

FOR THE
RADIO LISTENER

shortwave magazine

SATELLITE RADIO

WHAT'S UP THERE AND HOW
TO FIND IT!

Plus

RECEIVER SPECIFICATIONS - 1

A FURTHER LOOK AT THE LIZARD'S
RADIO HISTORY

Reviewed

TIMEWAVE DSP-9 DIGITAL NOISE FILTER

LOWE PR-150 PRESELECTOR



August 1994 £1.90
ISSN 0037 - 4261

Plus Regular Features Covering

**Airband, Scanning, Junior Listeners, SSB Utility
Listening, Propagation, Amateur Bands, Long,
Medium & Short Waves, Satellite TV Reports,
Weather Satellites and more.**

08 >
9 770037 426029

short wave magazine

Vol. 52 ISSUE 8 AUGUST 1994

ON SALE JULY 28

Next issue on sale August 25

EDITOR: Dick Ganderton, C. Eng., MIEE, G8VHF

ASSISTANT EDITOR: Kevin Nice

ART EDITOR: Steve Hunt

LAYOUTS: Richard Gale

EDITORIAL

Arrowsmith Court, Station Approach, Broadstone,
Dorset BH18 8PW

Telephone: (0202) 659910

Facsimile: (0202) 659950

BOOK SERVICE, SUBSCRIPTIONS, BACK ISSUES ETC.:

CREDIT CARD ORDERS: (0202) 659930

(Out-of-hours service by answering machine)

ADVERTISEMENT DEPARTMENT

ADVERTISEMENT MANAGER

Roger Hall G4TNT

Telephone: 071-731 6222

Facsimile: 071-384 1031

ADVERTISEMENT PRODUCTION (Broadstone)

Lynn Smith (Sales) Ailsa Turbett (Production)

Telephone: (0202) 659920

Facsimile: (0202) 659950

© PW PUBLISHING LTD. 1994.

Copyright in all drawings, photographs and articles published in *Short Wave Magazine* is fully protected and reproduction or imitation in whole or in part is expressly forbidden. All reasonable precautions are taken by *Short Wave Magazine* to ensure that the advice and data given to our readers is reliable. We cannot however guarantee it and we cannot accept legal responsibility for it. Prices are those current as we go to press. *Short Wave Magazine* is published monthly for £22(UK) or \$45 (USA) per year by PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Second class postage paid at Middlesex, NJ. Postmaster. Send USA address changes to *Short Wave Magazine*, c/o Permit to post at Hackensack pending. The USPS (United States Postal Service) number for *Short Wave Magazine* is: 006696.

Cover Subject

This month we look at TV and Satellite Listening. We thank both Lowe Electronics and Aerial Techniques for the loan of the equipment shown on the cover.

Photo:
Craig Dyball



DISCLAIMER. Some of the products offered for sale in advertisements in this magazine may have been obtained from abroad or from unauthorised sources. *Short Wave Magazine* advises readers contemplating mail order to enquire whether the products are suitable for use in the UK and have full after-sales back-up available. The Publishers of *Short Wave Magazine* wish to point out that it is the responsibility of readers to ascertain the legality or otherwise of items offered for sale by advertisers in this magazine.

pw publishing ltd.

Features

11 **Receiver Specifications Explained - 1**
Peter Buchan

16 **Timewave DSP-9 Digital Noise Filter - Review**
Kevin Nice

19 **TV Frequency Offsets Aid DXing**
Tim Anderson G0GTF

22 **A Guide to Satellite Radio**
John Hockenull



28 **A Further Look at the Lizard's Radio History**
Wally Bird G4NBF

33 **A Television Antenna**
J Edward Brown

40 **Lowe PR-150 Preselector - Review**
Mike Richards G4WNC

Regular Columns

Airband	52	Letters	2
Amateur Bands		LM&S	66
Round-up	42	News	6
Bandscan America	50	News Extra	37
Book Service	71	Propagation	65
Decode	60	Rallies	4
DXTV Round-up	44	Satellite TV News	48
Editorial	2	Scanning	54
Grandad	37	SSB Utility Listening	51
Grassroots	4	Subs Club	75
Info in Orbit	57	Trading Post	70
Junior Listener	5	Watching Brief	63

Good Listening

SWM SERVICES

Subscriptions

Subscriptions are available at £22 per annum to UK addresses, £25 in Europe and £27 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 £39(UK) £42 (Europe) and £45 (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, Badger Boards, 87 Blackberry Lane, Four Oaks, Sutton Coldfield B74 4JF. Tel: 021-353 9326.

Back Numbers and Binders

Limited stocks of most issues of SWM for the past five years are available at £2.00 each including P&P to addresses at home and overseas (by surface mail).

Binders, each taking one volume are available for £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 back numbers, binders and items from our Book Service should be sent to: **PW Publishing Ltd., FREEPOST, Post Sales Department, Arrowsmith Court, Station Approach, Broadstone Dorset BH18 8PW**, with details of your credit card or a cheque or postal order payable to PW Publishing Ltd. Cheques with overseas orders must be drawn on a London Clearing Bank and in Sterling.

Credit card orders (Access, Mastercard, Eurocard or Visa) are also welcome by telephone to Broadstone (0202) 659930. An answering machine will accept your order out of office hours and during busy periods in the office. You can also FAX an order, giving full details to Poole (0202) 659950.

editorial



Changes

If you are a regular follower of Ron Ham's 'Propagation' and 'DXTV News' columns you will be interested to know that the columns in this issue will be the last. However, Ron will be replacing these two columns, as from the September '94 issue, with a new one. Called 'Reflections', this column will range over most of Ron's wide interests associated with radio. I am looking forward to Ron's first 'Reflections'.

Also starting in the September issue will be the new regular, monthly, Propagation Forecast charts. The test charts published earlier proved to be popular - one of the most frequent comments from you was "about time, too!" The standard of presentation was also praised and we intend to keep to that style. The nine charts will cover the same areas as the trial ones, but I am always willing to listen to reasonable suggestions for alternatives - with your reasons, of course. Ron Ham's monthly barometric pressure chart will also be retained - so those readers who are into propagation predicting will still be able to correlate conditions with atmospheric pressure.

Dick Ganderton G8VHF

letters

IF YOU HAVE ANY POINTS OF VIEW THAT YOU WANT TO AIR PLEASE WRITE TO THE EDITOR. IF YOUR LETTER IS PUBLISHED 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 any other magazines. The views expressed in letters published in this magazine are not necessarily those of *Short Wave Magazine*.

Dear Sir

I would like to comment on the letter from Ivor Nathan published in *Short Wave Magazine* for July 1994.

It would seem that he heard the output from a cordless telephone on a frequency of 1.6MHz. These instruments transmit from base unit on one of several frequencies in the 1.7MHz band. The signal he heard would almost certainly be an i.f. image and not a harmonic as thought. Harmonics only occur at frequencies above the fundamental frequency, never below. The fault, therefore, would be in the receiver and not the transmitter.

The same problem seems to be the trouble with his reception of a CB signal on the short wave bands of his Vega receiver. At 29MHz the second harmonic would be 58MHz, and the third, normally the strongest, at 87MHz. No interference should occur at frequencies below 29MHz.

Normally the cause of these problems is poor r.f. selectivity at the receiver input and the use of a low i.f. frequency. We cannot do much about the second of these but we can certainly improve the first. Build a simple r.f. pre-selector and insert it between the antenna and the receiver input. This will reduce the chance of the strong out of band signals overloading the receiver input stages and generating spurious signals. Note that I say PRE-SELECTOR and not pre-amplifier, the use of a pre-amplifier is a sure way of making things worse.

Unfortunately I cannot think of a way of getting rid of TV time base harmonics. This is a perennial plant that refuses to die.

**Ron Gouldstone G3TAG
Toft
Cambridge**

Dear Sir

I am a long standing reader of the *Short Wave Magazine*, and am wondering whether you would be so kind as to help me, the reason I will explain, I am 1921270 (Ex Boy Entrant) trained as a Telegraphist at RAF Compton Bassett, Calne, Wilts. 1948/9.

I and other Boy Entrants are endeavouring to trace our colleagues from those early years and, myself being a member of our newly formed Boy Entrants Association, my efforts are the tracing of Ex Boy Entrants. Would it be possible to put a small article under Letters to the Editor? If this is possible, would you kindly print the following:

Calling all Ex Boy Entrants who may be short wave listeners or amateur radio, 1921270 (Ex Boy Entrant) John Martin, formerly of No. 3 Radio School.

RAF Compton Bassett, Clane, Wilts, 1948/9 trying to trace Ex Boy Entrants (communications trained), interested in joining our association? Please write to: Mr John Martin, 67 Carr Barn Brow, Bamber Bridge, Preston, Lancs PR5 8LD or telephone (0772) 322088.

Hoping you can help.
**John Martin
Preston
Lancs**

letters

Dear Sir

I read G0IYZ's letter regarding rallies and Special Interest Groups (SIGs), with great interest.

On behalf of BARTG, (the SIG for data comms), I too have been involved in booking (or trying to book) rally stands for an SIG. I have also actually run some of those stands. Finally, I have been involved in organising an annual major rally run by an SIG.

I, too, have found that some rally organisers viewed BARTG in an identical fashion to any commercial trading company. BARTG operates on a non-profit making basis but was expected to pay the same rate for its stand as companies which employ salaried staff and which have to make and return a profit for their owners.

Fortunately, some rally organisers have much more benevolent view towards SIGs. Some allow us a small stand without any charge, others give us a generous discount. In fairness to those rally organisers who charge SIGs the commercial stand rates, it must be noted that some rally venues are not all expensive to hire and the rally organisers have to cover their costs.

Yes, the rally organisers could increase charges to the companies in order to offer stands to SIGs at reduced rates. Yes this would appear to be cross-subsidy but surely the traders benefit from the presence of those SIG stands. Many would-be customers of those companies' stands like to get a second opinion before parting with their money. I've found that the opinion of the BARTG stand's people has been sought before TNCs, software and radios have been bought. We've also created customers for some companies simply by being so enthusiastic about data comms that our own 'customer' has gone straight off and bought a TNC.

As G0IYZ rightly points out, amateur radio rallies are not just for selling and buying. They are places where we amateur radio enthusiasts can meet up and chat about our hobby. I've certainly found that the BARTG stand at rallies has been a focal point of data comms discussions and also a contact point for the newcomer to data comms modes. I've not always sold my 'customers' anything at all but I have helped many of them surmount their apprehension about data comms and open up a new and fascinating (and useful) aspect of amateur radio for them. After all, amateur radio is a hobby and not a profession or vocation for most of us.

