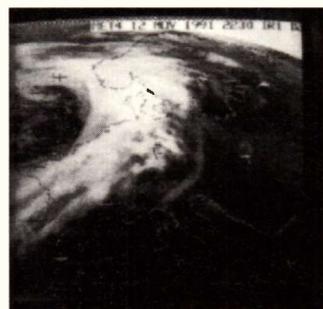


Fig. 1: Nile Delta, UoSAT-5 from Prof. Martin Sweeting.

two kilometres! This is almost as high as the high resolution pictures obtained by the NOAA satellites!

Professor Martin Sweeting G3YJO has kindly sent me details of the satellite's experiments, and two photographs taken by UoSAT-5. Fig 1 shows a close-up of the Nile Delta and surrounding countries. The photograph is of excellent quality and demonstrates the skill of several groups; the hardware design team have produced a satellite with a fully integrated system capable of producing pictures of the highest quality; the operations team at UoS have proved their capability to use the satellite to routinely collect over 150 high-quality images; and from experience, I know that there will be others in the background doing valuable work on systems development.

During the late seventies and early eighties I worked in the UK 5 and 6 Control Centres and then the IRAS Centre at Rutherford Appleton Laboratories near Didcot, and can fully appreciate the work that these teams are doing. Professor Sweeting tells me that images are now being transmitted routinely in the Amateur Satellite Service on 435.120MHz at 9600bps f.s.k. I will include another picture from UoSAT-5 next month - one showing the iceberg that detached itself from the south polar ice sheet. Perhaps I will be able to visit the UoS Operations Centre during 1992.

Letters

A number of correspondents continue to refer to paging interference on their WXSAT receivers. **Geoffrey Chance** of Redruth re-assembled his 'turnstile' antenna only to find that the satellite signals were swamped by the paging transmitters. Geoffrey made some enquiries and it appears that he may be just 500 metres from a transmitter! Before buying a new receiver he examined the circuit and tried exchanging the 10.7MHz ceramic filter, which has a bandwidth of about 280kHz, for a 30kHz bandwidth crystal filter. This improved the performance considerably and so Geoffrey has tried further modifications, finally using two 50kHz

ceramic filters in front of the i.f. transistor and making other changes. This seems to have worked and Geoffrey sent me a print-out of a NOAA 11 pass but unfortunately its contrast was a little low for good reproduction.

Mount Etna

Peter de Jong suffered from considerable paging interference particularly on 137.30MHz but has overcome it by using a Jaybeam 2XY137C crossed dipole, followed by a 10dB amplifier. Peter comments that he is now getting great results and apparently saw Mount Etna erupt! This volcano is easily seen on most easterly NOAA passes and I sometimes notice it appearing warm in the infra-red images, but I have never seen any activity.

Shuttle Keplers

Doris & Ray Williams wrote from Grantham to say that they are keen short wave listeners and wanted a copy of the NASA 2-line Kepler elements for the Shuttle flights that I mentioned a couple of months ago. In fact I was almost swamped with requests for those elements! They remain available for the cost of an s.a.e. **Ron Scrimgeour** of Dundee uses a Martelec WXSAT decoder and a 'BBC Plus' computer, but although he has good results with the American NOAA satellites he has not produced synchronised METEOR pictures. I'm not familiar with Martelec's decoder but after looking at their advertisements I am sure that there will be a facility to provide a reference signal to synchronise METEOR pictures. **John Henry** of Nottingham started his short wave listening when he was just 14, and now, in retirement, he has set up some receiving equipment to tune into the satellites, with some success.

Atari ST

D Gell of Nottingham has also been a s.w.l. for a very long time and set up a comprehensive WXSAT receiving station. He uses the RIG (Remote Imaging Group) dish feeding a Dartcom

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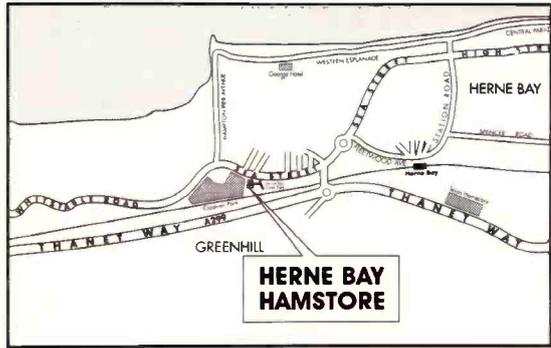
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HERNE BAY



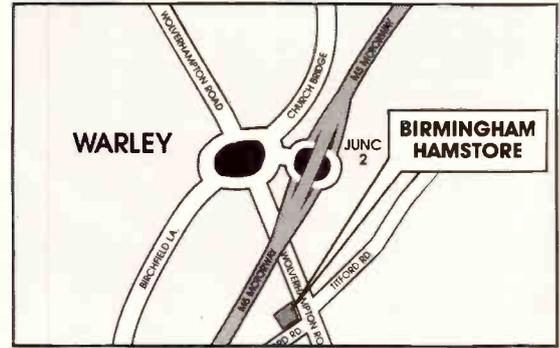
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down-converter and receiver with a Spaceteck interface and an Atari 1040 STE computer. Mr Gell mentions that he lacks accurate information for polar satellites. A month or two back I mentioned the Orbit program used by P J Bartlett of Pinner. This program can be obtained from Goodman Enterprises, 16 Conrad Close, Meir Hay Estate, Longton, Stoke on Trent. Tel: (0782) 335650. Mr Bartlett, who kindly sent me this information, tells me that there is another program called Sat 303, available on disk number ST 243 Ham Radio, from Page 6, PO Box 54, Stafford ST16 DR. Tel: (0785) 213928. This disk also contains RTTY and a packet program plus a c.w. teaching aid.

Amiga

Looking at my list of correspondents who have notified me of their software and hardware development work, I have details of a program called SatTrack, written by Nick Grundy G4NKV for the Amiga computer. This program is fairly comprehensive, judging from the print-out that Nick kindly sent me. He can be contacted for more details at Bar Farm, 15 Main Road, Drax, Selby, N Yorks YO8 8PA, but please enclose an s.a.e.

Kepler Elements

By the time that this appears I expect that the NASA data that I normally receive very promptly will have resumed. Just after Christmas a reorganisation occurred and my Kepler element file became some two weeks old, while requests from SWM readers kept coming! Fortunately there are alternative sources, particularly for those people equipped with modems. On this occasion Paul Wilson of Macclesfield came to my rescue and promptly sent me a list from a bulletin board. I will send a print-out of the latest elements upon receiving an s.a.e. All known weather satellites are included, together with their transmission frequencies if operating.

TBUS

Satellite predictions are broadcast in a variety of formats. If you can receive reasonable pictures from GOES 2 then you may have seen the Operations Message which is transmitted at 1055UTC each day. On that Message is a reference to TBUS transmissions. These contain details of each NOAA satellite and give dates of transmission problems and the satellite's state of health. This information is also broadcast on the h.f. band by Bracknell on a number of frequencies. Bob Warriner of Lancing has been receiving this data during the 2315 to 2330UTC slot. At this time of night, Bob comments that the signal appears unreliable so that some

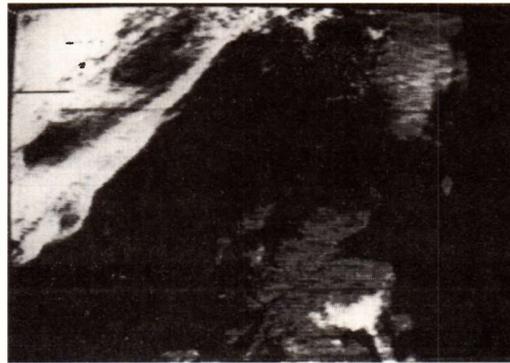


Fig. 3: Scotland, from Roger Ray.

of the data is corrupted which stops him using it in his predictions program. Bob kindly sent me a copy of the transmission and it clearly shows the problem.

Bulletin Boards

I am receiving details from a number of people who have set up bulletin boards to provide up-to-date information about satellites and Kepler elements. Barry Spencer set up the Prometheus system back in 1985, primarily for astronomers, but it has grown and now includes radio astronomy, rockets and Kepler elements - courtesy AMSAT-UK. To use the system you need a terminal/micro running the Viewdata emulation and, of course, a modem. The number is (081300) 7177. RIG and Timestep Weather Systems have started a BBS which contains the very latest Kepler elements for the weather satellites. David Cawley tells me that some of these elements may be just 18 hours old! Access will be limited to 15 minutes and is free, and can be reached on (0440) 82002.

Down-converters

The conventional way to receive METEOSAT signals, which are broadcast in the SHF band at 1691MHz (and also 1694.5MHz for METEOSAT 4), is to collect the signal using either a dish or a yagi. Most users incorporate a good quality pre-amp immediately after the antenna and this will invariably improve the signal. The next stage is a matter for preference and pocket! Until recently the most common method of signal processing was to use a down-converter to convert the METEOSAT 1691MHz signal to 137.50MHz and then feed this into a normal weather satellite receiver. This method has the disadvantage of stopping the normal use of the receiver for scanning for polar satellites. Additionally, the receiver characteristics are not optimised for METEOSAT. Good quality WXSAT receivers have extra bandwidth to allow for Doppler shift in the signal from the moving satellites.

METEOSAT is of course, geostationary and so a rather smaller bandwidth can be used, which also improves the signal-to-noise ratio, giving us better picture. In recent years the improvement in component performance has enabled the production of METEOSAT receivers - units that can directly extract the a.p.t. informa-

tion from the 1691MHz signal. These have the great advantage of combining the actions of both a down-converter and a receiver in one unit.

Recently my Microwave Modules down-converter failed after having a period of increasingly bad operation, and I had been wondering about repair or replacement - the unit was purchased several years ago. I write fairly regularly to various manufacturers for information on new products for possible mention in this column and I became aware that Microwave Modules no longer cater for the amateur market. Meanwhile during investigations into the high resolution picture transmissions (h.r.p.t.) equipment market I received a letter from Peter Hayes who has developed h.r.p.t. hardware and he kindly offered to look at my down-converter. After repairing it for me he has kindly agreed to offer to check out similar pieces of equipment for SWM readers. Costing repairs is a difficult job but Peter can be contacted by writing to him at Seahaze Kennels, Spring Garden Farm, Dunure Road, Ayr KA7 4LA. Please enclose an s.a.e. and a description of the equipment and fault and Peter will respond. Please do not forward equipment until you have discussed the matter with Peter. I had expected to have to write-off this down-converter and so I am very grateful for Peter's help.



Fig. 4: Meteosat, view of North Africa from Peter de Jong.

Frequencies

NOAAS 9, 11 a.p.t. on 137.62MHz
 NOAAS 10, 12 on 137.50MHz
 METEOR 2-19 or 2-20 on 137.85MHz
 METEOR 3-4 or 3-5 on 137.30MHz
 OKEAN 3 on 137.40MHz occasionally
 FENGYUN 1-2 was on 137.80MHz

Instant Track

As mentioned some months ago, this satellite predictions program has been marketed by both AMSAT-UK and Timestep Weather Systems. I have been asked by AMSAT-UK to print the following statement: Timestep and AMSAT-UK jointly refer to the article which appeared under the heading 'Instanttrack Software' in the August 1991 issue of *Oscar News*. As a result of a breakdown in communications, Timestep did not receive written confirmation from Franklin Antonio, the author, to sell under licence, although a licence has now been granted and all royalties have been paid (16 October 1991). AMSAT-UK acknowledge that, although acting in good faith from information received, the other allegations concerning David Cawley and Timestep Electronics are incorrect. In view of this statement, both parties agree to take no further action.

Abbreviations

a.p.t.	automatic picture transmission
AOS	Acquisition of signal
AVHRR	Advanced Very High Resolution Radiometer
BBS	Bulletin board service
CGA	Colour Graphics Adapter
DOS	Disc Operating System
EMS	Expanded (or extended) memory
ESA	European Space Agency
GOES	Geostationary Operational Environmental Satellite
GOMS	Geostationary Operational Meteorological Satellite
h.r.p.t.	high resolution picture transmission
LOS	Loss of signal
NASA	National Aeronautics and Space Administration
PDUUS	Primary Data User Station
VGA	Versatile Graphics Array

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

First this month is Colin Bates of Yeovil. He has been a regular contributor for some time and writes this time with one or two problems. The first concerns the apparent lack of activity between 4 and 7MHz. Colin has tried many different antenna systems including a 50m long wire and currently uses an active antenna. The fact that he's experimented with so many antenna system implies that he must have a more serious problem. The problem is most likely tied-up with his location as he lives in a small valley that's surrounded by hills. Just to make matters worse, the electricity supply is fed using overhead cables. Colin gives another clue in the fact that his portable radio fades as he moves towards it. This suggests that the signal strengths in his area are very low indeed.

I'm afraid there's little I can offer in the way of help, other than suggest you move house! From the point of view of antennas the best results ought to come from the longest wire you can manage. If any other readers have managed to overcome similar difficulties perhaps you'd write and let me know the secret.

Chris Norfolk writes from Hull to let me know of a new frequency for the press station ANSA Rome. His latest log shows this station is active on 19.592MHz using 400Hz shift and 50 baud. Chris hasn't had time to log the complete broadcast schedule but it's usually active at 0900UTC with a closedown at 1500UTC. If anyone has any further details I'll be pleased to hear from you.

Following my recent mention of Infonova, John Dimond of South Africa reports a new TASS variant. The new heading is TURKMENINFORM-TASS and was received on 18.0479MHz at 1355UTC on Christmas Eve. I don't have any more details, but would be pleased to hear about any TASS variants. John is also asking for some help in identifying a FAX transmission. The station in question operates on 12.747MHz and is thought to be NWC. Can anyone help with more details? If so just drop me a line and I'll pass the information on to John.

Henry Brooks from Winlaton uses a Yaesu FRG-8800 and an ERA Micro-reader for his utility listening and has sent me a very comprehensive log. One of his favourite stations is the Yugoslavian Ministry of Foreign Affairs, which uses the callsign DFZG. Regular loggings have been made at 1430UTC using a speed of 75 baud and 400Hz shift. The station transmits a variety of languages on the following frequencies: 5.312, 11.139, 13.399, 14.674, 14.912, 16.302, 18.055, 20.132, 21.859, 22.888 & 24.102MHz. Henry finishes his letter with a question - does anyone know of any c.w. or RTTY transmissions from Antarctica? Please write to me if you have any details.



Low Cost RTTY On A PC

Ideas for cheap decoding systems are always in demand, so this month I've details of how one listener tackled the problem. Alan Grant of Crowmarsh Gifford wrote with an details of how he put his station together. The only item of ready-built equipment is his Yaesu FRG-8800 h.f. receiver. Let's start with the computer which is an 80286 AT running at 12MHz. Rather than buy a ready-built unit, Alan's machine is home-built from the main sub-assemblies that are available in the computer magazines. If you'd like some guidance on this, take a look at the July 1991 issue of *SWM*. This was a special issue that gave extensive coverage to personal computers. Alan reckons that you can easily save up to 50% by building your own computer.

With the computer sorted the next step was to find a suitable terminal unit to convert the audio RTTY tones in to a digital signal that can be handled by the computer. After much thought the popular Maplin demodulator and RS-232 convertor was chosen. The final link in the chain was a software decoding package to run on the PC. The obvious choice here was to use one of the excellent value programs from the Public Domain Software Library in Crowborough.

For anyone who wants to really experiment with terminal units the public domain disk contains text files with circuit diagrams for terminal units and associated accessories. Having completed the exercise Alan reports that the results are very good indeed. Having seen some simple print-outs, his system is certainly producing clean copy. For those who'd like to follow in Alan's footsteps here are a few details:

Software: Public Domain Software Library, Winscombe House, Beacon Road, Crowborough, Sussex TN6 1UL. Phone (0892) 663298. Disk 1006 - RTTY (G8PTH/G4DQY Collection part 4). The cost for non-members is £3.85 for 5.25in disks and £4.65 for 3.5in media.

Hardware: Maplin Electronics, PO Box 3, Rayleigh, Essex SS6 2BR. RTTY FSK Demodulator Kit, Order Code LM95D, £13.95; RS232/TTL Convertor Kit, Order Code LK17T, £5.75

My thanks to Alan for taking the trouble to share his experiences.

Soviet Maritime Book

This month I've received a couple of interesting books from Universal Radio Research in Reynoldsburg, Ohio. The one I'll mention this month is entitled *USSR Merchant Ship List* and is just that! If you read my feature on tracking ships from RTTY weather transmissions you will see that this ship list is potentially very useful. The book comprises some seventy-two A4 pages bound in a soft back. The introductory chapters contain some concise explanations of how the list is laid-out with some useful tips on how to get the best out of it. There are also some good examples of typical ship messages as well as useful transliteration tables. These tables are used when decoding third shift cyrillic transmissions that have been received on a conventional decoder.

Moving on to the main list, this is split into three main formats. Each of these lists contains the same information, it's just the order that changes. The three formats are: Callsign, Ship name, Serial number. The detail contained in these lists was very comprehensive and included: callsign, vessel name, serial number, ship code, notes, ITU List entry and date of logging. The final chapter gives a listing of what is called inactive ships. These are effectively ships that haven't been heard for five years or more. Those who spend time monitoring the Russian will no doubt find this book very useful. The book can be obtained from Universal Radio, 1280 Aida Drive, Reynoldsburg, Ohio 43068, USA. Tel: 010 800 431 3939. The book costs \$10.95 and \$1 shipping (I can't find any details for extra costs for overseas shipping).

RTTY QSL from Swiss Radio International. 14 October 1991 17.530MHz at 1830UTC

Vessel Tracking

This month Ed Dunlop from Strathclyde has written with an ingenious use for RTTY weather reports. Rather than concentrate on the weather reports themselves, Ed concentrates on the stations that originate the reports. In the case of the BBXX SHIP weather reports these stations are ships sailing the high seas. One of the main components of these weather reports is the ship's position in Lat. and Long. This is complemented by the ship's sailing direction and speed.

Clearly, with this amount of detail, it becomes quite possible to track the movements of shipping. For those of you who'd like to have a go at tracking ships here's how to find the relevant parts of the message. The best place to start is with the Bracknell transmission on 4.489MHz. For manual decoding the best method is to tune-in and set your decoder to send all the decoded text to either a printer or disk drive. By doing this you can examine the data at your leisure. So, with your recovered data ready you first need to look for a line with BBXX followed by four digits. BBXX indicates that the report that follows is a synoptic report of surface observations from a sea station. Of the group of four digits that follow, the first two show the day of the month and the second two the time of day in hours. For example 2214 decodes as the 22nd of the month at 1400UTC. Moving on to the next line, the first character group show the ship's call sign and so is vital in identifying the ship. Next to you need to find the positional data that's transmitted in a pair of number groups. The group is easily found as it always starts with 99. What follows is the latitude in tenths of a degree, a figure indicating the globe quadrant followed by the longitude in tenths of a degree. The table for decoding the quadrant of the globe is as follows:

- 1 = Latitude north, longitude east.
- 3 = Latitude south, longitude east.
- 5 = Latitude south, longitude west.
- 7 = Latitude north, longitude west.

The next group to find carries details of the ship's true direction and average speed over the three hours preceding the weather observation. This is easy to find as it always starts with 222 followed by one digit for direction and the second for speed.

The decoding tables for these are shown on page 62.

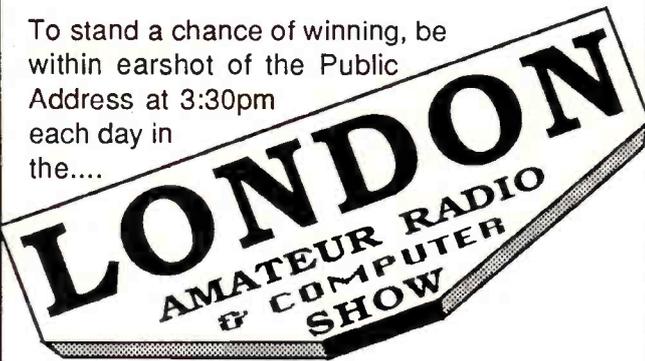
Sit down, relax, get comfortable and prepare yourself for a.... **SHOCK!**

Here's something to fill the hearts of rally organisers with.... **HORROR!**

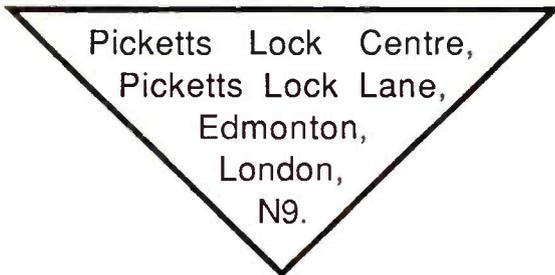
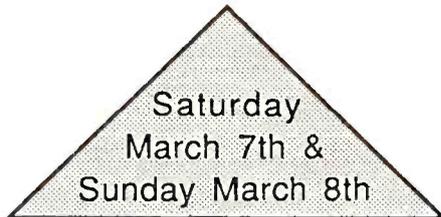
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YES, each day one lucky visitor will walk away with a brand new rig absolutely.... **FREE!**

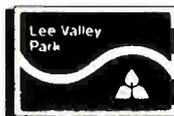
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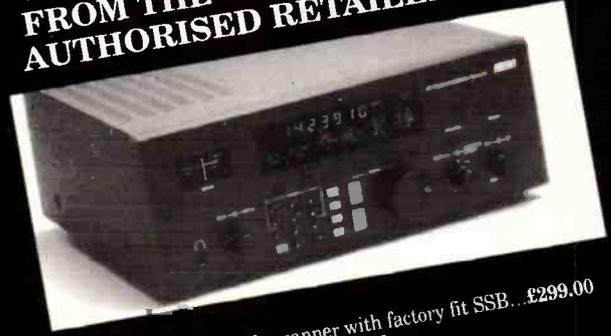
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Direction:

- 0 = Stationary.
- 1 = NE.
- 2 = E.
- 3 = SE.
- 4 = S.
- 5 = SW.
- 6 = W.
- 7 = NW.
- 8 = N.
- / = Not reported.

Speed:

- 0 = Stationary.
- 1 = 1-5 knots.
- 2 = 6-10 knots.
- 3 = 11-15 knots.
- 4 = 16-20 knots.
- 5 = 21-25 knots.
- 6 = 26-30 knots.
- 7 = 31-35 knots.
- 8 = 36-40 knots.
- 9 = Over 40 knots.
- / = Not reported.

With a standard transmission format such as this it's a comparatively simple task to write a computer program to handle the decoding. From the practical point of view, Ed recommends that you filter out all the foreign registered ships and concentrate of UK ships in coastal waters. The next refinement would be to convert the ships callsign to the ships name. Unfortunately this isn't quite so simple because there are so many ships. The only publication I know of that lists ship names against callsign is the *ITU List of Ship Stations*.

However, if you know of another, cheaper, source please write and let me know. To help you capture reports from Sea stations, I've checked the Bracknell schedules and extracted all the SHIP reports. The times to monitor are as follows: 0340-0425, 0645-0655, 0945-1025, 1220-1240, 1555-1630, 1845-1850, 2120-2140. All times are in UTC and really only indicate the time period to watch. You will no doubt find other information being sent during these periods. My thanks to Ed for the original idea and **Ken Michaelson** for the Bracknell schedule.

Military Routing Codes

Following my recent mention of the callsign/routing codes used by the French military ARQ/TDM stations, **Jim** of Wellington has written with some more information. These routing indicators are derived from the ACP127 series of world wide routing indicators. These indicators were designed to be used by manual and automatic tape relay centres. The codes being used to indicate the important aspects of the message routing. For those of you who monitor these transmissions, here's a summary of the code's structure.

1st letter:

- R = Strategic routing indicator.
- Q = Reserve strategic routing indicator.
- U = Tactical (theatre) routing indicator.

2nd letter = Nationality.

- A = Australia.
- B = British C'wealth.
- C = Canada
- D = Denmark
- E = Spain
- F = France
- G = Germany
- H = USA
- I = Italy
- J = Argentina
- K = Greece
- L = Luxembourg
- M = SEATO
- N = Netherlands
- O = Unallocated
- P = Portugal
- Q = Belgium
- R = Unallocated
- S = S. Africa
- T = Turkey
- U = USA
- V = Unallocated
- X = NATO
- Y = Norway
- Z = New Zealand

3rd Letter = Geographic area

- A = East Asia
- C = Central N. America
- D = UK & Iceland
- E = Eastern N. America
- F = Continental Europe
- H = Central S. Pacific
- K = Alaska, Aleutians
- L = Carribean, S. America
- M = S.E. Asia
- Q = Middle east
- S = Western Asia
- T = Iberia, N.W. Africa
- V = S. Africa
- W = Western N. America
- Y = Australia

4th letter = Service

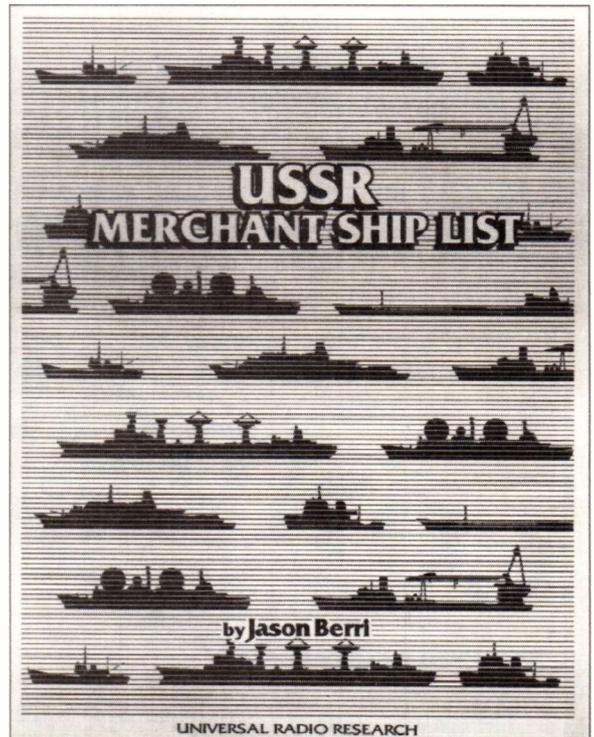
- A-H = Army
- I-O = Navy
- P-V = Air Force
- W-Z = Joint, MoD, etc.

To illustrate how the routing code operates there's nothing like a few examples. RFFF = Stragic routing indicator for the French Army in continental Europe. RFFW = MoD in Paris. RBDP = RAF primary UK relay.

You will find that some of the primary relays include C suffixes a few of which are listed here:

- CF = Nail benders (technicians!)
- CR = Crypto.
- CS = Serevice message position
- CU = Commercial carrier transfer position
- CW = Radio transfer position
- CX = Routing information office.

In addition to the routing codes you may find three letter suffixes added to represent the individual circuits. Jim reports that the exact format for these seems to be arbitray with a typical example being WFA WFB WFC. Those of you who monitor the French military transmissions will note that the phrase 'Controle de voie' is sent as a channel test. If you make a note of the routing code on these transmission you will see that they're self addressed. This ensures that the message is always returned so proving both the transmit and receive directions of the link. If you'd like to find out more about routing codes and message formats the *Klingenfuss Guide to Utility Stations* can help. The chapters to read are 7 - Without Callsign and 22 - Standard Telegram Format Regulations.



WLO Frequency Changes

Day Watson of Clevedon has just sent me the latest amendments for this popular maritime station. The first change is that the following frequency pairs have been permanently abandoned:

ITU Chan	TX	RX
405	4.1745	4.2125
805	8.3785	8.4185
811	8.3815	8.4215
1250	12.5015	12.684

For those who would like to catch the full schedule it's sent after the traffic lists at the following times:

- 0200, 0800 and 2000UTC for c.w.
- 0235, 0835 and 2035UTC for FEC.

My thanks to Day for supplying this information.

Frequency List

This month's list has been compiled from logs supplied by **Day Watson**, **Henry Brooks** and **Ted Rickett**. I've kept to the usual format of; frequency, mode, speed, shift, callsign, time and notes.

- 129.1kHz, F7B/ITA5, 200, 100, DCF45, 0621, German stock
- 3.332MHz, AUTOSPEC, 68.5, 85, -, -, Oil rig Ocean Nomad
- 3.357MHz, FAX, 120, 576, NAM, 0551, USN Norfolk
- 4.214MHz, SITOR, 100, 170, FNBU, 1755, MV Port Bara
- 4.215MHz, SITOR, 100, 170, OST5, -, Dostende Radio
- 5.4MHz, RTTY, 50, 425, YOG37, 1627, Bucharest Meteo
- 6.698MHz, c.w., -, -, MKL, 1527, RAF Meteo

- 6.685MHz, c.w., -, -, RFNV, 1411, Moscow Air
- 7.5146MHz, c.w., -, -, FDG26, 1643, French Air Force
- 9.082MHz, c.w., -, -, RMP, 1745, Kaliningrad Naval
- 9.42MHz, RTTY, 50, 400, RMD57, 1508, TASS Moscow
- 9.9825MHz, FAX, 120, 576, KVM70, 0543, Honolulu Met
- 9.97MHz, FAX, 120, 576, JMH3, 0606, Tokyo Met
- 10.83MHz, RTTY, 50, 425, ULV, 1330, Artic Meteo, Moscow 1
- 11.425MHz, RTTY, 75, 425, -, 1524, Portuguese Navy.
- 11.171MHz, RTTY, 75, 425, RCF, 1642, Foreign Affairs, Moscow
- 11.44MHz, RTTY, 50, 850, E1P, 1439, Shannon Air
- 11.09MHz, FAX, 120, 576, KVM70, 0553, Honolulu Met
- 12.315MHz, RTTY, 50, 400, RVW57, 1505, TASS Moscow
- 13.87MHz, RTTY, 50, 425, 9VA, 1705, Burundi Air
- 14.556MHz, c.w., -, -, R1W, 1037, Khiva Naval
- 14.764MHz, RTTY, 75, 425, A9M70, 1625, Gulf News Agency
- 18.1645MHz, RTTY, 50, 425, STK, 1315, Khartoum
- 19.592MHz, RTTY, 50, 425, -, 1300, ANSA Rome
- 20.826MHz, RTTY, 50, 425, -, 1215, TASS Moscow
- 22.8925MHz, c.w., -, -, IAR76, 1247, ANSA Romefigures
- 23.36MHz, RTTY, 50, 425, HGX, 1303, Hungarian embassy traffic

long medium & short

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

To allow for seasonal changes in propagation, some s.w. broadcasters alter schedules up to four times a year (March, May, September & November). So, some of the details here may be inapplicable soon.