Our annual BARTG rally shows that BARTG does treat other SIGs as BARTG itself would like to be treated. Our rally manager Peter Nicol G8VXY does invite a selection of SIGs to attend our rally at very preferential rates. He does remember that the rally is primarily for amateur radio enthusiasts rather than being just another Sunday market. This year's BARTG rally is on September 11th for those who wish to judge Peter's work for themselves.

Finally, I have an extra point to add to those raised by G0IYZ. SIGs are usually run by volunteers working in their spare time. In the past, I have been quite amused by 'phone calls enquiring about the opening hours of the BARTG shop. If we ran a shop then the BARTG subs would have to increase very significantly to cover the overheads. Less amusing have been the very occasional enquirer who has expected a 24 hour response to a letter and then complained that ours was 'no way in which to run a business' even after the volunteer aspect of BARTG was carefully explained. Sorry folks, but SIGs such as BARTG are run by amateurs for amateurs and I believe this gives us SIGs a freedom to concentrate on the hobby itself rather than any commercial aspects.

Ian Brothwell G4EAN, Secretary - BARTG

Dear Sir

Chris Carrington has said a lot of things which needed saying in his letter about the radio rally in your July issue. I thank you for giving publicity to this matter in your excellent magazine.

I have just returned from an enjoyable day at Longleat. Good to see some special interest groups there and nice to have a natter with people of like mind in the vicinity of the International Short Wave League stand. I would like to see the special interest group fraternity extended to organisations like EDXC, DDXC, World DX Club and Medium Wave Circle. Perhaps some of them could get together on this like they did at

Picketts Lock in 1993. The price of a table would have to be affordable, of course. How helpful it would be if an authoritative body like the RSGB could be a watch dog on prices charged to special interest groups at a radio rally.

At Longleat I was also pleased to see *Short Wave* and *Practical Wireless Magazine* represented. In addition, I enjoyed looking round the craft fair section, having an opportunity to purchase ball point pens, pvc tape, some small plants and other non-related bric-a-brac. There are, it would seem, various aspects to a good radio rally.

**Sheila Hughes
Morden
Surrey**

Dear Sir

I was very interested to read the excellent Airband features in the March 1994 edition of *Short Wave Magazine*. The Pacific HF article was particularly enlightening.

Please forgive me, therefore for pointing out some minor, but significant errors regarding ATC phraseology.

1) On page 30, column 2, it is stated that the correct word meaning 'yes' is affirmative and not affirm. In fact, the opposite is the case. The word for 'yes' is AFFIRM.

2) On page 30, column 2 it is stated that numerals are spoken as individual digits. This is not always the case. The circumstances in which the numerals are being used determine how they are to be spoken.

3) On page 30 column 3 the distress frequency is incorrect. It should be 121.5MHz.

4) On page 31 column 2 it is stated that QFE is spoken as Quebec Foxtrot Echo. In fact, it is normally spoken as three letters 'QFE'.

Changing the subject - you may be interested to know that the fifth edition of my book on Air Traffic Control will be published later this summer.

**Graham Duke
Newport
Gwent**

Dear Sir

Although the issues raised by Mr I. Nathan in the July edition are quite valid and do show up inadequate design and/or cost cutting by manufacturers, there are a couple of points which are not correct.

It seems that, judging by the description, the CB user could well be using an illegal aerial, modern sets running legally should not produce vast amounts of harmonics as described in his letter. However, sets that have been 'tweaked' are notorious for this, all the sake for an extra couple of watts or do. I would

like to remind Mr Nathan that first generation cordless 'phones transmit on 1.722-1.782MHz on the base station and 47-50-47.54 from the handset, what he was hearing was the direct slope detected NBFM signal from the base station. I do remember an excellent article on this matter in *SWM* some years back, there were reports of some illegally imported units from Italy (where else!) which could be heard over 10 miles away!

**A. J. Golskof
Tewkesbury
Gloucestershire**

Dear Sir

Please can you help me? I am looking for details of a good short wave scanner club in England.

**Keith Artherton
Fakenham
Norfolk**

Dear Sir

I am writing in response to the letter from S. K. Nathalal (*SWM* July 1994 Page 16).

The mystery symbol is a product approved label from Germany 'BZT' stands for Bundesamt fuer Zulassungen in der Telekommunikation (Telecommunications Licensing Authority). The K refers to the nature of the licence, and UO2216 is the licence number.

The symbol is equivalent to the 'green circle' found on modems, faxes and telephones on the UK market. BZTs function is similar to that of BABT (British Approvals Board for Telecommunications).

Unlike the UK, Germany has strict rules concerning EMC, hence the need for approval of a receiver (which contains local oscillators, and hence can radiate radio signals).

May I take this opportunity to draw your readers' attention to The CQ Centre Bulletin Board? On line 24 hours a day, access is available at all speeds from 300 to 14400bps on (0753) 595468. PC and modem owners will find hundreds of megabytes of radio related software, plus networked (FidoNet) message areas on amateur radio, packet radio, CB, short wave listening, satellite TV, modems, ISDN and amateur datacommunications. Access costs no more than the price of the 'phone call - which is local rate for the M4 corridor as far west as Maidenhead.

Mike Gathergood G4KFK, Datchet, Berkshire

grassroots

rallies

July 31: The Rugby Amateur Transmitting Society are holding their 6th Annual Amateur Radio Rally at the BP Truckstop on the A5, 3 miles east of Rugby and approximately 3 miles north-west from Junction 18 of the M1 motorway. Doors open at 10am, admission is £1 per car and facilities include a good cafeteria and toilets. Talk-in on S22 by GB6CBS. Peter on (0455) 552449.

***August 7:** The Woburn Rally will be held at the Woburn Abbey, Woburn, Bedfordshire. The rally is open from 10am to 5pm.

***August 14:** Flight Refuelling ARS Hamfest will take place at the Flight Refuelling Sports Ground, Merley, Wimborne. The event will run from 10am to 5pm and will include the usual mix of traders, Bring & Buy, car boot sale and field events. Richard Hogan G4VCC on (0202) 691021.

August 14: The Derby and District Amateur Radio Society will be holding its annual radio rally at the usual venue, Littleover Community School, Pastures Hill, Littleover, Derby. The venue for the Rally is on the A5250, just north of its junction with the A38, on the southern outskirts of Derby. There will be the usual attractions, including the famous monster junk sale. Martin Sherdlow G3SZJ, QTHR on (0332) 556875 or packet G3SZJ @ GB7LTN

August 21: The Southend and District Radio Society are holding their rally at the Rochewave Centre, Rochford, Essex. Doors open at 10am with ample parking for all. Weather permitting, there will be a boot sale for computer, radio, and electronic equipment will also be on the site on the sports ground to the rear of the centre. Further details from The Rally Organiser, PO Box 88, Rayleigh, Essex SS6 8NZ.

August 21: The West Manchester Radio Clubs 'Red Rose Rally' will be held at the usual venue of the Bolton Sports & Exhibition Centre, Silverwell St., Bolton (town centre). All the usual trade stands (over 75), societies, Bring & Buy, etc. all at pavement level, with facilities for the disabled visitors. Refreshments available all day plus bar. Doors open 10.30am for disabled visitors, 11.00am for general public. Admission £1, children free. Dave G110G on (0204) 24104 evenings only.

August 21: King's Lynn Amateur Radio Club are holding their 5th Great Eastern Rally at the Cattle Market, Hardwick Narrows, King's Lynn (off A10/A47 roundabout). Doors open at 10am (9.45am for disabled visitors). Attractions include a spacious indoor area with major international exhibitors, outdoor car boot area, Bring & Buy, Talk-in on S22, easy access for disabled, all one level, free parking, refreshments available. Entry £1. G0BMS on (0553) 765614.

August 27, 28 & 29: A Computer Fair including a Radio Rally and Electronics Fair is being held on the site of what used to be Walsall Airport, and is situated off the main A434 Aldridge to Walsall Road and is approx four miles from the A5, or five miles for Junction 7 of the M6 motorway. Mr A. Wood on (0543) 372807 after 5pm or anytime weekends.

August 28: The Fourth Gloucester Radio Rally is being held at Naas Lane, Quedgeley, Gloucester (off the old Bristol road). Doors open at 9am to 4pm. There will be a Bring & Buy, a car boot sale and flea market stalls. For more details 'phone Mike on (0452) 503786.

August 28: The Galashiels Club are holding their Open Day at the Focus Centre, Livingstone Place, Galashiels, Scotland. Doors open at 11am till 4.30pm. There will be a Bring & Buy, traders, club stalls, a raffle and refreshments. J. G. Campbell on (0835) 822686.

August 28: The East Coast Amateur Radio & Computer Rally will be held at the Clacton Leisure Centre, Vista Road, Clacton-on-Sea, Essex. Doors open at 10am to 4pm. There will be a Bring & Buy, and a bar and cafeteria available from 11am. Free car park and talk-in on S22 and SU22 (GB0CR). For further information contact (0473) 272002.

August 28: The 30th Torbay Rally will be held at Clenon Valley Leisure Centre, Paignton, Devon. Doors open at 10am. There will be trade stands, Bring & Buy, special interest displays, use of leisure facilities, restaurant and bar. Only four minutes walk away there is a beach, boating lake, steam railway and a flume water park. John G3YCH, QTHR on (0803) 842178.

August 29: The Huntingdonshire Amateur Radio Society are holding their Rally at St. Germain Street, Huntingdonshire. Admission is £1 per person and the car parking is free. There will be hot and cold refreshments available, and a talk-in on S22. Doors open at 10am. Further details from David Leech G7DIU on (0480) 431333.

***August 29:** Scarborough Amateur Radio Society will hold their radio electronics and computer rally at the Spa, South Foreshore, Scarborough. Doors open at 11am. Many traders, Bring & Buy, refreshments and bar. Ross Neilson on (0723) 514767.

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

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

AVON

Bristol International RC: Tuesdays, 8pm. The Fighting Cocks Public House, Hengrove. All visitors are welcome. The club has been formed so that all radio enthusiasts, whether it be Hams, s.w.l.s or CBers can get together and have a good natter and do things that you do in radio clubs. PO Box 28, Bristol BS99 1GL.

RSGB City of Bristol Group: last Tuesdays, 7pm. New Friends Hall, Purdow, Bell Hill, Stapleton, Bristol BS16 1BG. Aug 23 - Biasing transistors. Dave. (0272) 672124.

South Bristol ARC: Wednesdays. Whitchurch Folkhouse Assoc., Bridge Farm House, East Dundry Rd, Whitchurch. Aug 3 - 70cms activity evening and committee meeting, 10th - Computer shareware - please bring some, 17th SBARC BBQ evening, 24th - Astro photography slide presentation. For more information ring (0275) 834282 on a Wednesday evening.