British Summer Time (BST) starts on March 29, being one hour ahead of Greenwich Mean Time (GMT). However, LM&S times will still be quoted in Universal Time Co-ordinated (UTC), which for all practical purposes is the same as GMT. Please state UTC in your contributions for LM&S.

Long Wave Reports

Note: l.w. & m.w. frequencies in kHz; s.w. in MHz; Time in UTC (=GMT). Unless stated, all logs compiled during the four week period ending January 4.

Some of the l.w. signals from Europe have reached Canada! At 0605UTC on December 4, **Alan Roberts** (Quebec) heard speech on 183kHz, but it was too weak for the language to be determined. He listened at the same time the next night and heard a news bulletin in French on 216 which probably came from R.Monte Carlo via Roumoules (1400kW), but no ident was obtained. Having heard five weak carriers in mid-October, Alan checked the band regularly, but found poor conditions during November.

An improvement in l.w. reception has been achieved by **Charles Beanland** (Gibraltar) by connecting an external antenna to his Sangean ATS803A portable. The ground wave signals from Tipaza, Algeria 252 and Nardor, Morocco 171 now rate 55555, but those from Bechar, Algeria 153 are 52222.

Whilst listening to an English s.w. broadcast from R.Sweden on November 30, **Roy Patrick** (Derby) heard them refer to Montala, their oldest radio station. Apparently the l.w. transmitter (189kHz) has been closed down because the cost per listener has become too great.

Medium Wave Reports

Whilst in his car on the Mendip Hills, **Sid Morris** (Rowley Regis) looked for m.w. transatlantic signals with his Nevada MS1000 attached to the car radio antenna. At 0145 he heard CJYQ in St.John's, NF on 930kHz. Before leaving at 0215 he logged WPEN in Philadelphia, PA on 950 and WINS in New York on 1010.

Listening at 2330 in Congleton, **Tim Bucknall** heard the signals from the Caribbean Beacon, Anguilla on 1610 for the first time. In Grimsby, **Jim Willett** was disappointed by the lack of signals from S.America. Soon after midnight he heard VOXM in St.John's, NF on 590 at SIO222, but a stronger signal came from CJYQ on 930, which peaked SIO333 at 0020. XEAL in Mexico City on 1600 was logged as SIO222 at 0045.

Sky wave signals from low power stations in Spain have been reaching the UK after dark.

Several local radio stations are closing down their m.w. outlets to make way for additional community radio stations. Roy Patrick has informed me that BBC R.Nottingham will be leaving 1521kHz at the end of February. Please let me know if any such changes are expected in your area.

Short Wave Reports

Broadcasters still taking advantage of conditions in the 25MHz (11m) band include the Voice of the UAE in Abu Dhabi 25.690 (Ar to ? 0900-1100) 35555 at 1000 by **Don Phillips** in Bridlington; R.Norway Int, Oslo 25.730 (Norway to Aust, NZ 0800-0830, 0900-0930; to S.Am 1100-1130; to S.Asia 1200-1230; to Europe, W.Africa 1300-1330; to M.East 1500-1530) 44434 at 1300 by **S.Hockenull** in S.Bristol; R.Denmark via RNI 25.730 (Da to areas quoted for RNI but 1/2hr later) 34433 at 1233 by **David Edwardson** in Wallsend; DW via Julich 25.740 (Ger to SE.Asia 1100-1200; to E.Asia

Medium Wave Chart

Freq kHz	Station	Country	Power kW	Listener
520	Hof-Saale	Germany	0.2	C*
531	Leipzig	Germany	100	C, J, J, K*
531	Oviedo	Spain	10	C, J, J*
540	BRT-2 Wavre	Belgium	150/50	C, H, J, J, J, K*
540	Sidi Bennour	Morocco	600	C*
549	Les Tremblas	Algeria	600	H, J, J, J*
549	DLF Bayreuth	Germany	200	H, J, J, J, K*
549	Nordkirchen	Germany	100	C
549	Thurman	Germany	200	I*
558	Valencia	Spain	20	C, H, J*
567	Berlin	Germany	100	I, J*
567	RTE-1 Tullamore	Ireland (S)	500	C, D, H, J, K
576	Vidin	Bulgaria	100	I*
576	Stuttgart	Germany	500	C, J, J, K*
576	RNE-5 Barcelona	Spain	20	R*
585	IP Paris	France	8	C, J
585	RNE-1 Madrid	Spain	200	I, J, J, K*
585	BBC-Oumtries	UK	2	C
594	Frankfurt	Germany	1000/400	C, H, J, J, K*
594	Oujda-1	Morocco	100	H*
603	Muge	Portugal	100	H, J*
603	Lyon	France	300	J*
603	K'gswusterh'sen	Germany	20	I*
603	BBC Newcasttle	UK	2	C
612	Kiel	Germany	10	C, D, J, K, O*
612	RTE-2 Athlone	Ireland (S)	100	C, D, J, K, D*
612	Lerida	Spain	10	J*
621	RTBF-1 Wavre	Belgium	80	C, D, J, K, L
621	Barcelona	Spain	10	I, J*
630	Vigra	Norway	100	I, J*
630	Timisoara	Romania	400	I*
639	Liblice	Czech	1500	J*
639	La Coruna	Spain	100	O, J, J, K*
648	Palma d'Mallorca	Spain	10	I*
648	BBC Orfordness	UK	500	C, H, J, J, K
657	Napoli	Italy	120	J*
657	RCE-2 Madrid	Spain	20	I*
657	BBC-Wrexham	UK	2	C, K*
665	Bodenseesender	Germany	300/180	C, J, J, K*
665	R.Vihnius	Lithuania	500	I*
675	Marseille	France	600	I, J, J, K*
675	Hilversum-3 Lopic	Holland	120	C, H, J*
684	RNE-1 Sevilla	Spain	250	I, J*
683	Berlin	Germany	250	I*
683	BBC-Droitwich	UK	150	D, M*
702	Aachen/Flensburg	Germany	5	I*
702	Monte Carlo	Monaco	300	C, J*
711	Rennes-1	France	300	C, J, J*
720	Langenberg	Germany	200	I, J*
720	BBC Lisnagarvey	Ireland (N)	10	C
720	Norte	Portugal	180	I*
720	BBC-London	UK	0.5	J*
729	RTE-1 Cork	Ireland (S)	10	I, J*
729	Oviedo	Spain	50	D, J, J, J*
738	Poznan	Poland	300	J*
738	RNE-1 Barcelona	Spain	250	I, J*
747	Hilversum-2 Flevo	Holland	400	C, H, J, J, J, K*
756	Brunswick	Germany	800/200	C, J, J, J*
765	Sottens	Switzerland	500	C, J, J, J, K*
774	BBC-Enniskillen	Ireland (N)	10	C
774	RNE-1 Caceres	Spain	60	I*
774	RNE-1 S. Sebastian	Spain	60	I*
774	RNE-1 Valencia	Spain	50	J*
783	Burg	Germany	1000	I, J, K*
783	R.Porto, Miramar	Portugal	100	J*
783	Zagreb-Buja	Yugoslavia	10	C*
792	Limoges	France	300	C, J, J*
792	Sevilla	Spain	20	C, J*
801	Munchen-Ismaning	Germany	300	C, J, K*
801	Burgos	Spain	10	I*
801	Castellon	Spain	5	J*
810	SEB Madrid	Spain	20	C, J, J*
810	BBC-Burghhead	UK	100	C
810	BBC-Westertgen	UK	100	C, D, J, J, K
819	Toulouse	France	50	I, J*
828	Barcelona	Spain	20	J*
837	Nancy	France	200	C, J, J, J*
837	R.Popular, Sevilla	Spain	10	B, J*
846	Rome	Italy	540	I, J, J, K*
855	Murcia	Spain	125	D, J, J*
854	Paris	France	300	C, J, J, J*
873	AFN via Frankfurt	Germany	150	C, D, J, J, J, K*
873	R.Ulster, Enniskillen	UK	1	C, J*
882	COPE Malaga	Spain	5	I*
882	BBC-Pennon	UK	10	C
882	BBC-Twyyn	UK	5	C
882	BBC-Washford	UK	100	D, J, J*
891	Algiers	Algeria	600/300	I, J, J, K*
891	Berlin	Germany	5	I*
891	Hulsberg	Holland	20	I*
900	Prestice	Czech	40	C*
900	Milan	Italy	1	600 C, J, J, J*
909	BBC-Moorside Ed.	UK	200	C, D, J, K
918	R.Intercont. Madrid	Spain	20	I, J*
927	BRT-1 Wolvterem	Belgium	300	C, D, J, J, J, K*
936	Bremen	Germany	100	I, J*
936	Agadir	Morocco	600	D*
945	Toulouse	France	300	C, J, J*
945	Rostov-na-Donu	USSR	300	C*
954	Al Arish	Qatar	1500	I*
954	RCE Madrid	Spain	20	C, D, J, J, J*
963	Pori	Finland	600	C, D, J, J, J, K*
963	Tir Chonail	Ireland (S)	10	C
972	Hamburg	Germany	300	C, D, J, J, J, K*
972	Nikolayev	Ukraine	500	C*
981	Alger	Algeria	600/300	H, J, J*
990	Berlin	Germany	300	H, J, J*
990	SEB R.Bilbao	Spain	10	D, J*
990	BBC-Twyyn	UK	1	C
999	R.Popular, Madrid	Spain	20	C, D*

Listeners:

- (A) Leo Barr, Sunderland
- (B) Charles Beanland, Gibraltar
- (C) Tim Bucknall, Congleton
- (D) Ciaran Fitzsimons, Co.Laois
- (E) Paul Gibson, Edinburgh
- (F) Chris Haigh, Huddersfield
- (G) Francis Hearne, N.Bristol
- (H) Sheila Hughes, Morden
- (I) Eddie McKeown, Co.Down
- (J) George Millmore, Wootton (D.W.)
- (K) Sid Morris, Rowley Regis
- (L) Don Phillips, Bridlington
- (M) Tom Smyth, Co.Fermanagh
- (N) John Stevens, Largs
- (O) Lee Williams, N.Birmingham

Freq kHz	Station	Country	Power kW	Listener
1008	Hilversum-5 Flevo	Holland	400	H, J, J, K*
1008	Malaga	Spain	?	?
1017	Rheinsender	Germany	600	C, D, J, J, J*
1026	Graz-Dobl	Austria	100	J*
1026	SER Alicante	Spain	3	J*
1035	Prog.3 Lisbon	Portugal	120	D, J, J, J*
1035	Tallinn	USSR	500	C*
1044	Dresden	Germany	250	I, J*
1044	Sebaa-Aioun	Morocco	300	H, J, J*
1044	San Sebastian	Spain	10	H, J, J, J*
1053	COPE Zaragoza	Spain	10	I*
1053	BBC-R1 Barrow	UK	1	K
1053	BBC-R1 Droitwich	UK	150	D
1062	Kalundborg	Denmark	250	C, H, J, J, J, O*
1071	Praha (Zbraslav)	Czech	40	J*
1071	Brest	France	20	C, J*
1071	Lille	France	40	C, J*
1080	Katowice	Poland	1500	C, J*
1089	Krasnodar	USSR	300	J*
1098	Bratislava (Jarok)	Czech	1500	C, J, J*
1098	RNE-5	Spain	10	I*
1107	AFN via Munich	Germany	40	A, H, K*
1107	RNE-5 Barcelona	Spain	20	I*
1107	RNE-5 Santander	Spain	10	I*
1107	BBC-R1 Wallasey	UK	0.5	C
1116	Bari	Italy	150	I*
1116	SER-Pontevedra	Spain	2	I*
1125	La Louviere	Belgium	20	H, J, J*
1125	Stara Zagora	Bulgaria	500	J*
1125	RNE 5	Spain	10	H
1125	BBC L'd'dod Wells	UK	1	K
1134	COPE-Bilbao	Spain	10	I*
1134	Zadar	Yugoslavia	1200	I*
1143	AFN via Stuttgart	Germany	10	C, H, J*
1143	Kaliningrad	Russia	150	C
1161	Strasbourg (F.Inc)	France	200	I*
1179	Santiago	Spain	10	C, J*
1179	Solvesborg	Sweden	600	C, D, H, J*, J*, K*, M*
1188	Kuurne	Belgium	5	I, J*
1188	Szolnok	Hungary	135	I, J*
1197	VOA via Munich	Germany	300	C, K*
1197	BBC-Enniskillen	Ireland (N)	1	C, J*
1197	BBC Bournemouth	UK	0.5	J*
1206	Bordeaux	France	100	A, J*
1206	Wroclaw	Poland	200	I*
1215	Kaliningrad	Russia	500	I*
1215	BBC-R3 Droitwich	UK	30	C, K
1215	BBC M'side Edge	UK	100	C
1224	Vidin	Bulgaria	500	I*
1224	Nasirya	Iraq	300	C*
1233	Liege	Belgium	5	C*
1233	Cape Greco	Cyprus	600	I*
1233	Praha (Zbraslav)	Czech	40/20	C*
1242	Marseille	France	150	C, F, J*
1251	Huisberg	Netherlands	10	C, F, J, J*
1260	VOA via Rhodes	Greece	500	I*
1260	Valencia	Spain	20	C, H, J*
1269	Neuminster	Germany	600	D, J, J, J, K*
1278	RTE-2 Dublin/Cork	Ireland (S)	10	I*
1287	Meinik	Czech	400	F, J, J, J*
1296	San Sebastian	Spain	5	C, J, J*
1296	BBC Orfordness	UK	500	C, J*
1305	Rzeszow	Poland	100	I*
1305	Orsenze (RNE5)	Spain	5	C, J*
1314	Kvitsoy	Norway	1200	C, D, F, J, J, K*
1323	BBC Zryi	Cyprus	50	C
1323	R.Moscow/Leipzig	Germany	150	C, J, O*
1332	Rome	Italy	300	C, J, J*
1341	BBC Lisnagarvey	Ireland (N)	10	C, F, J, J, J*
1350	Nancy/Nice	France	100	C, F, J, J, K*
1359	Berlin	Germany	250/100	C, J*
1368	Manx R. Foxdale	UK	20	C, D, E, J, L, M*
1377	Lille	France	300	C, J, J*
1386	Kaliningrad	Russia	500	C*
1395	R.Tirana/Lushnje	Albania	1000	F, H, J, J, J, J*
1404	Brest	France	20	C, F, J, J*
1413	RCE Zaragoza	Spain	20	C, F, J*
1422	Alger	Algeria	50/25	C
1422	Hauswaller	Germany	1200/600	E, J, J, J, K*
1431	Dresden	Germany	250	I*
1449	Squinazzo	Italy	50	I*
1449	BBC-R4 Redmoss	UK	2	C, J*
1467	TWR Monte Carlo	Monaco	1000/400	H, J, J, K*
1476	Wien-Bisamberg	Austria	600	C, F, J, J, J, K*
1485	AFN	Germany	1	A*
1494	Clermont-Ferrand	France	20	C, J*
1494	St.Petersburg	Russia	1000	C, H, J*
1503	Stargard	Poland	300	C, D, J, J, L*
1503	Rome	Italy	2	I*
1512	BRT Wolvterem	Belgium	600	C, D, H, J, J*, J*, K*, L*
1521	Kosice (Czitate)	Czech	600	I*
1530	Vatican R. Rome	Italy	150/450	D, J, J*
1539	Mainflingen	Germany	700	C, J, J, J, K*
1557	Nice	France	300	C, J*
1566	Sarnen	Switzerland	300	D, J, K*
1575	Burg	Germany	250	C, J, J, K*
1575	Cordoba	Spain	5	C*
1593	Langenberg	Germany	400/800	C, D, J, J, J, K*, M*
1602	SER R.Cartagena	Spain	2	J*
1602	Vitoria	Spain	10	N*
1611	Vatican R. Rome	Italy	5	C, J, J, J*

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

long medium & short

Local Radio Chart

1200-1355); RFI via Issoudun 25.820 (Fr to E.Africa 0700-1550) 34333 at 0815 by **Sheila Hughes** in Morden; R.Nederlands 25.940 (Du to Asia? 1030-1125 Sun only) SIO554 at 1032 by **Richard Radford-Reynolds** in Guildford; also 25.970 (Du to M.East, Africa? 1030-1125, Sun only) SIO355 at 1100 by **Kenneth Buck** in Edinburgh. In contrast to previous months, only three were heard by Alan Roberts in Quebec: RNI rated 45444 at 1235; DW 35333 at 1250 and RFI 35333 at 1515.

Some of the 21MHz (13m) signals from R.Australia have also reached the UK. The Darwin broadcast to C/SE.Asia 21.525 (Eng 0100-0800) was 23342 at 0110 in Wallsend; Carnarvon to Asia 21.775 (Eng 0100-1000) as SIO555 at 0832 in Guildford. Potent signals from Darwin on 21.720 (Eng to S.Asia, M.East 1030-1300) were heard by **David Crookes** in Plymouth. He says, "there was no interference or fading whatsoever".

Amongst the signals to Europe noted were R.Japan via Moyabi 21.575 (Eng 0700-0800) 44333 at 0700 in Morden; R.Pakistan, Islamabad 21.520 (Eng 1100-1120) 22322 at 1107 by **Eddie McKeown** in Co.Down; HCJB, Ecuador 21.455 (u.s.b. + p.c. 24hrs) SIO444 at 1240 in Edinburgh; R.Bucharest, Romania 21.665 (Eng 1300-1400) heard in Bridlington; UAE R.Dubai 21.605 (Eng 1330-1355) 54444 at 1330 by **Darren Taplin** in Brenchley; WGSN, MN 21.670 (Eng 1400-1600, also to USA) SIO555 at

Long Wave Chart

Freq kHz	Station	Country	Power	Listener
153	Bechar	Algeria	1000	A*,J*
153	Donebach	Germany	500	B,C,D,F*,G,H*,J
153	Brasov	Romania	1200	B*,C*,F*
162	Allouis	France	2000	B,C,D,E*,F*,G,H*,J
171	Kaliningrad	Russia	1000	B,C,D,F*,G,H*,J
171	Medi 1-Nador	Morocco	2000	A*,J*
171	Moscow	Russia	500	C*,F*
177	Oranienburg	Germany	750	B,C,D,E*,F*,G,H*,J
183	Saarouis	Germany	2000	B,C,E*,F,G,H,I
198	BBC Droitwich	UK	500	C,D,E*,F,G,I
198	BBC Westerglen	UK	50	B,C
207	Munich	Germany	500	B,C,D,E*,F,G,H*,J
216	Roumoules	Monaco	1400	B,C,D,F,G,H*,J
216	Oslo	Norway	200	B,C*,E*,F*
225	Konstantinow	Poland	2000	B,C*,E*,F*,G,H*,J*
234	Junglinster	Luxembourg	2000	B,C,D,E*,F*,G,H,I
234	St.Petersburg	Russia	1000	B*,C*,F*
243	Kalundborg	Denmark	300	B,C,E*,F*,G,H*,J
252	Tipaza	Ireland	1500	A*,C,E*,G*
252	Atlantic 252	S.Ireland	500	B,C,D,E*,F,G,H,I,J*
261	Burg	Germany	200	E*,G
261	Moscow	Russia	2000	B,C,E*,F*,H*,J
270	Topolna	Czech	1500	B,C,D,E*,F*,G,H*,J
279	Minsk	Byelorussia	500	B,C*,F*,G

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

1425 by **Lee Williams** in N.Birmingham; WHRI, Noblesville 21.840 (Eng 1500-1700 Sat/Sun only, also to USA) SIO333 at 1530 by **Bill Clark** in Rotherham; WYFR via Okeechobee 21.500 (Eng, Ger, Fr 1700-2000) 45554 at 1700 by **John Parry** in Northwich; RCI via Sackville 21.545 (Eng 1700-1730) 45544 at 1709 by **Jim Cash** in Swanwick.

Also logged were R.Prague, Czech 21.705 (Eng, Cz to Asia, Pacific areas 0730-0830) 54344 at 0745 by **Chris**

Listeners:
A: Tim Bucknall, Congleton.
B: Paul Gibson, Edinburgh.
C: Francis Hearne, N.Bristol.
D: Sheila Hughes, Morden.
E: Eddie McKeown, Co.Down.
F: George Millmore, Wootton, IOW.
G: Sid Morris, Rowley Regis.
H: Stewart Russell, Forfar.
I: John Stevens, Largs.
J: John Wells, East Grinstead.
K: Lee Williams, N.Birmingham.

Listeners -
A: Charles Beanland, Gibraltar.
B: Kenneth Buck, Edinburgh.
C: Tim Bucknall, Congleton.
D: Claran Fitzsimons, Co.Laois.
E: Sheila Hughes, Morden.
F: Eddie McKeown, Co.Down.
G: George Millmore, Wootton, IOW.
H: Sid Morris, Rowley Regis.
I: Fred Pallant, Storrington.
J: Don Phillips, Bridlington.

Freq kHz	Station	ILR	e.m.r.p (kW)	Listener
558	Spectrum R	I	7.50	A,D*,E*,F,G,J
585	R.Solway	B	2.00	A,E
603	Invicta Snd(Coast)	I	0.10	A,F,J
603	R.Gloucester	B	0.10	A,F,G,J
630	R.Bedfordshire	B	0.20	A,C*,D,F,G,J
630	R.Cornwall	B	2.00	F
657	R.Clywd	B	2.00	A,E*,F,G,J
657	R.Cornwall	B	0.50	F
666	DevonAir R	I	0.34	A,E*,F,J
666	R.York	B	0.80	A
729	BBC Essex	B	0.20	A,F,G*,J
738	Hereford/Worcester	B	0.037	A,F,G,J
756	R.Cumbria	B	1.00	A,E
756	R.Shropshire	B	0.63	A,F,G,J
765	BBC Essex	R	0.50	A,F,G,J
774	R.Kent	B	0.70	F,J
774	R.Leeds	B	0.50	A,J
774	Severn Sound (3CR)	I	0.14	A,C,F,G
792	Chiltern R	I	0.27	A,F,G,J
801	R.Devon	B	2.00	A,E,F,J
819	Hereford/Worcester	B	0.037	A,F,G,J
828	Chiltern Radio	I	0.20	J
828	R.WM	B	0.20	A,G
828	2CR	I	0.27	F,J
837	R.Cumbria	B	1.50	A
837	R.Furness	B	1.00	A,E
837	R.Leicester	B	0.45	A,F,G,J
855	R.Devon	B	1.00	F
855	R.Lancashire	B	1.50	A,E
855	R.Norfolk	B	1.50	F,J
873	R.Norfolk	B	0.30	A,E,F,J
936	GWR (Brunel R.)	I	0.18	A,D,F,G,J
945	R.Trent (GEM-AM)	I	0.20	A,F,G,J
954	DevonAir R	I	0.32	F,J
954	R.Wyvern	I	0.16	A,G,J
990	WABC (Nice & Easy)	I	0.09	A,G,J
990	R.Devon	B	1.00	F,J
999	R.Solent	B	1.00	D,F,J
999	R.Trent (GEM-AM)	I	0.25	A,J
999	Red Rose R	I	0.80	A,E
1017	WABC Shrewsbury	I	0.70	A,F,G,J
1026	R.Cambridgeshire	B	0.50	A,D,J
1026	R.Jersey	B	1.00	D,F,J,K
1035	Northsound Radio	I	0.78	B*
1035	R.Kent	B	0.50	F,J
1035	R.Sheffield	B	1.00	A
1035	West Sound	I	0.32	E
1107	Moray Firth R	I	1.50	D*
1107	R.Northampton	B	0.50	A,D,F,G*,J
1116	R.Derby	B	1.20	A,G
1116	R.Guernsey	B	0.50	D,F,J
1152	BRMB (Xtra-AM)	I	3.00	A,C,G
1152	LBC (L.Talkback R)	I	23.50	D*,F*,J
1152	Piccadilly R	I	1.50	A
1152	R.Broadland	I	0.83	E*,J
1161	GWR (Brunel R.)	I	0.16	A,C,D,E,F
1161	R.Bedfordshire	B	1.0	J
1161	R.Sussex	B	1.00	D,F
1161	R.Tay	I	1.40	B,H
1161	Viking R.(C.Gold)	I	0.35	A

Freq kHz	Station	ILR	e.m.r.p (kW)	Listener
1170	Ocean Sd.(SCR)	I	0.12	F,J
1170	R.Orwell	I	0.28	J
1170	Signal R	I	0.20	A,G
1170	Swansea Sound	I	0.58	E*
1242	Invicta Snd(Coast)	I	0.32	E*,J
1242	Isle of Wight R	I	0.50	A*,E*,F
1251	Saxon R	I	0.76	A,J
1260	GWR (Brunel R.)	I	1.60	D,F,J
1260	Leicester (GEM-AM)	I	0.29	A,D,F,G,J
1260	Marcher Sound	I	0.64	A
1278	Pennine R.(C.Gold)	I	0.43	A,F
1305	R.Hallam (C.Gold)	I	0.15	A
1305	Red Dragon (Touch)	I	0.20	C,F,J
1323	R.Bristol (Som.Sound)	B	0.63	A,E*,G*
1323	S'thern Sound (SCR)	I	0.50	A,F,J
1332	Hereward R.P'boro	I	0.80	A,G,J
1332	Wiltshire Sound	B	0.30	C,E*,F,J
1359	Essex R.(Breeze)	I	0.28	J
1359	Mercia Snd(Xtra-AM)	I	0.27	A,G
1359	R.Solent	B	0.85	F
1368	R.Lincolnshire	B	2.00	A,J
1368	R.Sussex	B	0.50	D,F,J
1368	Wiltshire Sound	B	0.10	E*,F
1413	Sunrise R	I	0.25	F,J
1431	Essex R.(Breeze)	I	0.35	E*,J
1431	Radio 210	I	0.14	F,J
1449	R.Peterboro/Cambs	B	0.15	A,F,J
1458	GLR	B	50.00	C,F
1458	GMR	B	5.00	A
1458	R.Cumbria	B	0.50	E*
1458	R.Devon	B	2.00	F
1458	R.Newcastle	B	2.00	B*
1458	Radio WM	B	5.00	A,C,G
1476	City Sound(1st Gold)	I	0.50	A,C,D*,E*,F
1485	R.Merseyside	B	1.20	A,E*,G
1485	R.Oxford	B	0.50	F
1485	R.Sussex	B	1.00	D,J
1503	R.Stoke-on-Trent	B	1.00	A,E*,F,G
1521	R.Mercury	I	0.64	F,J
1521	R.Nottingham	B	0.50	A,E*,G
1530	Pennine R.(C.Gold)	I	0.74	A,E*,F
1530	R.Essex	B	0.15	F,J
1530	R.Wyvern	I	0.52	A,F,G
1548	Capital R. (Gold)	I	97.50	D*,F,J
1548	R.Bristol	B	5.00	E*,F,G*
1548	R.City (City Talk)	I	4.40	A
1548	R.Forth (Max AM)	I	2.20	B*,H
1548	R.Hallam (C.Gold)	I	0.74	A
1557	Chiltern R.(Gold)	I	0.76	A,E*,G*
1557	Ocean Sound (SCR)	I	0.50	F,J
1557	R.Lancashire	B	0.25	A
1557	Trending R.(Mellow)	I	?	J
1584	Gatewick	I	0.10	F,J
1584	Heathrow	I	0.10	A*,J
1584	R.Nottingham	B	1.00	A,E*
1584	R.Shropshire	B	0.50	A,G
1584	R.Tay	I	0.21	A*,J
1602	R.Kent	B	0.25	A*,E*,F,G*,J,J

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

Shorten in Norwich; BBC via Ascension Is 21.660 (Eng to Africa 0700-1745) 32222 at 0820 by **Robin Harvey** in Bourne; R.Portugal via S.Gabriel 21.700 (Port to Africa 1000-1200) 31144 at 1025 by **Chris Haigh** in Huddersfield; RFI via Issoudun 21.580 (Fr to Africa 0800-1800) 45333 at 1045 by **Darren Beasley** in Bridgewater; VOA via Wertachtal 21.570 (Eng to M.East 1000-1100) 44444 at 1056 by **Leo Barr** in Sunderland; DW Cologne 21.465 (Eng to W.Africa 1100-

1150) SIO444 at 1130 by **Bryan Kimber** in Hereford; BBC via Limassol 21.470 (Eng to E.Africa 0900-1615) SIO444 at 1130 by **John Coulter** in Winchester; BRT Brussels 21.810 (Eng to USA, SE.Asia 1400-1425) 33332 at 1400 by **Roderick Illman** in Oxted; R.Austria Int, Vienna 21.490 (Eng to W.Africa 1530-1600) heard in Congleton; R.Japan via Moyabi 21.700 (Jap to M.East 1600-1700) SIO444 at 1600 by **Cyril Kellam** in Sheffield; R.Norway Int, Oslo 21.730 (Eng to E.Africa 1600-1630 Sat/Sun only) 54444 at 1615 in Gibraltar; WYFR via Okeechobee 21.615 (Eng to Africa 1600-1700) SIO343 at 1640 in Rowley Regis.