DEVON

Torbay ARS: Fridays, 7.30pm. ECC Social Club, Highweek, Newton Abbot. July 30 - GB2APF Apple Pie Fair at Marldon, Aug 13 - GX3NJA at Manaton Fair, 19th - Monthly meeting. Peter G4UTO. (0803) 864528.

DORSET

Dorset Police ARS: 1st and 3rd Thursday at Force HQ at 7.30pm. Aug 1 - Introduction to the winter construction project by Clive Hardy, 4th - ATV talk/demo at HQ by SDRS organised by Bob Knight, 15th - Club project update and committee meeting. (0202) 229351.

DYFED

Aberystwyth & DARS: 2nd Thursdays, 8pm. Scout Hut, Plascrug Avenue, Aberystwyth. Aug 7 - Amateur radio demonstration/Ceredigion Flying Club Open Day - Talk-in on S22, 25th - GW0ARA on the air, listen on S17. Katy GW0SFO. (0545) 580675.

EAST SUSSEX

Hastings Electronics & RC: 3rd Wednesdays, 7.45pm. West Hill Community Centre, Croft Road, Hastings. Aug 13/14 - Hastings Town & County Fair, all day in Alexander Park, 17th - Main meeting, the annual bring your 'Thingy' competition. G3YF on (0424) 830454.

ESSEX

Vange ARS: Thursdays 8pm, Barnstable Community Centre, Long Riding, Basildon, Essex. Aug 4 - Junk Sale, 11th - Natter night, 18th - Rally arrangements, 25th - Team quiz. Doris. (0268) 552606.

GRAMPIAN REGION

Aberdeen ARS: Fridays, 8pm. Queen Mother House, Aberdeen. July 29 - 'Wet String' listening competition - Round 5, Aug 5 - Junk Sale, 12th - Visit to Police Comms Department, 19th - Beetle drive & social evening. Gordon Stuart GM7PXW. (0224) 780591.

Club Secretaries:

Send all details of your club's up-and-coming events to: Lorna Mower, *Short Wave Magazine*, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Please tell us your County and keep the details as brief as possible.

GREATER LONDON

Crystal Palace & DRC: 3rd Saturdays, 7.30pm. All Saints Church Parish Rooms, Beulah Hill, London SE19. Aug 20 - Evening on the air. Wilf G3DSC on 081-699 5732 or Bob on (0737) 552170.

Edgware & DRS: Thursdays, 8pm. Watling Community Centre, 145 Orange Hill Road, Burnt Oak. July 28 - Morse practice evening, Aug 25 - SSB field day. Rod Bishop. 081-204 1868.

Wimbledon & DARS: 2nd & last Fridays, 7.30pm. St Andrews Church Hall, Herbert Road SW19. July 29 - Camp Briefing. 081-540 2180.

HAMPSHIRE

Horndean & DARC: 1st Thursdays, 7.30pm. Horndean Community School, Barton Cross, Horndean. Aug 4 - Digital signal processing by Nigel Gerdes G7CAW. S. Swain (0705) 472846.

HEREFORD & WORCESTER

Bromsgrove ARS: 2nd & 4th Tuesdays. Lickey End Social Club, Alcester Road, Burcot, Bromsgrove. Aug 9 - EMC discussion/problems, 23rd - DF Hunt (on foot). Barry Taylor. (0527) 542266.

HERTFORDSHIRE

Hoddesdon RC: Alternate Thursdays, 8pm. Conservative Club, Rye Road, Hoddesdon. Aug 4 - Club natter night, 18th - Club informal evening and preparation for Special Event Station. John G70CI. (0920) 466639.

KENT

Bromley & DARS: 3rd Tuesdays, 7.30pm. The Victory Social Club, Kechill Gardens, Hayes. Aug 16 - Electron Waves by Mark Foreman G7LSZ. A Messenger. 081-777 0420

Medway AR & TS: Fridays, 7.30pm. Community Hall, Catkin Close, Tunbury Avenue, Walderslade, Chatham, Kent. Aug 14 - Visit to Duxford Air Museum, 19th - Raynet video by G1OMH. George Packham. (0634) 685585 or Alan Stanley. (0634) 201462.

NORFOLK

Norfolk ARC: Wednesdays, 7.30pm. Formal and informal meetings at The Norman Centre, Bignold Road, Off Drayton Road between 'Asda' and Three Mile Cross Roundabout, Norwich. Aug 3 - Foxhunt, 7th - RSGB Woburn Rally, 10th - Night on the air, construction QRP and Morse practice, 17th - Science for all by Arnold Tomalin G3PTB, 24th - Night on the air, construction QRP and Morse practice. Mike G4EOL. (0603) 789792.

NOTTINGHAMSHIRE

Mansfield ARS: 2nd Mondays, 7.30pm. The Polish Catholic Club, off Windmill Lane, Woodhouse Road, Mansfield. Aug 8 - Amateur television by Barry G6LIC. Howard G1JGY. (0623) 423697.

South Notts ARC: Fridays, 7pm. Highbank Community Centre or Fairham Community College, Farnborough Road, Clifton Estate,

Nottingham. July 29 - Breedon Hill Servicing, 30th - BBQ at Breedon and Radio On Air activity, 31st - On Air Activity until close at 12 noon. Julie Brown G0SOU. (0602) 211069.

OXFORD

Oxford & DARS: 2nd and 4th Wednesdays, 7.45pm. The North Oxford Grove House Club. Terry Hastings G0CFN. (0865) 863526.

SHROPSHIRE

Salop ARS: Thursdays, 8pm. Oak Hotel, Shrewsbury. July 28 - Antenna construction by Charlie GW3JPT, Aug 4 - Natter night, 11th - Notice to members of the AGM (nominations and information etc.), 18th - Natter night, 25th - Telford Rally Group meeting. Sheila Blumfield G0SST. (0743) 361935.

SOMERSET

Yeovil ARC: Thursdays, 7.30pm. The Red Cross Centre, 72 Grove Avenue, Yeovil. July 28 - Club station on the air and committee meeting, 31st - A social gathering of all radio clubs in the surrounding area, Aug 4 - Choosing passive components by G3MYM, 11th - A home-brew QRP station by G0FUW, 18th - Strange happenings on Amateur radio by G3KSK, 25th - Club station on air and committee meeting. Cedric White, QTHR. (0258) 473845.

SUFFOLK

Haverhill & DRC: 2nd Mondays, 7.30pm. Samuel Ward Upper School, Chalkstone Way, Haverhill. Aug 6-7 - Club portable weekend. Rob Proctor G4PZW. (0440) 704637.

Sudbury & DRA: 1st & 3rd Tuesdays, Wells Hall, Old School, Great Cornard, Five Bells Public House, Bures Road, Great Cornard. Aug 2 - Aerials by Mike G4GGC, 16th - Natter & Noggin night. Tony Harman G8LTY. (0787) 313212

WARWICKSHIRE

Mid Warwickshire ARS: 2nd & 4th Tuesdays, 8pm. St. Johns HQ, Warwick Div., 61 Emscote Road, Warwick. Aug 9 - Fox hunt, 23rd - BBQ at No. 70, at home with Don G8HRI. Don on (0926) 424465.

WEST MIDLANDS

Sandwell ARC: The Broadway, Warley. RAE class on Monday nights, Morse class on Wednesday nights and RAE Novice class on Thursday nights. Three operating shacks, h.f./v.h.f./u.h.f., Phone, c.w., RTTY, AMTOR, Packet, all bands. Talks, outings, contest and demonstrations. For further information please ring 021-552 4619/021-552 4902.

WILTSHIRE

Trowbridge & DARC: 3rd Wednesdays, 8pm. The Southwick Village Hall, Southwick, Trowbridge. Aug 3 - Yagi antennas by G3ZXX, 17th - Natter night. Ian G0GRI. (0225) 864698.

'RRS Discovery' Special Event Station

Captains Scott used *Discovery* for his 1901-1904 expedition to the Antarctic, there the ship was trapped in the pack ice for 2 years before being dynamited free to allow her return to the UK. The vessel is now berthed in Dundee, the city where she was built. September 25th and 26th will see the members of the Dundee ARC mount a station in the original radio cabin. The station will operate on 7, 14, 21 and 144MHz. For further details contact: **George Millar GM4FSB, 30 Albert Crescent, Newport on Tay, Fife DD6 8DT.**



New Date for Vintage Radio Auction

Academy Auctioneers and Valuers have decided to reschedule its next vintage radio auction due to a clash of dates with a similar auction on 14 September, the next event will be held later in the autumn season, the actual date should be announced shortly.

For further details contact: **Bettine Bauer at Academy Auctioneers and Valuers, Northcote House, Northcote Avenue, Ealing, London, W5 3UR.**
Tel: 081-579 7466, Fax: 081-579 0511.

Paint Used For Screening

We have received the following information from Peter Longhurst, G3ZVI of Garex Electronics regarding the review of the Garex Tunable aerial filter. Whilst they are very pleased with the favourable comments from our reviewer, they wish to respond to one point that was raised.

The product was criticised for being housed in a plastics rather than a metal box, raising concerns that the interfering signal could be picked up again at the output. Garex are pleased to confirm that this is not a problem since the filter has been very carefully designed. The interior of the plastics box is sprayed with an RF shielded paint and the filter construction is a screened trough.

Hoka Electronics Appoint Distributor

Due to time constraints and therefore difficulties in providing the level of high service deserved by their customers, Hoka Electronics have appointed Neil Thompson of NTech Communications to take over support for all retail sales of the CODE3 and CODE30 products.

Neil Thompson Ntech Communications, 36 Dalling ton Road, Hampton Park, Eastbourne, BN22 9EG. Tel/Fax: (0323) 5007249.

RF/Wireless Communication Components Designer's Data Book

Anglia Microwaves Ltd. announce the availability of RF Micro Devices new RF/Wireless Communication Components Designer's Data Book. The book gives a block diagram of a complete r.f. solution and goes on to cover a wide range of components, including i.c.s that aid digital systems and LNA/mixer i.c.s that ease wireless receiver design. For further information please contact: **Salvatore Grosso, Anglia Microwaves Ltd.** Tel: (0277) 630000.

Each product is fully and demodulators. front-ends, i.f. amplifiers and demodulators.