Good reception of R.New Zealand's 17MHz (16m) signals to Pacific areas has been noted in the UK on some days. Listening at 0455, **Chris Bazley** rated the broadcast on 17.770 (Eng 2200-0730) as SIO444. Also heard in the morning were R.Japan via Yamata 17.810 (Eng to S/E.Asia 0500-0600) 25532 at 0503 in Wallsend; also 17.890 (Jap, Eng to Oceania 0600-0800) 44344 at 0730 in Norwich; BBC via Mahe 17.885 (Eng to E.Africa 0630-0900) SIO343 at 0716 in Guildford; Africa No.1, Gabon 17.630 (Fr, Eng to W.Africa 0700-1600) 22232 at 0815 in Bourne; SRI via Schwarzenburg 17.670 (Eng to Pacific areas 0830-0900) SIO333 at 0830 by

Francis Hearne in N.Bristol; R.Afghanistan 17.720 (Eng to Asia 0930-1030) SIO444 at 0930 in Sheffield; Voice of Israel, Jerusalem 17.545 (Eng to Europe, M.East 1100-1130) 55444 at 1130 in Bridgewater; R.Pakistan, Islamabad 17.902 (Eng to Europe 1100-1120) 34333 at 1100 in Co.Down; AIR via Delhi 17.387 (Eng, Ta to E.Asia 1100-1245) SIO343 at 1159 in Edinburgh.

Later, the Voice of Greece, Athens 17.525 (Eng to USA 1235-1247) was 34444 in Bridlington; R.Yugoslavia, Belgrade 17.740 (Eng to USA 1230-1300) SIO555 at 1240 by **Philip Rambaut** in Macclesfield; WWCR Nashville 17.525 (Eng to ? 1600-2200) 44444 at 1600 in Oxted; RTM Tanger, Morocco 17.595 (Fr, Eng to M.East, N.Africa 1500-1800) 55544 at 1630 in Brenchley; RCI via Sackville 17.820 (Eng to Africa 1800-1830) SIO544 at 1805 in Rowley Regis; RHC Havana 17.705 (Eng to Africa, M.East 1900-?) SIO433 at 1900 in N.Birmingham; VOA via Bethany 17.800 (Eng to Africa 1600-2200) SIO433 at 1915 in Hereford; R.Nederlands via Bonaire 17.605 (Eng to W.Africa 1830-1925) 44333 at 1923 in Swanwick; HCJB, Ecuador 17.790 (Eng to Europe 1900-2000) SIO444 at 1912 in Rotherham; DW via Antigua 21.810 (Ger to Africa 2000-2155) 11144 at 2030 in Huddersfield.

long medium & short

Tropical Bands

Owing to severe adjacent channel interference R.New Zealand's **15MHz (19m)** signals to Pacific areas have been inaudible in the UK until 1830 or later. In Hemel Hempstead, **Peter Perkins** logged their 100kW signal on 15.120 (Eng 1800-2205, Sun to Fri) as 32342 at 1830. Good reception of R.Australia's Shepparton broadcast to Pacific areas on 15.240 (Eng 2200-0930) has been noted most mornings by **Stewart Russell** in Forfar. Their Darwin broadcasts to C.Asia on 15.170 (Chin, Eng 0900-1400, 2200-?) were 44434 at 1122 in Co.Down and 23333 at 2217 in Sunderland.

Many **15MHz** programmes are beamed to Europe during the day, R.Finland via Pori 15.120 (Ger 1100-1130) SIO555 at 1125 in Guildford; WWCR Nashville 15.690 (Eng 1200-0000) 44333 at 1254 in Oxted; UAE R.Dubai 15.435 (Eng 1330-1400, also to N.Africa) 54323 at 1338 in Swanwick; RCI via Sines 15.325 (Fr, Eng 1500-1530) 42333 at 1523 by **Ciaran Fitzsimons** in Co.Laois; RNB Brasilia, Brazil 15.265 (Eng, Ger 1800-2100) heard at 1800 in Congleton; WINB Red Lion 15.295 (Eng 1800-2000, also to N.Africa) SIO323 at 1812 in Macclesfield; WSHB Cypress Creek 15.665 (Eng 1800-2200) SIO433 at 1940 by **Aif Gray** in SW.Birmingham; HCJB, Ecuador 15.270 (Eng 1900-2000) SIO444 at 1958 in Edinburgh; WYFR Okeechobee 15.566 (Eng 2000-?) heard at 2100 in Bridlington; WRNO New Orleans 15.420 (Eng 1900-2300, also USA) SIO211 at 2110 in N.Birmingham; R.Korea, Seoul 15.575 (Eng 2030-2130) 35553 at 2113 in Wallsend.

Some to other areas were also heard: RFO Papeete, Tahiti 15.170 (Fr, Tah to SE.Pacific 1600-0930) SIO333 at 0600 by **Simon Hamer** in New Radnor; DW via Wertachtal 15.185 (Eng to W.Africa 0600-0650) 54333 at 0645 in Norwich; AIR via Aligarh 15.050 (Eng to Aust 1000-1100) SIO444 at 1015 in Hereford; R.Afghanistan, Kabul 15.140 (Eng to Asia 0930-1030) SIO444 at 1015 in Sheffield; RTL Luxembourg 15.350 (Eng, Fr to E.USA 24hrs) SIO322 at 1105 in Rotherham; R.Tashkent, Uzbek 15.470 (Eng, Ur, Hi to S.Asia 1200-1500) 42432 at 1230 in Bridgwater; RSA, S.Africa 15.160 (Eng to Africa 1600-1600) 54444 at 1712 in Brenchley; also 15.365 (Fr to W.Africa 1800-2000) 35534 at 1940 by **Sergei Olejnik** in Kalush, Ukraine; R.Romania Int, Bucharest 15.365 (Eng to Africa 1730-1800) SIO554 at 1745 in Rowley Regis; VOA via Selebi-Phikwe 15.445 (Eng to Africa 1600-2200) 45554 at 1800 in Northwich; RCI via Sackville 15.260 (Eng to Africa 1900-1930) SIO433 at 1915 in N.Bristol; BBC via Ascension Is 15.400 (Eng to Africa 1745-2315) 44444 at 2200 in S.Bristol; Vatican R, Italy 15.090 (Eng, Fr to W.Africa 2000-2100) 52333 at 2028 in Gibraltar; K.TWR Guam 15.485 (Jap to E.Asia 2045-2200) 31133 at 2143 in Huddersfield.

Broadcasters taking advantage of the **13MHz (22m)** band conditions in-

Freq MHz	Station	Country	UTC	DXer
2.310	ABC Alice Springs	Australia	1915	H,P,Q,T
2.325	ABC Tennant Creek	Australia	1945	H,Q
2.340	Fuzhou	China	1610	P
2.485	ABC Katherine	Australia	1945	H,Q
2.560	Xinjiang	China	0020	F
3.215	R.Orange	S.Africa	1910	H,P
3.220	R.Togo, Lome	Togo	2230	T
3.240	TWR	Swaziland	1736	L,P
3.250	R.Pyongyang	N.Korea	2300	L
3.255	BBC via Maseru	Lesotho	1900	H,M,Q
3.270	SWABC 1, Namibia	S.W.Africa	1750	L,P
3.295	Reykjavik	Iceland	2005	F,H,J,K,M,N,P
3.315	AIR Bhopal	India	1545	F,I
3.315	SLBS Freetown	Sierra Leone	2100	Q
3.320	Pyongyang	N.Korea	2130	L
3.330	R.Kigali	Rwanda	1800	P
3.355	R.Botswana	Gaborone	1800	P
3.355	AIR Kurseong	India	1530	F,H,I,N,T
3.365	AIR New Delhi	India	1530	F,H,L
3.365	GSC Radio 2	Ghana	2130	I,J,K,M,Q,S,T
3.380	R.Malawi	Malawi	1815	J,P
3.905	AIR Delhi	India	1630	F,N,P,S,T
3.905	RRI Banda Aceh	Indonesia	1501	F
3.915	BBC Kranji	Singapore	1630	P,Q,S
3.925	AIR Delhi	India	1630	F,N
3.925	NSB Tokyo	Japan	2125	L
3.940	PBS Hubei Wuhan	China	2324	F,P
3.950	PBS Qinghai Xining	China	2319	F,P
3.955	BBC Davenport/Skelton	England	2010	B,C,J,P
3.960	PBS Xinjiang, Urumqi	China	2322	P
3.960	RFE/RL Munich	W.Germany	2000	B,J,N
3.965	RFI Paris	France	2000	B,I,J,P
3.970	RFE Munich	W.Germany	2000	B,I,J
3.975	BBC Skelton	England	2000	J
3.980	VOA Munich	W.Germany	2140	B,I,J,P
3.985	R.Beijing, China	via Sri Berne	?	C
3.985	SRI Berne	Switzerland	2000	B,I,J,K,P,Q
3.990	VOPJiang, Shanghai	China	0012	F
3.995	DW Cologne (Julich)	W.Germany	2015	B,N
4.000	RRI-Kendari	Indonesia	1420	L
4.005	RRI Padang	Indonesia	1505	F,T
4.035	PBS Xizang Lhasa	Tibet	0010	F,P
4.055	R.Moskva 1 (Kalinin)	Russia	1707	C,J,P
4.090	WYFR via Taipei	Taiwan	2330	T
4.220	PBS Xinjiang	China	1510	F,P,Q
4.330	PBS Xinjiang	China	0000	Q
4.460	R.Beijing	China	2200	L
4.465	R.Moskva (Ufa)	Russia	1600	F,I
4.500	Xinjiang	China	1435	F,J
4.520	R.Moskva 2	Russia	0355	F
4.600	R.Khabarovsk	Iran	2005	J,L,Q
4.610	R.Khabarovsk	Primorye	1730	R,T
4.635	R.Dushanbe	Tadzhik	0061	F,P
4.680	R.Nac. Espejo	Ecuador	2305	E
4.735	Xinjiang	China	2356	F,J,P
4.740	R.Afghanistan	via Russia	1606	A,P,T
4.750	R.Bertoua	Cameroon	2100	L,M,P,Q
4.765	Yunnan Kuming	China	1515	F
4.765	Brazzaville	Pep.Rep.Congo	1900	F,H,I,J,K,M,O,P,Q,T
4.770	RFCN Kaduna	Nigeria	1703	F,J,K,L,M,P,Q,S
4.775	Kabul City Service	Afghanistan	2108	M
4.775	R.Gabon, Libreville	Gabon	1745	P,R
4.775	RRI Jakarta	Indonesia	1500	A,F,L,Q
4.780	RTD	Djibouti	01948	L
4.785	RTM Bamako	Mali	2110	L,M
4.785	R.Tanzania	Tanzania	1850	J,M
4.785	R.Baku	Azerbaijan	1728	P
4.790	TWR Manzini	Swaziland	1900	H
4.795	R.Douala	Cameroon	1933	J,L,M
4.795	R.Moscow (Kharkov)	Ukraine	1729	B,D,E,J,M,P
4.795	R.Ulan Ude	Russia	?	C
4.796	R.Nueva America	Bolivia	0500	T
4.800	AIR Hyderabad	India	2255	L,P,U
4.800	R.Moscow Yakutsk	Russia	2125	G
4.805	R.Nac. Amazonas	Brazil	2128	L
4.810	R.Orion, Jo'burg	S.Africa	0012	L
4.810	R.Yerevan	Armenia	1935	J,M,R
4.815	R.diff TV Burkina	Duagadougou	2141	M
4.820	E.Prov.Huila	Angola	2100	T
4.820	R.Moskva 4 (Khanty-M)	Russia	1600	A,J,R
4.825	V of Selva	Peru	0947	L
4.825	R.Moscow (Yakutsk)	Siberia	1712	D,I,J,K,M
4.825	Ashkhabad	Turkmenia	1753	R
4.830	R.Tachira	Venezuela	2300	E,F,J,L,P,T

Freq MHz	Station	Country	UTC	DXer
4.832	R.Reioj	Costa Rica	0340	F,L,T
4.835	R.Tezufurten, Coban	Guatemala	0100	F,L,Q,T
4.835	RTM Bamako	Mali	1900	H,I,J,K,L,M,P,Q
4.840	AIR Bombay	India	1700	H
4.845	ORTM Nouakchott	Mauritania	2143	F,H,I,J,M,P,Q
4.850	R.Yaounde	Cameroon	1830	F,H,J,K,M,P,Q,S
4.850	Taiwan 2, Beijing	China	0233	J
4.850	AIR Kohima	India	1936	M
4.850	R.Tashkent 2	Uzbekistan	0005	A,F,J
4.855	R.Sana Yomem	Yemen	1655	P
4.860	AIR New Delhi	India	1600	A,L,S
4.860	R.Moskva 2 (Chita)	Russia	2130	G
4.860	R.Moscow	Russia	1715	B,D,I,J,M,P,R
4.865	PBS Lanzhou	China	2100	F,J,K,L,P,Q
4.865	V of Cinaruco	Colombia	0348	E,F
4.870	R.Cotonou	Benin	2120	J,L,M,P,Q,R,S
4.870	SLBC Colombo	Sri Lanka	0035	L
4.875	R.Tbilisi	Georgia	1615	A
4.885	R.Clube do Para	Brazil	0100	F,L,Q
4.885	R.Beijing	China	2351	F,P
4.885	Ondas del Meta	Colombia	0330	T
4.885	Voice of Kenya	Kenya	2045	L
4.890	RHI Paris	via Gabon	0430	L
4.890	ORTS Dakar	Senegal	2247	L,P
4.895	Voz del Rio Arauca	Colombia	0515	E
4.895	R.Moscow (Kalinin)	Russia	1910	A,M
4.900	V. of the Strait 2	China	1540	A,F,P,Q,R
4.900	SLBC Colombo	Sri Lanka	2330	P
4.905	R.Regioio, Rio	Brazil	0155	E
4.905	R.Nat.N'djamena	Chad	1936	F,L,M,P,Q,T
4.905	R.Beijing	China	2310	L
4.910	R.Zambia, Lusaka	Zambia	1851	M
4.915	R.Anhanguera	Brazil	0757	F
4.915	R.Ghana, Accra	Ghana	2000	I,J,M,P,S,T
4.920	ABC Brisbane	Australia	1900	H,M,S
4.930	R.Moscow	Russia	1910	J,M,P,S
4.935	Voice of Kenya	Kenya	1800	F,H,J,M,Q
4.940	R.Afghanistan	via Russia	1605	A
4.940	R.Kiev 2	Ukraine	1910	E,J,K,M,P,Q
4.940	R.Continental Barinas	Venezuela	0832	F
4.950	R.Nac.Luanda	Angola	1943	M
4.950	PBS Xilinhot, Hohhot	China	0016	L
4.955	R.Marajoara, Belem	Brazil	0100	F,L
4.958	R.Baku	Azerbaijan	1615	A,F,J,P
4.960	AIR New Delhi	India	0034	P
4.960	R.Baku 2	Russia	1944	M
4.970	PBS Xinjiang	China	0005	F,P
4.970	R.Rumbos, Caracas	Venezuela	0009	F,J
4.975	PBS Fuzhou	China	2135	L
4.975	R.Uganda, Kampala	Uganda	1900	H,L,M,P,Q,S
4.975	R.Dushanbe	Tadzhikistan	0130	F,J,P
4.980	PBS Xinjiang	China	2300	A,P,Q
4.980	Ecos del Torbes	Venezuela	2225	A,E,F,H,I,L,O,P,Q,S,T
4.985	R.Brazil Central	Brazil	0730	P
4.990	AIR via Madras	India	0000	F,O,P,Q
4.990	RFCN Lagos	Nigeria	1930	H,I,J,K,L,M,S
4.990	R.Moscow (Yerevan)	Armenia	1945	J,M
5.005	R.Nacional, Bata	Eq.Guinea	1818	F,M,P,Q
5.005	R.Nepal, Kathmandu	Nepal	1630	H,Q,T
5.010	R.Garoua	Cameroon	2108	L,M,P,Q
5.010	R.Madagascar	Madagascar	2157	J
5.010	SBC Singapore	Singapore	2300	H,Q
5.015	R.Arkhangelst	Russia	1844	J
5.015	R.Vladivostok	Siberia	2301	P
5.020	PBS-Jiangxi Nanchg	China	2140	L
5.020	SLBC Tamil Hme Sce	Sri-Lanka	2350	L
5.025	R.Parakou	Benin	2032	L,M,P,Q
5.025	R.Uganda, Kampala	Uganda	1930	H,J
5.030	R.Catolica, Quito	Ecuador	0100	E,L
5.035	R.Aparecida	Brazil	0025	L
5.035	R.Bangui	C.Africa	1930	H
5.035	R.Alma Ata	Kazakhstan	2200	T,E,F,P,Q
5.040	Voz del Upano	Ecuador	2355	U
5.040	R.Tbilisi 1	Georgia	1750	A,E,M,P
5.045	R.Cultura do Para	Brazil	0730	F,L,L,P,Q
5.047	R.Togo, Lome	Togo	2108	E,F,J,M,P,Q
5.050	AIR Aizawal	India	1530	T
5.050	SBC Singapore	Singapore	1430	Q
5.055	Faro del Caribe	Costa Rica	0430	L
5.055	RFO Cayenne	French Guiana	0530	T
5.060	PBS Xinjiang	China	2300	J,Q
5.260	R.Alma Ata 2	Kazakhstan	2141	F,J,Q
5.440	PBS Xinjiang	China	0000	Q
5.800	PBS Xinjiang	China	0000	Q