Addition to SWM Book Service

Scanners 3 Putting Scanners into Practice
Peter Rouse

Now in its 4th edition, the Scanners series of books continue to be the most comprehensive scanner guides ever published in Britain. This 4th revision of Scanners has seen the largest number of changes and additions, to the point of actual rewrite. The resultant title of *Scanners 3* has been chosen to avoid confusion. It follows on from *Scanners 3rd* edition and encourages better use of scanning receivers. Fully illustrated throughout, including a comprehensive section featuring the actual scanners currently available plus a useful guide to scanner and accessory dealers in the UK, this book contains all the information you need to put your scanner into practice. 271 Pages **£9.95.**

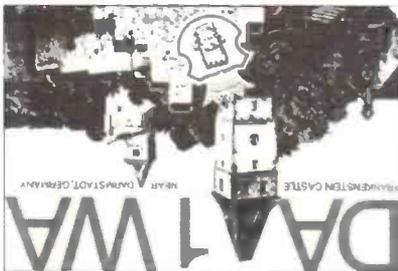


Domestic Appliances To Be Fitted With Plugs

The Department of Trade and Industry has announced that as from 1 February 1995, most domestic electrical appliances manufactured in or imported into the UK must be fitted with a correctly fused 13A plug. In a written answer to a Parliamentary Question from Lord Gainsford, Lord Strathclyde, Consumer Affairs Minister, said: "Regulations under the Consumer Protection Act 1987 will be laid before parliament shortly, and from 1 February 1995 most domestic electrical appliances manufactured in or imported into the UK must be supplied with a correctly fused plug. Fatalities and injuries occur each year because of incorrectly fitted electrical plugs. These regulations represent an important step forward in consumer safety for the British public."

Frankenstein V

For the fifth year in succession, a valiant band will tempt fate and run an amateur station from the ancient and scary dungeons of Castle Frankenstein, near Darmstadt in Germany. The station DA1WA/P will be operating from the evening of 29 July to midday 31 July. QSL manager (if he survives Saturday night and Igor's pals!) will be Rob Kipp DJ0PU. The brave band will be operating on most bands and in most modes running 100W. A special blood red QSL will be available, please remember to include sufficient postage and a self addressed envelope, at least 15x10.5cm. Don't forget to listen at midnight!



National Transmitter News

Radio 1 FM:

June 22 Okehampton, Devon entered service after a period of test transmissions which began April 28. Using a frequency of 98.3MHz, the transmitter is sited 2km north of the town and offers good stereo reception to over 5000 people in the town and the surrounding area. The Station also carries Radio 2, 3, 4 and Radio Devon.

June 22 Plymton, Devon located 5km east of Plymouth entered service providing good reception including stereo, to around 11500 people in the Plymton and east Plymouth areas. Frequency used is 98.1MHz. Antenna polarisation is vertical. The Station also carries Radio 2, 3, and 4.

June 8 Idle, West Yorkshire located some 5km north of Bradford commenced service after a period of test transmissions. The frequency is 98.1MHz being vertically polarised. The Station provides good f.m. reception including stereo to around 10 000 people in Shipley and the surrounding area north of Bradford. The Station also carries Radio 2, 3, and 4.

Television Relay Stations:

July 4 Horndean, Hampshire jointly operated by the BBC and the Independent Television Commission (ITC). Located 8km north of Havant, bringing good television and teletext reception to about 450 people in Horndean including the residents of Downwood Way and Southdown Road.

Station Details

Channels:	BBC1	South	56
	BBC2 <td>South <td>64</td> </td>	South <td>64</td>	64
	ITV <td>Meridian <td>52</td> </td>	Meridian <td>52</td>	52
	Channel 4 <td></td> <td>62</td>		62

Antenna Group: C/D
Polarisation: Vertical
Effective Radiated Power: 12W (to the S & E only)

Radio and TV DX News

A new voice on the scanner airwaves will be the DSS Sector Fraud Investigation Department who have just invested £4 million's worth of 200 PMR systems units. This includes 2,500 vehicle units (Key) and 2500 handhelds (Kenwood) and handfree units by Technotrend. Delivery is between now and Winter 1996.

The Civil Land Mobile Radio Committee are pressing for more spectrum allocation and reckon they'll need another 100MHz bandwidth. The CLMRC considers that this might come from reduced defence requirements and transfers in terrestrial TV broadcasting by making use of cable/satellite delivery. The committee argues that "mobile radio users must have available a number of identified harmonised frequency bands within which mobile radio will be the dominant service throughout Europe".

In Poland the Broadcasting Council have awarded 117 regional and local radio licences, together with the establishment of 4 large regional private TV networks. In Switzerland the German RTL-TV group have been refused a broadcasting licence to transmit in that country, RTL had planned an RTL-TV expansion but with regional (Swiss) opt outs.

Canal Plus TV has received permission to expand into Israel with a terrestrial PAY-TV service. And Zambia is also planning a 2nd TV network again based around a PAY-TV format using the South African M-NET service though no on-air dates have as yet been advised.

On the PAY-TV theme still but in chillier climes, the Stod-2 station in Reykjavik has been losing up to 10% of income due to pirate decoder usage. The local Parliament has now passed several new clauses in their Broadcast Bill that makes illegal the manufacture, sale, installation or repair of decoders outside of the known list of subscribers. Reception of coded transmissions unlawfully (ie, without paying the correct fee) is also unlawful and wrong do-ers will be fined or imprisoned.

Later July will see a unique court case in which London's Canary Wharf Ltd, owners of the metal clad high tower block will be taken to the High Court for prolonged public nuisance during years 1988-92 during which time severe ghosting was caused to TV viewers, particularly in Poplar. Elsewhere Arsenal Football Club paid for nearly 150 antennas to be replaced following erection of their new North Bank Stand and loss of TV signals.

Green Channel' is a new f.m. station in Kampala, Uganda which will expand local broadcasts, news etc. Though currently operating a reduced programming hours, changes have resulted in other services. Radio Uganda's Kawa programme for the West Nile is now starting 1715 local, 1815 Sundays. The Lutumba/Bantu language service has now extended to 30 minutes starting Saturdays 1430 local. Evening news in Kiswahili is now 2100 with local 2045 local for frequency change. Source *World Broadcast News*.

Egypt - A Benelux DX Club member has recently had a holiday in that area and can confirm that at Dumyat there two transmitters, each of 900 watts e.r.p. The ch.2 transmitter carries the ERTU-2 programme with an offset of 8P. The ch.4 900 watt e.r.p. transmitter carries ERTU-1 with a zero offset and has many signals including teletext in the sync. bar. After close down pages of teletext are transmitted, Arabic on ch.4 and English on ch.2. ERTU-2 airs lower together with teletext pages. ERTU-1 is on-air earlier.

And finally DAB - Digital Audio Broadcasting - which currently testing with 2 transmitters in North/South Paris at 50MHz - looks like opting for an eventual European allocation at ch.12, Band 3 TV @ 223-230MHz. With an East German main transmitter now in E12 may push Poland and Czechoslovakia into using Band 1 for DAB. With the 1.5Hz equation also in the air, the manufacturers are experiencing much head scratching as to the r.f. receiver front ends to develop

BARTG Guide to RTTY launched

The second in the series of the new *BARTG Guides to Data communications* has now been released. These new guides describe the basics of setting-up the various modes of data communications over radio. The *BARTG Guide to RTTY* is illustrated, with many easy to follow diagrams and explanations. Ideal for the beginner and newcomer to RTTY, it is also very interesting and informative reading for the RTTY enthusiast. Price is 75p inc. P&P.

The Guide is available from the BARTG's Publications Manager: **Mark Ashby G6WRB, 47 Ryton Close, Luton, Beds. LU1 5SR**

For details of how to join BARTG or for general information on the group contact: **Peter Adams G6LZB, BARTG membership Secretary, 464 Whippendell Rd., Watford, Herts. WD1 7PR, Tel: (0582) 36094. Packet: G6LZB@GB7BST.**

Lowe Electronics **EVERYTHING FOR SHORTWAVE**

LOWE RECEIVERS - SIMPLY THE BEST

**IF YOU OWN A SHORT-WAVE RADIO,
YOU NEED ONE OF THESE!**

Passport to World Band Radio

We've got a limited number of the 1994 "Passport" which you can now buy for the special price of just £12.95 - Post paid!

What other book gives you all of the following:

- ◆ New equipment reviews
- ◆ Advice on choosing equipment
- ◆ Insights into broadcasters and how they make their programmes
- ◆ An excellent glossary of useful terms and jargon
- ◆ Hour by hour guide to English language programmes worldwide
- ◆ Country by country guide
- ◆ Station addresses
- ◆ And the famous "Blue Pages" - a comprehensive listing by frequency (and uniquely by time!) to a huge range of world band broadcast with a lot more info thrown in for good measure!

Passport is edited by Larry Magne and you'll find every one of its 430 plus pages full of useful information. I've been using Larry's DX tips ever since the early seventies when we were both contributing DX news and tips to Radio Sweden Calling DXers. Passport is the one book I buy every year without fail and read cover to cover. Its always at the side of my receivers, ready to help me to choose a program to listen to or to help me to identify an unknown station.

**Order your copy today -
just £12.95 POST PAID!**

Lowe Electronics Ltd.

**Chesterfield Road, Matlock,
Derbyshire, DE4 5LE**

Tel 0629 580800 Fax 0629 580020

**IF YOU WOULD LIKE MORE
INFORMATION ABOUT THESE AND
OTHER PRODUCTS, JUST SEND US
FOUR FIRST-CLASS STAMPS AND
REQUEST OUR "SHORTWAVE
INFORMATION PACK" WE'LL ALSO
SEND YOU A FREE COPY OF OUR
FAMOUS LISTENER'S GUIDE!**

All for just £699.00

A "turbocharged '225"! The HF225 Europa is probably the best receiver to use if you are a dedicated broadcast band DXer. We've replaced the standard AM filters with 7, 4.5 & 3.5kHz, giving excellent selectivity for winking out those weak tropical band stations. The SSB filter stays at 2.2kHz to allow for exalted carrier reception. We're also fitting magnetically shielded coils and low-noise switching diodes in the bandpass filters which reduces residual noise in the receiver. The Europa model includes the KPAD1 frequency controller and the synchronous detector fitted as standard



EUROPA

OPENING HOURS MON - FRI: 9.30 TO 5.00, SAT: 10.00 TO 4.00

EAST ANGLIA
152, High Street,
Chesterton,
Cambridge,
Tel 0223 311230

NORTH EAST
Mittord House
Newcastle Int'l Airport
Newcastle upon Tyne
Tel 0661 860418

SOUTH EAST
Communications House
Chatham Road
Sandling, Maidstone,
Tel 0622 692773

SOUTH WEST
117, Beaumont Road
St. Jude's
Plymouth,
Tel 0752 257224

MAIL ORDER !!
If you can't pay us a visit
- all our branches offer a
speedy mail order service