clude BRT via Wavre 13.675 (Eng to Europe 1000-1025) heard in Bridlington; R.Austria Int via Moosbrunn 13.730 (Ger, Sp, Eng, Fr to Europe 0400-1700) 34543 at 1055 in Wallsend; UAE R.Dubai 13.675 (Eng to Europe 1330-1400) 43454 in Congleton; KHBI Saipan 13.625 (Eng to SE.Asia, India 1000-2000) SIO332 at 1430 in Rotherham; RCI via Sackville 13.650 (Fr, Eng to Europe 1500-1530) SIO444 at 1525 in Macclesfield & 13.670 (Eng, Fr to Africa 1800-1930) 33333 at 1809 in Oxted; SRI via Sottens 13.685 (Eng, Fr, It to M.East, E.Africa 1515-1700) SIO444 at 1550 in Rowley Regis; R.Australia via Carnarvon 13.755 (Eng to Pacific areas 1500-2100?) 54344 at 1600 in Norwich; R.Pakistan, Islamabad 13.665 (Eng to M.East 1600-1630) 43444

at 1612 in Bridgwater; Voice of Israel, Jerusalem 13.750 (Heb to Europe 0400-2310) 52155 at 1807 in Huddersfield; WHRI Noblesville 13.760 (Eng to USA, Europe 1600-0000) SIO422 at 1836 in Rayleigh; DW via Julich 13.790 (Eng to W.Africa, M.East 1900-1950) 14321 at 1906 in Co.Laois; WCSN Scotts Corner 13.770 (Eng to Europe, M.East, Africa 2000-0000) 55444 at 2050 in Swanwick; Voice of the UAE in Abu Dhabi 13.605 (Eng to N.Africa 2200-0000) SIO455 at 2345 in N.Birmingham; R.Australia via Carnarvon 13.705 (Eng, Th to Asia 2100-0000) SIO222 at 2215 by **Antonio De Abru-Teixeira** in Evesham; also via Darwin 13.605 (Chin, Eng to C.Asia 2200-0100) SIO333 at 2301 in Edinburgh.

Many **11MHz (25m)** band signals

DXers:

- (A) Darren Beasley, Bridgwater.
- (B) Kenneth Buck, Edin'burgh.
- (C) Tim Bucknall, Congleton.
- (D) John Coulter, Winchester.
- (E) Antonio De Abru-Teixeira, Evesham.
- (F) David Edwardson, Wallsend.
- (G) Chris Haigh, Huddersfield.
- (H) Simon Hamer, New Radnor.
- (I) Sheila Hughes, Morden.
- (J) Eddie McKeown, Co.Down.
- (K) Sid Morris, Rowley Regis.
- (L) Sergei Olejnik, Ukraine.
- (M) Fred Pallant, Storrington.
- (N) John Parry, Northwich.
- (O) Roy Patrick, Derby.
- (P) Peter Perkins, Hemel Hempstead.
- (Q) Don Phillips, Bridlington.
- (R) Philip Rambaut, Macclesfield.
- (S) Darran Taplin, Brenchley.

long medium & short

are aimed at European listeners. A few stem from RTV Sfax, Tunisia 11.550 (Ar 0700-1800) 45554 at 0700 in Wallsend; R.Portugal, S.Gabriel 11.740 (Eng 2000-2030) SIO444 at 2000 in SW.Birmingham; R.Damascus, Syria 12.085 (Eng 2005-2105) heard in Bridlington; Voice of Israel, Jerusalem 11.605 (Eng 2000-2030) 54334 at 2011 in Swanwick; VOA via Tangier 11.710 (Eng 1900-2200) SIO333 at 2030 in N.Bristol; AIR via Aligarh 11.620 (Hi, Eng 1845-2230) SIO444 at 2046 in Edinburgh; R.Beijing, China 11.500 (Eng 2000-2200) 54444 at 2140 in Norwich; R.Japan via Moyabi 11.735 (Eng 2300-0000) SIO444 at 2300 in Sheffield.

Among those to other areas were KFBS, Marpi 11.650 (Russ to N.Asia, E.Europe 0900-1400) 44333 at 1100 in Bridgwater; KSDA Agat 11.980 (Chin, Jap, Eng to C/E Asia 0900-1700) SIO444 at 1420 in Hereford; Voice of the Mediterranean, Malta 11.925 (Eng, Ar to N.Africa 1400-1600) SIO433 at 1450 in Rotherham; R.Austria Int, Vienna 11.780 (Ger, Eng, Fr to S/SE.Asia 1400-1700) SIO443 at 1550 in Rowley Regis; RSA Johannesburg, S.Africa 11.880 (Eng to Africa 1600-1800) 43433 at 1605 in Brenchley; R.Zanzibar, Dole 11.734 (Swa to E.Africa 1500-1830) SIO111 at 1750 in Macclesfield; R.Australia via Carnarvon 12.000 (Eng to S.Asia 1430-2100) 24332 at 2000 in S.Bristol; R.Nacional da Amazonia, Brasilia 11.780 (Port 0800-2200) 34233 at 2055 in Hemel Hempstead; King of Hope, Lebanon 11.530 (Eng to M.East 2000-2200) 44333 at 2120 in Morden; R.Anhanguera, Brazil 11.830 (Port 0700-0400) SIO444 at 2120 by **John Stevens** in Largs; R.Globo, Brazil 11.805 (Port 0900-0300) 24322 at 2210 in Co.Laois; BBC via Tsang Tsui 11.945 (Eng to Asia 2300-0030) 23232 at 2305 in Bourne; R.Dif.Nacional, Bogota 11.821 (Sp 0930-0500) SIO222 at 0025 in Evesham; R.Sweden via Horby 11.705 (Eng, Sp, Fr, Sw to USA 0100-0300) 54444 at 0220 in Gibraltar.

Particularly good reception of R.New Zealand's **9MHz (31m)** signals to Pacific areas has been noted here. Signals on 9.700 (Eng 0730-1210) were SIO444 at 0810 in Sheffield. It peaked 54334 at 1032 in Co.Laois, but severe co-channel interference arose at 1130. Some of R.Australia's signals have also been heard here: Shepparton on 9.710 (Eng, Toc to S.Asia 0800-1300) was SIO212 at 0950 in Macclesfield, 9.580 (Eng to Pacific areas 0830-2100) SIO333 at 1215 in Hereford; Carnarvon on 9.850 (Eng to Asia 1430-2100) 55345 at 1508 in Hemel Hempstead.

During the day are broadcasts to Europe. Some came from R.Prague, Czechoslovakia 9.505 (Ger, Fr, Eng 0700-1300) 44434 at 0750 in Sunderland; TWR Monaco 9.480 (Eng 0640-1015) SIO555 at 0950 in Guildford; R.Nederlands via Flevo 9.715 (Eng 1130-1225) 55555 at 1130 in Oxted; RCI via Daventry or Woofferton 9.555 (Fr, Eng 1500-1530)

heard in Congleton; R.Polonia, Warsaw 9.540 (Eng 1600-1630) SIO443 at 1620 in Rowley Regis; VOA via Kavala 9.700 (Eng 1500-2100, also to M.East, Africa) SIO544 at 1651 in Rayleigh; R.Tirana, Lushnje 9.480 (Eng 1830-1900) 44333 at 1830 in Morden; VOIRI, Tehran 9.022 (Eng 1930-2030) heard in Bridlington; Voice of Greece, Athens 9.425 (Gr, Eng, Fr, Ger 1900-1950) SIO555 at 1930 in Edinburgh; Voice of Vietnam, Hanoi 9.840 (Eng 2030-?) 54434 at 2044 in Swanwick; R.Cairo, Egypt 9.900 (Eng 2115-2245) 44433 at 2118 in Brenchley; R.Beijing, China 9.920 (Eng 2000-2200) 34533 at 2125 in Wallsend; VOFC Taipei 9.852 (Eng 2200-2300) 53553 at 2252 in Bridgwater; R.Sofia, Bulgaria 9.700 (Eng 2245-0100) SIO333 at 2333 in Rotherham; R.Vilnius, Lithuania 9.710 (Eng 0000-?) 54444 at 0004 in Gibraltar.

Some for other areas came from DW via Antigua 9.670 (Eng to USA 0500-0555) 34233 at 0515 in Co.Down; Voice of Malaysia, Kuala Lumpur 9.750 (Eng to SE.Asia 0555-0825) SIO222 at 0600 in Evesham; HCJB, Ecuador 9.745 (Eng to S.Pacific 0730-1100) 54344 at 0745 in Norwich; SRI via Schwarzenburg 9.560 (Eng to Aust, Pacific 0830-0900) 43433 at 0835 in Bourne; ISBS, Iceland 9.265 (Ic to ? 1900-?) SIO444 at 1900 in New Radnor; KHBI, N.Mariana Is 9.455 (Eng to NE.Asia 2000-2200) SIO211 at 2130 in N.Birmingham; CBC N.Quebec 9.625 (Eng, Fr 1155-0610) 53343 at 2225 by **Alan Smith** in Northampton; Voice of the UAE, Abu Dhabi 9.600 (Eng, Ar to USA 2200-0200) SIO444 at 2345 in N.Bristol; Ecos del Torbes, Venezuela 9.640 (Sp 0900-0400) 44533 at 0100 in Ukraine.

English programmes for European listeners were noted in the **7MHz (41m)** band from R.Polonia, Warsaw 7.285 (1430-1500) SIO333 at 1430 by **Julian Wood** in Elgin; R.Prague, Czech 7.345 (1800-1827) 54444 at 1800 in Brenchley; R.Afghanistan, Kabul 7.215 (1800-?) 24322 at 1822 in Co.Laois; R.Tirana via Lushnje 7.120 (1830-1900) SIO433 at 1830 in Hereford; R.Romania Int, Bucharest 7.145 (1930-2030) at 1930 in Bridlington; AIR via Aligarh 7.412 (1845-2045) SIO444 at 2003 in Winchester; R.Kiev, Ukraine 7.400 (2230-?) 44444 at 2230 in Morden; R.Vilnius, Lithuania 7.400 (0000-?) 55444 at 0007 in Gibraltar.

Also logged were WHRI 7.315 (Eng to USA 0000-1100) 34433 at 0732 in Bourne; R.Korea, Seoul 7.550 (Kor, Ar, Eng to M.East, Africa 1700-2130) 54444 at 2035 in Norwich; Voice of the UAE, Abu Dhabi 7.215 (Eng to USA 2200-0000) 53554 at 2305 in Bridgwater; Voice of Myanmar, Yangon 7.185 (Bam, Eng to SE.Asia 0030-0230) 43443 at 0045 in Ukraine.

The **6MHz (49m)** logs included signals from distant places: R.Aparecida, Brazil 6.135 (Port 0800-0300) SIO433 at 0830 in Sheffield; VOA via Greenville 6.040 (Sp to S.Am 0930-1130) SIO333 at 0922 in Macclesfield; PBS Xinjiang,



The transmitter mast of Isle Of Wight Radio at Briddles Ford Farm, Wootton.

Urumqi 5.800 (Uig to C.Asia 1030-1650) 24442 at 1603 in Wallsend; R.Pyongyang, Korea 6.576 (Eng to Europe 2000-2050) 54444 at 2013 in Norwich; R.Korea, Seoul 6.480 (Eng to Europe 2030-2130) heard in Bridlington;

Transatlantic DX Chart

Freq kHz	Station	Location	Time (UTC)	DXer
USA				
950	WPEN	Philadelphia, PA	0200	B
1010	WINS	New York, NY	0045	B,C
1440	WFTQ	Worcester, MA	0120	C
1600	WWRL	New York, NY	0330	C
Canada				
580	CFRA	Ottawa, ON	0320	C
590	VOCM	St.John's, NF	0010	C
930	CJYQ	St.John's, NF	0020	B,C
1570	CKLM	Montreal, PQ	0030	C
C.America & Caribbean				
1500	XEAI	Mexico City	0045	C
1610	Caribbean B'n	Anguilla	2330	A

DXers -

(A) Tim Bucknall, Congleton.
(B) Sid Morris, while on the Malvern Hills.
(C) Jim Willett, Grimsby.

CKZN, NF 6.160 (Eng to USA, Canada 0930-0500) SIO444 at 2300 in New Radnor; R.Santa Cruz, Bolivia 6.135 (Sp 0900-0100) SIO323 at 0005 in N.Birmingham; R.Caracol, Bogota 6.150 (Sp 24hrs) SIO333 at 0230 in Evesham.

Equipment Used

Leo Barr, Sunderland: Matsui MR-4099 or Steeplestone MBR7 + r.w. in loft.
Chris Bazley, Rayleigh: Sony ICF-SW7600 + 16m wire.
Charles Beanland, Gibraltar: Sangean ATS-803 + a.t.u. + r.w. or Howes AA2.
Darren Beasley, Bridgwater: Philips D2935 + a.t.u. + 10m wire.
Kenneth Buck, Edinburgh: Lowe HF-225 + r.w. in loft or screened loop.
Tim Bucknall, Congleton: Sony ICF 2001D + AN-1.
Jim Cash, Swanwick: Kenwood R5000 + trap dipole.
Bill Clark, Rotherham: Sony ICF-SW7600 + built-in whip.
John Coulter, Winchester: Yaesu FRG-7 + r.w.
David Crookes, Plymouth: Sony SW7600 + built-in whip.
Antonio De Abreu-Teixeira, Evesham: Sony ICF-2001D + 9.5m wire.
David Edwardson, Wallsend: Trio R600 + inverted V trap dipole.
Ciaran Fitzsimonds, Co.Laois: Goodsman ATS-801.
Paul Gibson, Edinburgh: Saisho SW500 + whip.
Alf Gray, Birmingham: Codar CR70 + PR30 + a.t.u. + Ex-Army whip.
Chris Haigh, Huddersfield: Lowe HF-225 + Lowe W-225 or 20m wire.
Simon Hamer, New Radnor: Lafayette HE30 + a.t.u. + 22m or 9m wire or Grundig S1400 or Sony ICF-2001D + loop.
Robin Harvey, Bourne: Matsui MR-4099 + s.w. loop.
Francis Hearne, N.Bristol: Sharp GFA3 or WQT370 + r.w. or FX-928 portable.
S. M. Hockenull, Bristol: HMV 1124 + 2m wire or Philips D2345.
Sheila Hughes, Morden: Sony ICF7600DS; Vega 206 + loop; Panasonic DR48 + 15m wire.
Rhoderick Illman, Oxted: Kenwood R5000 + r.w.
Cyril Kellam, Sheffield: Sony ICF-7600DS + AN-1 or 25m wire.
Bryan Kimber, Hereford: Zenith R7000 or Realistic SX190 + 20m wire.
Eddie McKeown, Co.Down: Tatung TMR 7602.
George Millmore, Wootton, IOW: Tatung TMR 7602 or Rascal RA17L + v.l.f. converter + loop.
Sid Morris, Rowley Regis: Kenwood R5000 + 31m wire or Nevada MS 1000 + whip.
Sergei Olejnik, Kalush, Ukraine: Ishim-003 + 70m wire.
Fred Pallant, Storrington: Trio R2000 + r.w. in loft.
John Parry, Northwich: Realistic DX-400 + 33m wire.
Roy Patrick, Derby: Lowe HF-125 + 22m wire.
Peter Perkins, Hemel Hempstead: Icom R72E + a.t.u. + 17m wire.
Don Phillips, Bridlington: Yaesu FRG-8800 + a.t.u. + 12m wire.
Richard Radford-Reynolds, Guildford: Sangean ATS-803A + 6m wire.
Philip Rambaut, Macclesfield: Int.Marine Radio R.700M + r.w.
Alan Roberts, Quebec, Canada: Lowe HF-225 + 19m or 11m dipole.
Stewart Russell, Forfar: Panasonic C39DL.
Chris Shorten, Norwich: Matsui MR-4099 + 10m wire.
Alan Smith, Northampton: Matsui MR-4099 + a.t.u. + r.w. in loft.
Tom Smyth, Co.Fermanagh: Morphy Richards R191 portable.
John Stevens, Largs: Hammarlund HQ 180 or Icom R-70 + loop or r.w.
Darran Taplin, Brenchley: Yaesu FRG-7700 + FRA-7700 or FRT-7700 + 30m wire.
John Wells, E.Grinsteed: RCA AR88D + loop.
Jim Willett, Grimsby: RCA AR77 + 4m loop or Trio 9R-59DS + a.t.u. + X dipole.
Lee Williams, Birmingham: Sony ICF-2001D + 7.5m wire or Howes AA2.
Julian Wood, Elgin: Kenwood R2000 + Yaesu FRT-7700 a.t.u. + 6m wire.

Maritime Beacons

Long Wave Maritime Beacon Listening

Brian Oddy G3FEX

Three Corners, Merryfield Way, Storrington, West Sussex RH20 4NS

An impressive list for the chart was compiled by **Steve Cann** in Southampton. At least twenty of the beacons noted in his previous list could not be heard, but he was delighted to receive several new ones. All were logged between 0830-1200 or 1900-2100UTC with a Lowe HF-225 receiver in the c.w. mode plus Dee Comm antenna tuning unit (a.t.u) and a G5RV antenna.

Up in Largs, **John Stevens** has found that he can only receive the seven beacons noted in the chart. He says, "Sometimes after dark I hear faint signals which I try to identify, but cannot do so because of interference". **Taff Rees** (Worcester Park) has also found that most of the beacons in his list can be heard regularly, but the signals from the Casquets Lighthouse, Channel Islands (CS) on 298.8kHz and the long range Consul beacon (LEC) on 319kHz have only been heard on one occasion.

Down in Torpoint, **Pat Manning** tuned the band from time to time and noted all the usual beacons; however during the night of January 9 he picked up the signal NO on 294kHz, which stemmed from the Cabo de la Noa lighthouse on the Mediterranean coast of Spain! He says, "The weather was cold, very clear, strong winds with a high over the country. It seems that something unusual pops up to give fresh inspiration when all seems flat".

In Bridgwater, **Darren Beasley** did most of his listening during the mornings after the Christmas period. He logged a total of twenty seven beacons, but some that he had heard previously were inaudible. Nevertheless he was pleased to log two new ones.

Colin Jerney (Ruislip) has found that he can receive more beacons by operating his Sony ICF SW7600 portable in the s.s.b. mode. This model has user friendly keypad tuning, but no manual rotary tuning knob. However, it is worth noting that fine tuning of less than 5kHz is possible, though it is not shown on the l.c.d. display.

A Sony ICF 7600DS portable plus Sony AN-1 active antenna was used by **Cyril Kellam** in Sheffield to compile an interesting log. He discovered that water had penetrated into the telescopic sections of his balcony mounted AN-1, even though the sections were in tight. After getting rid of the water and sealing it up, he received several new beacons. This is certainly a good tip for others who use a Sony AN-1 outdoors.

Some receivers are relatively insensitive in this part of the spectrum, or do not cover the band at all. One solution is to use an up-converter to shift the beacon signals to a band more suited to the set. This technique is used by **George Millmore** in Wootton, IOW. Such converters have either a tuneable local oscillator and output on a pre-determined frequency, or a fixed

Freq kHz	Call sign	Station Name	Location	DXer	Freq kHz	Call sign	Station Name	Location	DXer
287.3	CM	Cromer LH	Norfolk	B,D*	301.1	SR	Skerries LH	Anglesey	A,B,F
287.3	CR	Channel LV	Off S.Devon	A,D*,H	301.1	SU	South Rock LV	Co.Down	B
287.3	FN	Walney Island	off Lancs	B,C,F	301.1	VS	Grosser Vogelsand	Germany	H
287.3	LV	Dudgeon LV	off Norfolk	B,D*,F	301.1	WK	Wicklow Hd Light.	Co.Wicklow	A,B,D*
287.3	PS	Point Lynas	Anglesey	B,F	303.4	FB	Flamborough Hd LH	E.Yorkshire	B,D*,E*,F,J*
287.3	SK	Smith's Knoll LV	off Norfolk	B,D*,F	303.4	FP	Fife Ness Point	Fife	B,D*
289.6	FD	Fidra LH	F. of Forth	B,H*	303.4	LK	Pointe de la Coubre	France	D*
289.6	LP	Loop Head	S.Ireland	A	303.4	LT	Longstone LH	Berwick	B,D*
289.6	TN	Thyboron LH	Denmark	B	303.4	PO	Poole	Dorset	D*,H
291.9	CP	St.Catherines Pt.	I.D.W.	A,D*,H,I*	303.4	SJ	Souter Light	Sunderland	B,D*
291.9	ER	Pointe de Vier LH	N.France	A,D*,H,I*	305.7	CB	Corbiere	Jersey	A,D*,H,I*
291.9	FG	Pointe de Barfleur	N.France	A,D*,E,H,I*	305.7	CS	Calais Main LH	N.France	D*,I*,J
291.9	KD	Kinnairds Head LH	Aberdeen	B	305.7	FE	Cap Frehel	France	A,H
291.9	NR	N.Ronaldsay LH	Orkney Is	B	305.7	FS	Fall's LV	off Kent	D*,H,I*,J
291.9	OM	Stroma Pt. LH	Caithness	B	305.7	KY	Oksoy LH	Norway	B,D*
291.9	PB	Portland Bill LH	Dorset	A,D*,H,I*	305.7	LS	Hirtshals	Norway	B
291.9	SB	Sumburgh Head	Shetland Is	B,D*	305.7	TO	Torungen	Norway	D*
291.9	TI	Cap d'Antifer	France	A,D*,H,I*	305.7	WH	West Hinder	off Belgium	I*,J
294.2	AH	Altacarry Head LH	Antrim	B,K	308.0	BD	Barra Head LH	Is of Barra	B,K
294.2	DA	Pladda LH	Is of Arran	B,D*,K	308.0	CA	Pointe de Creach	France	D*
294.2	ER	Eierland LH	Holland	H	308.0	GL	Eagle Island LH	W.Ireland	B,D*
294.2	GJ	Le Grand Jardin	France	D*	308.0	MZ	Mizen Head LH	S.Ireland	A,B,D*
294.2	LG	Eilean-Glas LH	Is of Harris	B	308.0	PI	Cabo Espichel LH	Portugal	D*
294.2	MW	Mew Island LH	off Co.Down	B,D*,K	308.0	RC	Cabo Roca LH	Portugal	D*,H*
294.2	NO	Cabo de la Nao LH	Spain	D*,G*	308.0	RR	Round Island LH	Scillies	A,B,D*,H,I*
294.2	OR	Oigh Speir LH	off Is Rum	B,I*	308.0	ST	Stevns Klint Lt.	Denmark	D*
294.2	PA	Cabo de Palos LH	Spain	D*	308.0	TY	Tory Island LH	N.Ireland	B,K
294.2	RN	Rinns of Islay	Is of Islay	B,D*,K	310.3	AL	Pointe d'Ailly LH	France	A,D*,H,I*,J
296.5	BN	Ballycotton	S.Ireland	B	310.3	DU	Dungeness LH	S.Kent	A,D*,E*,F,H,I*,J
296.5	HM	Hanstholm	Denmark	B,D*	310.3	FI	Cabo Finisterre LH	N.W.Spain	D*
296.5	LA	Lista LH	S.Norway	B,F	310.3	GD	Girdle Ness	Aberdeen	B
296.5	LS	Lundy Is. S.LH	off N.Devon	A,D*,H	310.3	PH	Cap d'Alprech	France	D*,E*,F,H,I*,J
296.5	MA	C. Machicharo LH	N.Spain	D*	310.3	RO	Cabo Silleiro LH	Spain	D*
296.5	MY	Cabo Mayor	Spain	D*	310.3	RY	Royal Sovereign LV	Eng. Chan	D*,H
296.5	NK	Inchkeith	F. of Forth	B	310.3	VI	Cabo Villano	Spain	D*,I*
296.5	NP	Nieuwpoort W.Pier	Belgium	A,H	310.3	VR	Utvær	Norway	B
296.5	NP	Nash Point	S.Wales	D*	312.6	FN	Feisteng	Norway	B
296.5	OH	Old Head Kinsale	S.Ireland	A,D*	312.6	GU	Getlungane	Norway	B,H*
296.5	SB	South Bishop LH	Pembroke	A,D*,H	312.6	KH	Kish Bank	E.Ireland	B
296.5	TR	Tuskar Rock	S.Ireland	A,D*,H*,K	312.6	MA	Marstein	Norway	B
298.8	AD	Ameland	Holland	B	312.6	NB	Nab Tower LH	off Sussex	D*,H
298.8	BL	Butt of Lewis	Is of Lewis	B	312.6	PT	Souter Pt.	Durham	B
298.8	CW	Cape Wrath LH	Sutherland	B	312.6	RB	Cherbourg	France	A,D*,H,I*
298.8	LK	Sule Skerry LH	off Orkney	B	312.6	UK	Sunk LV	off Essex	I*,J
298.8	LZ	Lizard LH	S.Cornwall	A,D*,H,I*	312.6	UT	Utsira	Norway	B
298.8	MF	Muckle Flugga LH	Shetland Is	B	312.6	YE	Ile d'Yea LH	France	D*
298.8	PE	Penlee Pt.	UK	A,D*,H,I*	313.5	BN	Cap Bon	Tunisia	D*
298.8	QS	Casquets LH	Channel Is	A,D*,H,I*,J	313.5	PQ	Ile Porquerolles	France	D*
298.8	RD	Roches Douvres LH	Channel Is	A,D*,H,I*	318.5	RS	Ristna	USSR	H
298.8	SP	Start Point LH	S.Devon	A,D*,H,I	319.0	LEC	Stavanger	Norway	A,B,D*,F,H*,J
298.8	VG	Ile Vierge	France	D*,I*	397.2	DHE	Helgoland Lt.	off N.Germany	B,H
301.1	BA	Punta Estaca Bares	N.Spain	D*					
301.1	BG	Hatteberget LH	Sweden	B					
301.1	CN	Cregneish	IOM	B					
301.1	GE	Skarvoy Egersund	Norway	B					
301.1	HO	Hirsholm Main LH	Denmark	B,D*,H					
301.1	IA	Llanes LH	N.Spain	D*					
301.1	NF	North Foreland LH	E.Kent	D*,H,I*,J					
301.1	SN	Sletnes LH	Norway	D*					

Note: Entries marked * were logged during darkness. All other entries were logged during daylight.

DXers:-
 (A) Darren Beasley, Bridgwater.
 (B) Kenneth Buck, Edinburgh.
 (C) Tim Bucknall, Congleton.
 (D) Steve Cann, Southampton.
 (E) Colin Jerney, Ruislip.
 (F) Cyril Kellam, Sheffield.
 (G) Pat Manning, Torpoint.
 (H) George Millmore, Wootton, I.O.W.
 (I) Fred Pallant, Storrington.
 (J) Taff Rees, Worcester Park.
 (K) John Stevens, Largs.

(crystal controlled) oscillator and a broadband output. The latter type is preferable, since the calibration accuracy is that of the main receiver. An excellent crystal controlled v.l.f. converter with output in the 10m amateur band is available from Datong. It will enable signals in the range 10-500kHz to be received by tuning the main receiver between 28.010 and 28.500MHz.

No doubt the high level of electrical interference present in towns and

cities limits the activities of many beacon DXers. In an attempt to overcome this problem **Kenneth Buck** (Edinburgh) has built a balanced screened loop. Although it eliminates most mains borne interference it does not reject TV line timebase harmonics, which appear to get into the loop by the magnetic component. He is well pleased with the performance, but he still finds it necessary to listen in the morning when the neighbours are out.

Kenneth has drawn my attention to the fact that all of the UK lighthouses are now unmanned and fully automated. Apparently they are remotely controlled by two computers (one situated in Essex for England and one in Edinburgh for Scotland) via landlines or, in the case of the off-shore ones, by radio links. Nevertheless, the equipment at the lighthouses still has to be checked and cleaned at regular intervals.