WALES & WEST
79/81 Gloucester Road
Patchway,
Bristol,
Tel 0272 315263

YORKSHIRE
34, New Briggate
Leeds,
Tel 0532 452657

BERKSHIRE
3, Weaver's Walk,
Northbrook Street,
Newbury
Tel 0635 522122

SCOTLAND
Cumbernauld Airport
Cumbernauld
Strathclyde
Tel 0236 721004

SHORTWAVE ACCESSORIES	
Magnetic Longwire	£45.00
Balun	£45.00
NEW! MLB Isolator	£45.00
Magnetic Transfer Antenna	£175.00
DXONE Active Antenna	£325.00
T2FD Low noise receiving antenna	£175.00
Kenwood HS6 Headphones	£32.95
A11000 Antenna Tuner	£96.95
Datong AD370 Active antenna	£79.95

ALL THE GREAT NAMES IN SHORT-WAVE ARE HERE AT LOWE'S... WATKINS-JOHNSON, KENWOOD, ICOM, YAESU, ROBERTS, SONY, RF SYSTEMS, GLOBAL JRC, AOR, DRAKE

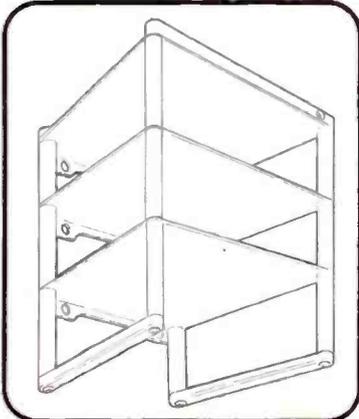
NEW! MODEMASTER2

Modemaster has fast become the standard software decoding package for the shortwave listener. Covering FAX, RTTY, Morse, NAVTEX and FEC, this will allow you to decode the majority of signals found on the shortwave bands today. With MODEMASTER 2 you have access to:

- Current and Forecast Weather Facsimile Maps.
- Weather Forecasts.
- Cloud Cover Pictures.
- NAVTEX and Marine Navigation Warning Broadcasts.
- News Broadcasts and Press Photographs.
- Amateur Radio Transmissions

New features in Version 2 include a new map driven front end and ability to apply false colour to fax pictures - great value at the new lower price - it's now just £139.00! Or upgrade from V1.0 for just £49.00

NEW



What a great way to tidy up your HF150 station! Our new RK150 Stack'n'Rack provides the ideal solution to storing your HF150 and accessories. Available as a two tier model for the HF150 and PR150 combination, plus you can buy an extension kit to add another layer for your NIR10, NTR1 or FL3 audio filter, or perhaps for our next accessory.....

RK150.....£59.95
RK150E.....£19.95

PR150



Although initially designed to compliment our own HF150 receiver, the PR150 can in fact be used with any receiver.

The PR150 preselector sits ahead of your receiver and pre-selects a narrow range of frequencies from the wide range arriving from the antenna. This can help to reduce image frequencies and spurious signals in a receiver, sometimes resulting in a spectacular improvement in performance! If you're using a scanner like the MVT7100 for short-wave reception, one of these will really make it work!

Try one out today in any of our branches.

PR150.....£235.00
PR150E.....£235.00

S.R.P. TRADING

Mail Order: SRP Trading, Unit 20, Nash Works, Forge Lane, Belbroughton, Nr. Stourbridge, Worcs. Tel: (0562) 730672. Fax: (0562) 731002
 Shop: SRP Radio Centre, 1686 Bristol Road South, Rednall, Birmingham B45 9TZ. Tel: 021 460 1581



- Back-lit l.c.d. & buttons RING FOR THIS MONTHS SPECIAL PRICE
- 12V d.c. or 4 x AA power supply
- 30 channels per sec. scan speed
- 10 search bands
- 500 search pass frequencies
- 1000 memory channels
- 530 kHz - 1650 MHz
- NFM / WFM / AM / LSB / USB

MVT 7100

£129.95 + £5 p&p

- 50 Channel Scanner
- 66-88, 108-136.975(AM), 137-174, 380-512MHz



TRADE ENQUIRIES WELCOME FOR PRO HOME & EXPORT

MVT 7000
NEW LOW PRICE
£289.95



inc NiCads and charger worth £20



PRO-46
 100 Channel Scanner
 66-88, 108-136.975(AM)
 £199.95 + £5 p&p

inc NiCads and charger worth £20



PRO-43
 200 Channel Scanner
 10 Monitor Channels
 £199.95 + £5 p&p



AR8000
 The elusive one. Ring for details.

PRO-2006
 25-1300MHz Mobile & Base Scanner.
 RRP £299.95
 our price **£249.95**

Save £50



£189.95 + £5 p&p
 40 Memory channels with RDS
 with P.S.U & carrying case



£349.99 + £5 p&p
 TOP OF THE RANGE RECEIVER
 1.6 - 30MHz complete with P.S.U, RDS
 full s.b. • up to 2048 Memory channels

Save £50

£129.95 + £5 p&p
 FREE S.W. ANTENNA worth £14.99



Yacht boy 500

NEW IN STOCK



Satellit 700

NEW IN STOCK



Yacht boy 400

NEW IN STOCK

THREE OF THE BEST FROM GRUNDIG A radio to suit all users

SKY SCAN
 Magmount
 MKII
 £24.95



SKY SCAN
 V1300
 Antenna
 £49.95



SKY SCAN
 DESK TOP
 ANTENNA MODEL
 DESK 1300
 £49.00



WARNING!
 Your scanner is only as good as your antenna

Receiver Specifications Explained - 1

This month Peter Buchan begins a three part series to help remove some of the mystery behind receiver specifications

As radio enthusiasts we are following a hobby with a strong scientific bias, though to enjoy the hobby one does not have to be a highly skilled, engineer, technician or research worker. In fact, the operation of receiving apparatus is a craft, an art, and remains so for those who operate their equipment manually.

As with so many pursuits, the satisfaction and enjoyment of the hobby is enhanced by studying the fundamental principles which govern the working of the equipment we use.

An area where there seems to be a lack of understanding is in the reading of manufacturer's data sheets and specifications.

There is little on the subject either in text books or the literature. Specifications are written to enable the interested party to get some idea how a particular piece of apparatus stands up against the competition. It is possible to gather together several glossy brochures, and compare the figures which describe the various parameters, and assume one is making an objective decision, as to which is the best buy. But instead of just comparing the figures would it not be much better to understand each parameter in some depth. Not only does this make the exercise more interesting but it will add confidence to your choice, and in addition will be a form of self training. A requirement of those intending to become licensed and indeed an on going procedure for those already licensed.

For example look at a manufacturer's data sheet or brochure for a communications receiver or transceiver, almost certainly the first thing to be found in the specification is the receiver sensitivity. Couched in technical terms it will read something like this:

> 0.15µV for 10dB S+N/N.

What this is telling you is that, less than (it does not tell you how much less) 0.15microvolts across the antenna terminals are required to lift the output of the receiver, which will include the signal and the noise, to a level ten times greater than the noise alone. This sensitivity will be for a range of say from 2.0 to 30MHz, and will be for the reception of c.w., s.s.b. and

RTTY. Sensitivity goes hand in hand with bandwidth, and bandwidth is not always mentioned, however, s.s.b. was mentioned and so we may assume the bandwidth to be around 2.5kHz. What other information is there to be found in the statement of sensitivity? Well with a little arithmetic one can discover that the noise floor of this receiver, referred to 1mW, is -133dBm, and at the same time that the receiver is operating at a level of -123dBm at its sensitivity figure, i.e. ten times or 10dB above the noise floor). Probably a large percentage of the readers know that these measurements were taken under laboratory conditions, using really very expensive instruments. This of course is unnecessary because without some form of standardisation impossible. But at the same time do these measurements tell us how the receiver will perform with an antenna connected. The answer to this must be no; up to say 20MHz, noise, external to the receiver, is so much greater than the thermal noise generated in the components of the receiver, that the sensitivity figures are virtually academic.

To prove this to your own satisfaction, replace the antenna of your receiver with a matched dummy load, or if no such load is available, just simply take off the antenna. Set the gain to give you a good audible output. Now starting at say 2.0MHz and going up in 5.0MHz steps reconnect the antenna at each 5.0MHz step. In a normal reasonably sensitive receiver, you will notice a substantial

increase in the noise output, each time the antenna is reconnected. You will need to find a quiet frequency (difficult) to do this at each step, but as you approach 20MHz the noise on an antenna reconnection will become less and less, until a point, as you go above 20MHz, is reached where you cannot tell whether the antenna is connected or not. Above this point the manufacturers sensitivity figures become more meaningful.

It is possible to put comparison figures on this noise question, providing we are prepared to make one or two assumptions. For example, assume that this receiver requires 50+ volts on the antenna terminals to give an S9 reading on the S meter. Also that one S point is equivalent to 5dB. There is some comparison would be

impossible. But at the same time do these measurements tell us how the receiver will perform with an antenna connected. The answer to this must be no; up to say 20MHz, noise, external to the receiver, is so much greater than the thermal noise generated in the components of the receiver, that the sensitivity figures are virtually academic.

To prove this to your own satisfaction, replace the antenna of your receiver with a matched dummy load, or if no such load is available, just simply take off the antenna. Set the gain to give you a good audible output. Now starting at say 2.0MHz and going up in 5.0MHz steps reconnect the antenna at each 5.0MHz step. In a normal reasonably sensitive receiver, you will notice a substantial

increase in the noise output, each time the antenna is reconnected. You will need to find a quiet frequency (difficult) to do this at each step, but as you approach 20MHz the noise on an antenna reconnection will become less and less, until a point, as you go above 20MHz, is reached where you cannot tell whether the antenna is connected or not. Above this point the manufacturers sensitivity figures become more meaningful.

It is possible to put comparison figures on this noise question, providing we are prepared to make one or two assumptions. For example, assume that this receiver requires 50+ volts on the antenna terminals to give an S9 reading on the S meter. Also that one S point is equivalent to 5dB. There is some comparison would be

impossible. But at the same time do these measurements tell us how the receiver will perform with an antenna connected. The answer to this must be no; up to say 20MHz, noise, external to the receiver, is so much greater than the thermal noise generated in the components of the receiver, that the sensitivity figures are virtually academic.

increase in the noise output, each time the antenna is reconnected. You will need to find a quiet frequency (difficult) to do this at each step, but as you approach 20MHz the noise on an antenna reconnection will become less and less, until a point, as you go above 20MHz, is reached where you cannot tell whether the antenna is connected or not. Above this point the manufacturers sensitivity figures become more meaningful.

It is possible to put comparison figures on this noise question, providing we are prepared to make one or two assumptions. For example, assume that this receiver requires 50+ volts on the antenna terminals to give an S9 reading on the S meter. Also that one S point is equivalent to 5dB. There is some comparison would be

impossible. But at the same time do these measurements tell us how the receiver will perform with an antenna connected. The answer to this must be no; up to say 20MHz, noise, external to the receiver, is so much greater than the thermal noise generated in the components of the receiver, that the sensitivity figures are virtually academic.

To prove this to your own satisfaction, replace the antenna of your receiver with a matched dummy load, or if no such load is available, just simply take off the antenna. Set the gain to give you a good audible output. Now starting at say 2.0MHz and going up in 5.0MHz steps reconnect the antenna at each 5.0MHz step. In a normal reasonably sensitive receiver, you will notice a substantial

increase in the noise output, each time the antenna is reconnected. You will need to find a quiet frequency (difficult) to do this at each step, but as you approach 20MHz the noise on an antenna reconnection will become less and less, until a point, as you go above 20MHz, is reached where you cannot tell whether the antenna is connected or not. Above this point the manufacturers sensitivity figures become more meaningful.

It is possible to put comparison figures on this noise question, providing we are prepared to make one or two assumptions. For example, assume that this receiver requires 50+ volts on the antenna terminals to give an S9 reading on the S meter. Also that one S point is equivalent to 5dB. There is some comparison would be

impossible. But at the same time do these measurements tell us how the receiver will perform with an antenna connected. The answer to this must be no; up to say 20MHz, noise, external to the receiver, is so much greater than the thermal noise generated in the components of the receiver, that the sensitivity figures are virtually academic.

To prove this to your own satisfaction, replace the antenna of your receiver with a matched dummy load, or if no such load is available, just simply take off the antenna. Set the gain to give you a good audible output. Now starting at say 2.0MHz and going up in 5.0MHz steps reconnect the antenna at each 5.0MHz step. In a normal reasonably sensitive receiver, you will notice a substantial

increase in the noise output, each time the antenna is reconnected. You will need to find a quiet frequency (difficult) to do this at each step, but as you approach 20MHz the noise on an antenna reconnection will become less and less, until a point, as you go above 20MHz, is reached where you cannot tell whether the antenna is connected or not. Above this point the manufacturers sensitivity figures become more meaningful.

(For frequencies, say, between 2.0 and 20MHz). Remember that 10dB is ten times, and that 20dB is 100 times, which means in simple terms that for an S1 noise level the noise input power is ten times greater than the sensitivity signal input power, and a hundred times greater than the noise floor input power. The difference at a noise level of S4 will be left for the reader to work out for themselves. The accuracy and linearity of S meters is generally very poor, but nevertheless the argument does give one a feel for the situation. The conclusion one must reach is that it is not necessary to have sensitivities greater than those found in today's specifications. In addition, it must be made clear that excessive gain at the front end of a receiver, will only aggravate the situation by amplifying the noise even more, both thermal and external noise of course. Perhaps this brief look at sensitivity would not be complete without some mention of thermal noise and its origin. Science has shown by the study of thermodynamics (Boltzmann, Maxwell and others), that down at the atomic level free electrons are constantly on the move. The degree of movement is proportional to the absolute temperature T (Kelvin). The result of this movement is to generate very small voltages which, due to the random nature of the phenomenon average out to zero, the r.m.s. value of these voltages does not. It is the r.m.s. value of the voltages that are heard as noise in our receivers, and it is in the

Abbreviations:	
%	percent
dB	decibels
dBm	decibels reference 1µV
dBµ	decibels reference 1µV
K	Kelvin (absolute)
kHz	kilohertz
MDS	Minimum Discernible
MHz	megahertz
mW	milliwatts
S+N/N	Signal plus Noise to Noise ratio
SINAD	Signal to Noise and Distortion ratio
°C	Degrees Celsius
µV	microvolts
Ω	ohms

Some times the SINAD measurement is made with a signal modulated to only 30%. For completeness a SINAD expression should include modulation percentage and the modulating frequency.

Receiver sensitivity 0.15µV in dBm
 Signal input power $P_{sig} = (e_{sig})^2 = (0.150 \times 10^{-6})^2$
 $\frac{50}{50} = 450 \times 10^{-18} \text{ W}$
 Refer to 1mW ($1 \times 10^{-3} \text{ W}$);
 $10 \log_{10} 450 \times 10^{-15} = -123 \text{ dBm}$
 -123dBm is 10dB above noise. Therefore noise floor is (-123dBm - 10dB) = -133dBm
 NB -133dBm is also the minimum discernable signal level, in this case;
 $10 \log_{10} P_x = -133 \text{ dBm}$
 $10 \log_{10} P_x = -13.3$
 $\frac{1 \times 10^{-3}}{P_x} = 1 \times 10^{-3} \times 50 \times 10^{-15}$
 $P_x = 1 \times 10^{-3} \times 50 \times 10^{-15}$
 $P_x = 50 \times 10^{-18} \text{ W}$
 $50 \times 10^{-18} \text{ W} = (e_{sig})^2$
 Therefore, $e_{sig} = (50 \times 50 \times 10^{-18})$
 $= 50 \times 10^{-9} \text{ V}$
 Reading of S9 (50µV on antenna terminal) = 0.05µV
 $P_{sig}(S9) = (50 \times 10^{-6})^2$
 $\frac{50}{50} = 50 \times 10^{-12} \text{ W}$
 Referred to 1mW.
 $10 \log_{10} 50 \times 10^{-12} = -73 \text{ dBm}$
 1×10^{-3}
 A noise reading of S4 is 5 'S' points down. At 5dB per 'S' point, the noise reading is 25dB less than S9. Since S9 is -73dBm, the S4 noise is (-73dBm-25dB) = -98dBm.

with a 1kHz tone. Sufficient signal is injected into the receiver to obtain a receiver audio output to suite the SINAD meter which is connected across the speaker terminals. As before a 4 or 8Ω match is needed. The SINAD meter is switched to 'Distortion' and the level control of the meter adjusted for a 100% reading. Now the 1kHz tone is nulled out by adjustment of the frequency and phase controls. When a good null is obtained the signal generator output is reduced until the SINAD reading shows 12dB. These steps are repeated until the best null, coupled with correct 100% level readings, are obtained. When satisfied, the signal generator output reading indicates the input signal required for 12dB SINAD measurement. 12dB SINAD is a standard recognised for domestic and amateur equipment, it indicates a distortion level of 25%. For commercial quality, a SINAD reading of 20dB is called for.

The generator is tuned to the same frequency as the receiver, with the resistor alone. This level of input indicates the Noise Floor and the MDS. A 3dB increase indicates a doubling of the power input, therefore the noise floor is one half of the signal generator output reading. It only remains now to increase the reading by another 7dB to reach the sensitivity reading for 10dB S+N/N. Remember, laboratory generators are calibrated in dBm. The SINAD reading is more involved. Bridge circuits must be balanced, and percentage level controls must be set. The r.f. input signal usually requires to be modulated to 100%. The generator also needs to have a really good sinusoidal output. To make the measurement, receiver and generator are tuned to the same frequency. The signal is modulated to 100%

be encountered. One is the dBµ, which would express 0.15µV for 10dB S+N/N as -16.5dBµ for 10dB sensitivity voltage S+N/N. Here, the sensitivity voltage is referred to 1µV (1µV is 0dB). The other quite popular method is the SINAD measurement. Most brochures reserve this to express f.m. sensitivity and might read 0.5µV for 12dB SINAD. The µV, and dBµ measurements, are made by first determining the impedance of signal sources such as signal generators, and so becomes a standard. Another point to notice is that bandwidth is a factor in the equation. If the bandwidth of our receiver mentioned earlier were reduced from 2.5kHz to 500Hz, that is by five times, a 7dB reduction of the noise floor to -140dBm would be realised, with a corresponding increase in sensitivity. The temperature is taken as being 290K, (17°C) and this is internationally agreed. In general Noise Figures, are not quoted for the h.f. receiver, but for interest this particular receiver would have a noise figure of about 7dB. Noise Figures for h.f. receivers run between 5 and 15dB. Some people are very surprised to find that a 45 year old receiver, that is properly aligned and serviced will perform, in essence, as well as the latest 'state of the art' receiver on the market. In fact this old receiver has both r.f. and i.f. gains it might well be able to winkle out very weak c.w. signals which do not attract the attention on the more recent receiver. This by virtue of the fact that the overall gain can be varied so much more with the two controls. Summing up then, it should be said that high gain is not required at the front end of a receiver, low noise is very important but plays a less crucial role up to 20MHz, and that noise external to the receiver can be a deciding factor in the successful establishment of communication, despite the sensitivity of the receiving equipment.

front end of the receiver, where signal voltages are very small, that noise causes a problem. The magnitude of noise voltage at ambient temperatures may be calculated using the following formulae;
 $e_n = \sqrt{(4kTB) V}$
 Where, k , is Boltzmanns constant $1.38 \times 10^{-23} \text{ J/K}$
 T is the temperature in Kelvin
 B is the bandwidth in hertz, over which the noise is present.
 R is the resistance in Ω across which the noise is calculated.
 Nowadays the value of resistance R is understood to be 50 Ω. That is when noise is spoken of in terms of receiver front ends, because 50 Ω is the value generally accepted, of the impedance of signal sources such as signal generators, and so becomes a standard. Another point to notice is that bandwidth is a factor in the equation. If the bandwidth of our receiver mentioned earlier were reduced from 2.5kHz to 500Hz, that is by five times, a 7dB reduction of the noise floor to -140dBm would be realised, with a corresponding increase in sensitivity. The temperature is taken as being 290K, (17°C) and this is internationally agreed. In general Noise Figures, are not quoted for the h.f. receiver, but for interest this particular receiver would have a noise figure of about 7dB. Noise Figures for h.f. receivers run between 5 and 15dB. Some people are very surprised to find that a 45 year old receiver, that is properly aligned and serviced will perform, in essence, as well as the latest 'state of the art' receiver on the market. In fact this old receiver has both r.f. and i.f. gains it might well be able to winkle out very weak c.w. signals which do not attract the attention on the more recent receiver. This by virtue of the fact that the overall gain can be varied so much more with the two controls. Summing up then, it should be said that high gain is not required at the front end of a receiver, low noise is very important but plays a less crucial role up to 20MHz, and that noise external to the receiver can be a deciding factor in the successful establishment of communication, despite the sensitivity of the receiving equipment. There are two other ways of expressing sensitivity which will

S.M.C. & A.R.E. COMMUNICATIONS

We aim to give the best prices on all major brands and we will endeavour to match any competitors genuine offer on Icom, Kenwood, AOR & Yaesu receivers

BUY FROM S.M.C. AND SAVE MORE CASH

ROBERTS WORLD RADIOS

- * Mutiband Stereo
 - * 45 Memory Channels
 - * ssb, c.w, a.m, f.m
 - * Sleep timer
 - * Dual time display
 - * Clock/Alarm
- R 808 **OUR PRICE £109** **SAVE £10**
- R 817 **OUR PRICE £169** **SAVE £20**
- RC 818* **OUR PRICE £199** **SAVE £20**
- *built in cassette



Carriage C

KENWOOD R-5000

- * 100kHz-30MHz in 30 Bands
- * All mode
- * 100 Memory Channels
- * Dual IF Crystal filters & IF shift
- * 10Hz - Step Dual Digital VFO's



SAVE £100

OUR PRICE £899

YAESU FRG-100



- * 50kHz-30MHz
- * s.s.b., c.w., a.m. & f.m.
- * 52 Memory Channels
- * PAIIC PSU

OUR PRICE £479

SAVE £89

Yupiteru MVT-7100

* Multimode scanning receiver.