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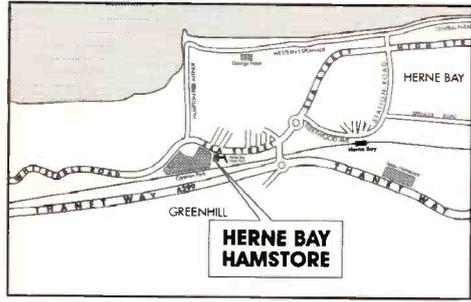
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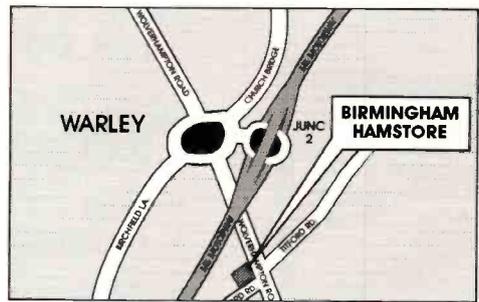
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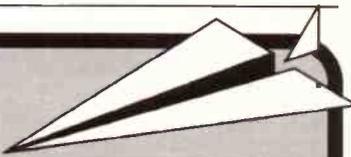
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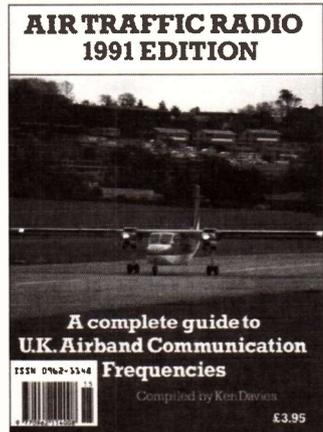
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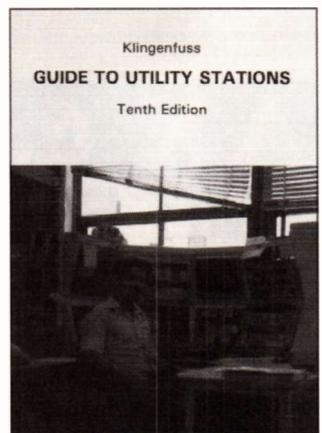
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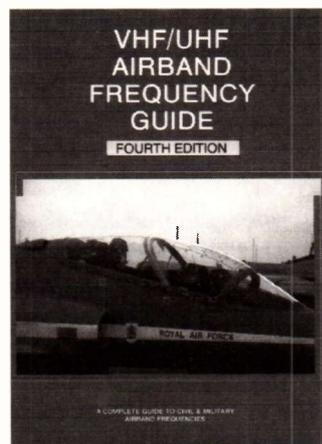
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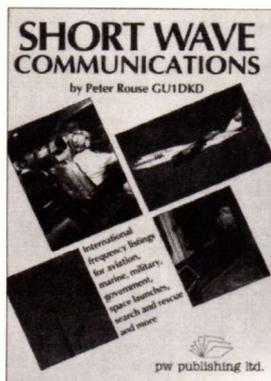
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INDEX TO ADVERTISERS

AAerial Techniques	51					Radio Shack	71
Air Supply	73					Rapid Results College	70
Alan Hooker	73, 76	Dewsbury Electronics	70	J & J Enterprises	76	Radio Research	76
Alyntronic	76	Dressler	23	J & P Electronics	72	Rylands, F G	76
Amateur Radio Communications	49	ERA	24	Klingenfuss	24	R & D Electronics	73
Amdat	79	Flightdeck	68	KW Communications	29	SRP Trading	32
AOR (UK) Limited	39	Garex Electronics	44	Lake Electronics	51	Sigma Euro Comm	70
ASK Electronics	26	G4TNY Radio	76	Link Electronics	44	Short Wave Centre, The	58
Aviation Hobby Centre	44	Grosvenor Software	76	London Amateur Radio Show	61	Solid State Electronics	44
Billington Valves	76	Hoka Electronics	72	Low Electronics	8, 9, cover iv	SMC	13
Bredhurst Electronics	58	Howes, CM	24	Martin Lynch	51, 61	Timestep Weather Systems	71
Chevet Books	72	ICOM	57, 69, cover iii	Nevada Communications	34, 35, cover ii	Technical Software	72
Circuit Distribution	69	ICS Electronics	49	Northern Amateur Radio Show	78	Waters & Stanton	18, 19
Colomor Electronics	76	Javiation	78	Photo Acoustics	14		
Comar Electronics	73			Practical Wireless	79		
Datong	23						

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EXCHANGE FRG-9600 plus h.f. converter and discone. Wanted IBM computer with disc drive and printer, no junk please. Selling vintage receiver R208 covers 10 to 60MHz. Also rotary transformer, 24V d.c. in 450V d.c. out, offers. A. Bell. Tel: (0959) 75113 Biggin Hill, Kent.

WANTED for Realistic PRO2002 scanner IC1 (logic board) 40-pin d.i.l. c.p.u. chip. Would consider compete board from non-runner. Tom Easten. Tel: (0806) 242430.

FOR SALE Grundig Satellit 650 receiver, £200. Grundig Satellit 500 receiver, £215. Sony PRO80 receiver with v.h.f. converter, £215. All as new, boxed, manuals. Free delivery anywhere UK. Tel: (0247) 468678 after 6.30pm or weekends.

FOR SALE Racal RA17L general coverage receiver, complete with Racal cabinet, manual and circuit, £200. Buyer collects. G3RDG, QTHR. Tel: 081-455 8831 NW London.

FOR SALE AOR3000 scanner 100kHz-2036MHz multi-band n.f.m./w.f.m., a.m./c.w., l.s.b./u.s.b. As new. Purchased August 91. Boxed, instructions, complete with Sky Scan 25-1300MHz antenna, £525. John. Tel: 071-622 2820 South London.

FOR SALE Spectrum 48K computer with Technical Software, FAX interface and program, J&P Electronics RTTY, Morse and all relevant handbooks, £80. Acorn Electron plus tapes and books, £40. Tel: (0245) 284964 after 5pm, Chelmsford.

FOR SALE Yaesu FRG-8800 communications receiver, £375. Also Realistic PRO2021 mobile/base 200 channel scanner with mounting bracket and car battery lead, £70. Both good condition with handbooks. Tel: (0532) 521928 after 6pm, Leeds.

FOR SALE HRO-500 first class receiver, £350. Eddystone 940 v.g.c., £150. Grundig Satellit 650, £275. Grundig 600 pro, mint condition, £230. FRG-8800, FRV-8800 antenna, manual, boxed, £450. FRG-7, £100. Philips D2999, almost new, £150. Icom CR-100 base/mobile scanner, new, save £200, sale, £280. Tel: 081-571 5759 Middlesbrough.

FOR SALE Sony WA8800 radio cassette, unwanted gift, cost new, £230, at bargain price of £175. Tel: (0423) 330620.

WANTED scanner enthusiast wishes to correspond with other enthusiasts and exchange information, frequencies, opinions on equipment, etc., interested in h.f., v.h.f. and u.h.f. (particularly airband). Please write to: Gary Nuttall, 55 Eastdale Road, Wavertree, Liverpool, Merseyside L15 4HN.

EXCHANGE UoSAT satellite receiver 145.825MHz for ERA Microreader MkII, or VT125 MkII, or Yaesu FRA-7700. Tel: (0708) 745010 Romford, Essex.

FOR SALE ITT Oceanic 20in French Secam colour television with instruction manual circuit, mast and rotor if needed. Hardly used but about 10 years old. Sensible offers or might exchange part valved comms receiver, scanner, w.h.y? Tel: (0737) 357634 Epsom, Surrey.

FOR SALE WWII spy set B2 TX/RX with coils L1-2-3-4, no power pack, in original steel dropping case. Offers to executors at: Advertiser, 44 Kimbolton Road, Bedford MK40 2NX.

WANTED Grundig Satellit 2100 radio receiver, must be in very good condition/working order. Pete. Tel: (0742) 422131 Sheffield.

FOR SALE Yupiteru MVT-7000 scanner, as new, with box and manual, cost £270, will accept, £180. Tel: (0255) 222253 Clacton, Essex.

FOR SALE Brother HR5 dot matrix printer with RS232, will plug straight into ERA Microreader, Spectrum interface, as new, in original packing, c/w ribbons, paper and lead for above, £60 o.n.o. Tel: (0322) 385639 after 5.30pm, Dartford, Kent.

WANTED Signal R532 airband scanner, if possible with battery pack and case. Must be in mint condition with instruction. Can collect within reasonable distance of Worcester. Dave. Tel: (0905) 795915 Droitwich.

FOR SALE Kenwood R5000, Kenwood SP430 speaker, v.h.f. unit fitted, all excellent condition, £600. Tel: (0695) 632289.

FOR SALE BBC B computer, Watford ddfs, £100. Philips green monitor, BBC lead, £35. Bench digital multi-meter, £30. Psion organiser CM faulty, £15. Leather case, £6. Datapak 16K, £10 unused. All o.n.o. plus carriage. W.h.y? swap. Tel: (0636) 77944 after 6pm, Newark.

FOR SALE complete RTTY, FAX, FEC, Morse code reception package for the PC, as advertised in SWM by Comar Electronics PC HF FAX 5.0. Also PC SWL only £95 postage inclusive. Tel: (0272) 262850 Bristol.

FOR SALE Kenwood R2000 receiver and Datong FL3 filter, excellent working order, £340 no offers. Carl. Tel: (0206) 298402 Colchester.

FOR SALE Sony ICF-2001D boxed with power unit and manual. Good condition, £140 o.n.c.o. Tel: 081-769 0819 London.

WANTED manual for Decca KW202 amateur bands receiver (copy will do). Steve. Tel: 031-668 2809 after 6pm.

FOR SALE Sony ICF-2001D kit system, £170. Eddystone EC10 MkII, £100. Both items mint condition in original packing complete with manuals. Tel: (0727) 51295 St. Albans.

EXCHANGE Hitachi computer two disk drives, expandable Juki DW printer, many disks, manuals, programs, hardly used, reduced price about £450 for general coverage receiver. George Medway. Tel: (0634) 42005 after 5pm, Chatham, Kent.

FOR SALE Philips D2999 receiver, portable, short wave, f.m., s.s.b., immaculate, virtually unused, £120. Tel: (0707) 330723 Welwyn Garden City.

FOR SALE Panasonic NU3000 portable video/colour camera WV300E all accessories, case, batteries, etc., services, new heads, excellent, £350. Eddystone 940 receiver near mint, £185. S640 receiver, good and original, £95. Ainslie. Tel: (0344) 27869.

FOR SALE Sony ICF2001D v.g.c. with mains adaptor. Exchange for AOR 2000, Sony PRO80 or similar. Must be in v.g.c. Cliff. Tel: (0380) 813745 evenings.

FOR SALE Yaesu FT-76 handie transceiver 70cm very small this transceiver, as it all, unused in box, great hand-held, £180, quick sale. Tel: (029587) 749 Warwick.

FOR SALE computer ZX Spectrum, rubber keys, with handbook, transceiver and RTTY, c.w., tape, £40. Tel: (029587) 749 Warwick.

FOR SALE Yaesu FRG-7700 communications receiver with FRV-7700 v.h.f. converter, mint condition, boxed with manuals, £240. Dave. Tel: (0425) 477044 Ringwood.

FOR SALE Yaesu 9600 u.h.f., v.h.f. receiver plus Kuranishi h.f. converter, JIM 100 pre-amp, £450. Sony PRO80 150kHz-223MHz, all in excellent condition and with manuals. Tel: (0734) 414605 Reading.

FOR SALE Wavecom 4010 decoder with latest Version-4 software modules, mint condition, 11 months old, £600. Tel: 081-570 5603.

FOR SALE Kenwood R5000, 6 months old with manual, fitted with optional YK88A1 and YK88SN filters, 6 months makers guarantee, little used, as new condition, £550. Tel: (0432) 266832 evenings, Hereford.

FOR SALE MVT5000 hand-held, mint condition, boxed, £175. MVT6000 base, mobile version of above, mint, boxed, £200. Both still under warranty. Nigel Clayton G0IFS. Tel: (0227) 792867, Ringinglow, Fairlawn, Chestfield, Whitstable, Kent CT5 3JZ.

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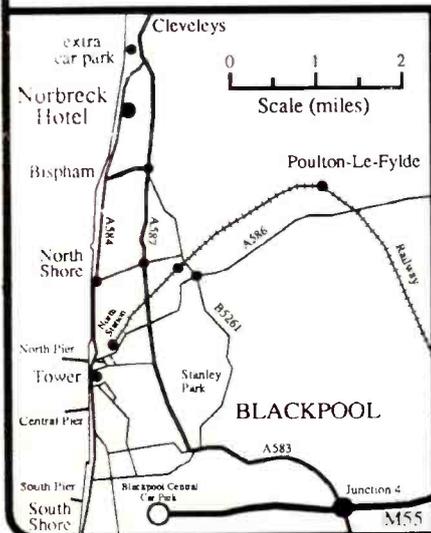
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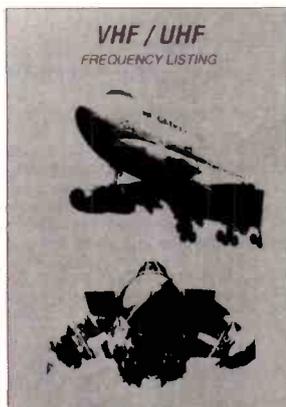
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Getting there

Our reasonably priced trip will enable you to travel there in comfort in our luxury coach. The coach comes equipped complete with video, coffee machine and a toilet. We'll be picking up passengers from Victoria Coach Station in London, early in the morning of Thursday June 25. Then we drive to Dover, to catch one of the first ferries across. We'll arrive in Friedrichshafen late that evening, so there's **no overnight travelling** involved on this holiday!

Where we stay

During our holiday in Friedrichshafen we will be staying for four nights in what is considered to be the best Hotel in town The Buchorner Hof Hotel. Roger Hall G4TNT, has examined the Hotel Bar (very closely!) the rooms, and eaten in the restaurant, and he says it's certainly very luxurious.

Double rooms

The only minor problem is that most of the rooms are doubles. In this

case, they really mean double-beds, not twins! This means that this trip is more suitable for couples, and so we can encourage more husband and wife/or girlfriends to come, I have organised a couple of day excursions for the Friday and Saturday. One trip is to the beautiful Island of Mainau, famous for its flowers and topiary and the other is into the heart of the Black Forest, the home of the cuckoo-clock. Both trips will provide delightful days out.

There's so much to do, so much to see and it's such a good value-for-money trip that the coach will soon be booked up so hurry! The complete holiday including: coach travel, all tolls, four nights Hotel accommodation (with breakfast and evening meal) and excursion costs just £199.95 each (based on two people sharing a room). A few single rooms are available for a supplement of £12.50 a night.

Interested in coming? Why don't you call me, **Roger Hall G4TNT, on 071-731-6222 during the day or weekends, or the answerphone at night**, for further information. Or you can call **Rob Mannion G3XFD**, the Editor, on **0202-678558** for a chat about the trip. Alternatively you can send your deposit of £25 now to book your place to:

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