* 530kHz - 1650MHz

incl's ssb

OUR PRICE £389 **SAVE £60**



Carriage C

- * An exciting new Handheld Scanner
 - * 500kHz-30MHz
 - * 1000 Memory Channels
 - * All Modes including true ssb
 - * ssb filter fitted
 - * Alpha-numeric display
 - * Band scope facility
- AR 8000**
- OUR PRICE £449**

AOR A SUPERB RANGE OF TOP QUALITY RECEIVERS

- AOR AR-3000A** 100kHz-2036MHz **OUR PRICE £659** **SAVE £40**
- AOR AR-3030** 500kHz-600MHz 800-1300MHz **OUR PRICE £399** **SAVE £50**
- AOR AR-2800** 500kHz-1300MHz **OUR PRICE £314** **SAVE £35**
- AOR 1500EX** 500kHz-1300MHz **OUR PRICE £279** **SAVE £30**
- AOR AR2000** 500kHz-1300MHz **OUR PRICE £849** **SAVE £100**

- ### ICOM RECEIVERS
- ICR-100** 500kHz-1.8GHz **OUR PRICE £565** **SAVE £64**
 - ICR-71E** 100kHz-30MHz **OUR PRICE £985** **SAVE £74**
 - ICR-72E** 100kHz-30MHz **OUR PRICE £769** **SAVE £26**
 - ICR-1** 2-905MHz **OUR PRICE £355** **SAVE £40**
 - ICR-7100** 25MHz-2GHz **OUR PRICE £1255** **SAVE £40**



SONY S.W. Radios

- ICFSW100E** **OUR PRICE £179** **SAVE £20**
- ICFSWIE** **OUR PRICE £159** **SAVE £20**
- ICFSW7600** **OUR PRICE £159** **SAVE £20**
- ICFSW55** **OUR PRICE £249** **SAVE £30**
- ICFSW77** **OUR PRICE £359** **SAVE £40**
- PRO-80** **OUR PRICE £315** **SAVE £34**
- AIR-7** **OUR PRICE £269** **SAVE £30**

Special Offers subject to availability Carriage B=£5.00 C=£7.50 D=£12.50 E=£16.50

Service Department Direct Line Monday - Friday 9am - 5pm (0703) 254247

Personal callers and mail order welcome at all branches

- | | | | | | |
|--|---|---|---|--|---|
| SOUTHAMPTON
SMC HQ
S M House, School Close
Chadlers Ford Ind Estate
Eastleigh, Hants SO5 3BY
Tel: 0703 251549/255111 | LONDON
ARE Communications
6 Royal Parade
Hanger Lane, Ealing
London W5A 1ET
Tel: 081 997 4476 | AXMINSTER
Reg Ward & Co
1 Western Parade
West Street
Axminster EX13 5NY
Tel: 0297 34918 | LEEDS
SMC (Northern)
Nowell Lane Ind. Est.
Nowell Lane
Leeds
Tel: 0532 350606 | CHESTERFIELD
SMC (Midlands)
102 High Street
New Whittington
Chesterfield
Tel: 0246 453340T | BIRMINGHAM
SMC
504 Alum Rock Road
Alum Rock
Birmingham B8 3HX
Tel: 021 327 1497 |
|--|---|---|---|--|---|



NEVADA

1969 - 1994

YUPITERU

As Yupiteru's authorised distributor in the UK, we stock their full range including accessories and spares & will, **without hesitation**, match any genuine advertised price. **Call us now - we guarantee you won't be disappointed!**

- MVT-7100 530KHz-1650MHz all modes.....£389
- MVT-7000 AM, FM & WFM 200 memories...£289
- MVT-8000 Mobile, with PSU.....£369
- MVT-225 Civil/Military Air Band, 100 mems...£249
- MVT-125 Civilian Air Band, 30 mems.....£189

FOR MORE DETAILS SEE OUR FULL COLOUR AD ON INSIDE REAR COVER

NEW YUPITERU - MVT-3100

A quality, low cost scanner offering Marine, PMR, UHF Military and 900MHz high VHF bands. Easy to use and programme with 100 memory channels. Supplied with a full range of accessories including UK Mains Charger and Easy Read Handbook.



Price.....SPECIAL £199

AOR SCANNERS

AR8000 - NEW

Why not pay by three past dated cheques for this new scanner from AOR. One cheque dated today for £146.66 and two more past dated 1 month apart. See bottom right hand panel for full details. Alternatively part exchange your old scanner. ★ 500KHz to 1900 MHz ★ 1000 memory channels ★ Many new features.....£449



AR3000A

A super wide band base/mobile all mode scanning receiver. Full coverage from 100KHz - 2036MHz with a host of features including RS232 Interface for computer control. USB, LSB, CV, AM, FM and WFM modes are catered for. **Now available from stock at only £849 - save an incredible £50 off list price!**



- AR1500EX H\Held, 1000 Ch. Mem. 500KHz - 1300MHz with ssb.....£349
- AR2000 H\Held, 1000 Ch. Mem. 100KHz - 1300MHz.....£269

REVEX HEADPHONES

HP20 - NEW FROM REVEX JAPAN

High quality pair of communication headphones, suited for all types of shortwave receivers. A wide dynamic response and lightweight design makes these the ideal accessory. As factory appointed distributors for the Revex range of accessories we are able to offer these headphones at this introductory price **£29.95 plus £2.75 p&p**



THE BEARCATS ARE BACK!

As well as their recently introduced **NEW** models, we now have from stock the Bearcat UBC220XLT Handheld which is the easiest of all to programme and use. Look for our special re-introductory offer!

BEARCAT 220XLT

★ A new handheld scanner covering right up into the high 900MHz bands.

★ Ideal - Airband, PMR, Amateur and Marine Bands

★ c/w case and charger
.....SPECIAL OFFER £199



BEARCAT 65XLT

A very simply to use budget handheld, offering general VHF & UHF band coverage. 10 memory channels with 2 digital channel number display. An ideal beginners model!



★ Freq. range:- 66-88, 137-174, 406-512MHz
.....AVAILABLE NOW £99.95

BEARCAT 890XLT

A tabletop base covering 29-956MHz in all the usual bands. 200 memories with additional VFO control and Auto store facility. Includes Mains 12V supply.....£299

BEARCAT 2500XLT

New redesigned case 400 programmable memories, wideband coverage [25-1,36GHz]★ Auto Store ★ VFO Control ★ Includes Nicads & charger.....£299

TRIDENT SCANNERS

- TR 2400 H\Held 1000 Ch. Mem. 100 KHz - 2060 MHz with fitted BFO.....£369
- TR 1200 H\Held 1000 Ch. Mem. 500 KHz - 1300 MHz No Gaps.....£299
- TR 980 H\Held 125 Ch. Mem. 5-1300 MHz Good Starter!.....£249

FOR MORE DETAILS SEE OUR FULL COLOUR AD ON INSIDE FRONT COVER

COMTEL SCANNERS

- COMTEL 205 Base 400 Ch. Mem. 25 - 1300 MHz with gaps.....£344.00
- COMTEL 204 H\Held, 200 Ch. Mem. 68 - 1000 MHz with gaps.....£249.95
- COMTEL 203 H\Held, 200 Ch. Mem. 68 - 960 MHz with gaps.....£199.00
- COMTEL 102 H\Held, 10 Ch. Mem. 66 - 512 MHz with gaps.....£99.95
- BLACK JAGUAR BJ200 Mk4, H\Held, 16 Ch. Mem. 29 - 520 MHz with gaps.....£199.00

NEW THIRD EDITION UK SCANNING DIRECTORY

Now with spiral binder and even more frequencies! This book is the last word for scanner enthusiasts - order yours now. **Price: £16.95 plus £2.75 p&p**

BOOKS...

- VHF/UHF Scanner Frequency Guide New 160 Page guide covers 26MHz to 12GHz.....£9.95
- Shortwave Con Freq List 0-30MHz.....£9.99
- Marine Freq Guide Near the Coast.....£4.95
- Short Wave Communications.....£8.95
- Flight Routings Guide Book (1994).....£5.95

DRAKE R8E



- ★ 100KHz - 30MHz wide coverage
- ★ Passband tuning
- ★ Built-in Pre-Amp & Selectable AGC
- ★ Twin VFO's & Timer Functions
- ★ Dual Noise Blanker
- ★ RS232 Interface for Complete Control

Drake R8E - Designed by Perfectionists for Perfectionists! This receiver is everything you could ever want and more. The R8E's performance is truly staggering, it has a full compliment of filters; synchronous AM detector; multiple scan facilities; 100 memory channels; plus all mode coverage. All this and more - with no hidden extra costs! Why not part exchange your old receiver for this latest model from the USA, we offer excellent PX deals call our hotline now!

Available Optional Extras

- Matching Speaker.....£49.95
- PC Drive Software.....£59.95
- Full W/Stop Manual.....£29.95
- VHF Converter (Internal).....£225.00

Price £995.00 inc P&P

SCANMASTER - HIGH QUALITY ACCESSORIES

SCANMASTER BASE ANT.

New high quality wide band receiving antenna uses fibre glass/stainless steel, with 4 small radials. 'N' type connector length 1.1 mtr.....£39.95



SCANMASTER BASE STAND

A fully adjustable desktop stand for use with all handhelds fitted BNC and Coaxial fly lead.....£19.95



SCANMASTER DISCONE

A Quality wideband stainless steel discone. Range 25-1300 MHz with N-Type connector. Transmits on 2m, 70cms.....£49.95



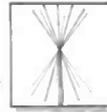
SCANMASTER MOBILE MOUNT

Mounts on air vent grills on the car dashboard. Allows easy and safe operation of most handhelds.....£9.95



SCANMASTER DOUBLE DISCONE

A high performance wideband antenna offering gain over a conventional discone. Stainless steel construction with mounting kit and short pole. ★ 25-1300MHz ★ Wide TX range.....£59.95



SCANMASTER MOBILE

A Complete, ready-to-go magnetic mount wideband antenna. ★ 100-1000MHz ★ Fitted cable & BNC Connector.....£29.95



SCANMASTER WHIPS

FLEXI WHIP - Higher gain wideband whip, capable of TX on 2cms and 70cms (BNC).....£14.95



RUBBER DUCK - General purpose antenna with BNC connector.....£11.95

Note:- Add £4.75 P&P on all Antennas

WIDE BAND PRE-AMPLIFIERS

A very useful accessory for the scanner enthusiast. These low noise pre-amps help improve the reception on many brands of base/mobile & handheld radios.

SCANMASTER GW-2

Low noise GaAs FET pre-amp covering 1-1400MHz with variable gain of -3 to +20dB (requires PP3 battery).....£59.95



M-75

Similar to the GW-2 but with selectable band pass filter for improved performance. 25-2100MHz.....£89.95

PSU101 MK IV

A combined desk stand and pwr supply / charger for handheld scanners. Suitable for most popular models. Special versions available please call for details.....£29.50



PSU 101 TA 9V Version.....£29.50

ERA MICROREADER

For years the Microreader has been one of the most successful and widely used decoders in Britain. It allows reception of:- CW, AMTOR, RTTY, SITOP. It even has a built-in tutor to help you learn and read CW. The new 4.2 Version gives even better performance.



NOW V4.2
SAVE £10

Due to a special bulk purchase we can offer the Microreader Version 4.2 complete with leads, instructions, frequency listing at.....

£189



USE YOUR CREDIT CARDS FOR SAME DAY DESPATCH

ORDER HOTLINES:

TEL: (0705) 662145

FAX: (0705) 690626

★ CELEBRATING 25 YEARS ★

... Now in our 25th Year We Offer

HUGE STOCKS - FAST DELIVERY - FULL SERVICE BACKUP

... Buy With Confidence From NEVADA!

NEW SW8 DRAKE, PORTABLE

Now, for the first time, a truly versatile Short Wave Receiver with additional coverage of both VHF Airband and VHF Stereo FM. Microprocessor controlled and large back-lit LCD display ensures easy access to its enviable range of facilities.

Recognising what's needed in modern receiver design, Drake have incorporated a quality large front-mounted speaker, direct frequency access keypad, four antenna inputs and complete portability with a fitted telescopic whip antenna and optional NiCads. Also included are 70 programmable memories, a dual mode clock timer, synchronous AM detector and, of course, a 240AC adaptor.



- ★ Full Short Wave Coverage (500KHz-30MHz)
- ★ VHF Stereo FM (87-108MHz)
- ★ VHF Airband (116-136MHz)
- ★ AM/FM/SSB
- ★ Mains or Battery (AC Adaptor incl.)

£599

NOISE KILLERS

DIGITAL AUDIO FILTERS

FROM TIMEWAVE TECHNOLOGY USA

Eliminates Heterodynes, reduce noise & interference, produce razor sharp audio! Both TW DSP filters feature third generation 16-bit processors for unmatched performance. Multiple filter combination provide simultaneous noise reduction, automatic search & elimination of heterodynes and QRM removal. FIR linear phase filters minimise ringing, prevent data errors and produce razor sharp audio.



TIMEWAVE DSP-9

CW/SSB filter. New version 2 has better noise reduction. AGC & tighter SSB filtering. **£189**

VER 2



TIMEWAVE DSP-9 plus

Multi-mode filter including Packet, Amtor, RTTY and the NEW G-TOR modes. Incorporates multiple automatic notch filter. **£239**

Upgrade Your DSP-9

Replacement ROM Chip turns your old model into New Version 2 for just **£29.95**

AOR AR3030

We waited and waited and finally it arrived - this excellent receiver has a host of facilities including the famous Collins filters, and a TCXO fitted as Standard. It is obvious from the start that AOR only had two criteria in mind when developing the 3030 - SELECTIVITY and STABILITY! and they achieved their goal. The AR3030 is an ideal match for the digital guys. A free copy of the S/Wave Conf. Freq. Guide and FREE delivery will get you on the air **£699**



SHORT WAVE RECEIVING ANTENNA

- ★ Manufactured in Germany by Hari
- ★ Professional construction
- ★ 1-30MHz frequency coverage
- ★ Worldwide reception
- ★ Fitted balun for optimum performance
- ★ Suitable for all types of receiver
- ★ Only 14 metres long

Price **£59.95**
Magnetic Longwave Balun (MLB)
 The MLB matches longwave random antennas to 50ohms Coaxial Cable, reduces noise & helps cure interference. **£39.95**

VIDEOS

Interesting! Entertaining! And Very Informative

- ★ Getting Started in Ham Radio
- ★ Getting Started in Packet Radio
- ★ Getting Started in Amateur Satellites
- ★ Getting Started in DX'ing
- ★ Getting Started in Contesting

Running time approx. 50 mins. **£19.95**

RECEIVERS

- ICOM**
- IC-R72 (100kHz-30MHz)£769.00
 - IC-R7100 (25-2000MHz)£1255.00
 - IC-R100 (500kHz-1.8GHz)£565.00
 - IC-R1 H/held scanner£395.00
 - Icom R71E Short-Wave Receiver.....£895
- KENWOOD**
- R-5000 (100kHz-30MHz)£899.00
- YAesu FRG-100**
 Compact Shortwave Receiver, ideal for both beginner & Pro alike! Comes complete with free P.S.U. **£499.00**
- LOWE**
- HF-225 (30kHz- 30MHz)£479.00
 - HF-150£389.00
 - PR150 Pre Selector£199.95
- ROBERTS**
- RC817 Multi band radio£169.99
 - RC818 Multi band w/cass£199.99

SONY

As a Sony Shortwave Centre we carry the full range of Portable Radios - Here is a selection:

- SW100 New Micro All Mode .. £199
- SW77 SW+VHF All Mode£399
- SW55 SW+VHF All Mode£279
- SW33 Portable SW+VHF£139
- SW1E Pocket S/Wave£179
- SW7600 Popular MultiBand£179
- AN1 SVV Active Ant.£58
- AN3 VHF Ant£58

STEEPLETONE MBR8

Top of the range multi-band radio, covering the usual LW and MW bands together with VHF Air & Marine Bands plus Shortwave Broadcast Bands. AM Direction Finder Ant., Mains/Battery. Price **£89.95**



NEW MODEL

STEEPLETONE MBR7

We have a few of this "Jumbo" Radio left in stock. It offers facilities similar to the MBR8 & is available at **£69.95**

STEEPLETONE SAB9 MkII

Planning to visit the Air Shows this Summer Well Dont leave home without this Pocket Radio! Covering MW/LW/FM Marine and of course Airbands. **£27.95**

SANGEAN ATS803A

A full coverage Short Wave Receiver with AM, FM & SSB reception. This model is an ideal choice for the newcomer to short wave listening. It features excellent sensitivity and filtering - couple this with easy push button programming and direct BFO tuning for SSB, and it's no wonder it has become our most popular low cost receiver. Order yours now and we will supply you, free of charge, a mains adaptor worth £14.95
 Price **£129.95**



TRADING POST

- Scanning receivers
- AOR AR900 Pocket H/H Scanner£199.00
 - Beacat 8C50XL hand-held.....£85.00
 - Commetel 204 base scanner£185.00
 - Fairmate HF200E average cond£195.00
 - Goodmans ATS 802 pocket S/W RX£40.00
 - M-50 Wide Band Preamp.£30.00
 - MS1000 base scanner£199.00
 - MS8400 SMC Desktop Scanner£120.00
 - Pro 37 hand-held, average cond£140.00
 - Pro 46 hand-held scanner£150.00
 - Pro 2005 base model, full cov£185.00
 - Pro 2021 base scanner£125.00
 - Pro 9200 base scanner£110.00
 - Sangean ATS803A base, vgc£95.00
 - Sony 2001 Portable S/W RX£120.00
 - Yaesu FRG9600 scanning RX£365.00
 - Yupiteru MVT-6000 scanner£175.00
 - Yupiteru MVT-7000 hand-held, boxed£239.00

Shortwave receivers

- Kenwood R2000, fitted VHF£499.00
- Kenwood R2000, base model£350.00
- lowe HF225 Keypad, FM Board£399.00
- Sangean ATS-803A boxed£95.00
- Sony 2001 receiver£120.00
- Trio R1000 general cov receiver£350.00
- Yaesu FRG7 Receiver£350.00
- Yaesu FRG7700 + FRA7700£425.00
- Yaesu FRG8800 + fitted VHF£595.00
- Yaesu FRG9600 choice of two£375.00
- Yaesu FR7700 matching tuner£50.00

HF Transceivers

- Drake TR7 + PSU/MS7 Spkr£965.00
- Icom IC701 + PSU, boxed, vgc£495.00
- Icom IC730 mobile HF TX£495.00
- Kenwood TS120S + VF0120£495.00
- Trio TS520S good starter HF£325.00
- Trio TS900 HF TX, average cond.£275.00
- Yaesu FT One HF Base Tx£995.00

Station Accessories

- Capco desk top SW loops (pair)£65.00
- Datong FL1 Filter£60.00
- Drake L7 Amp, very rare (SOB)£1100.00
- ERA Microreader, early version£85.00
- TM auto notch filter£39.95

REVEX

High gain replacement antennas, designed to increase the performance of all handheld Scanning Receivers.

HX9000

A superior wideband flexible whip antenna, covering 8 bands including 2m & 70cms Amateur Bands, Air & PMR, (70cms) and 900MHz. Gain: (2m) 2.15dBi, (70cms) 3.8dBi, (900MHz) 5.5dBi 10W Pwr handling with BNC type connector. **£29.95**

HX8000

A compact short rubber duck type antenna with wide coverage. Air & Marine bands, VHF & UHF PMR bands 2m & 70cms Amateur bands, plus 900MHz. Length 150mm BNC type connector. **£18.95**

HX7000

A slightly larger version of the HX8000, covering a wide selection of the VHF & UHF bands, Civilian & Military Air, Marine & PMR, 2m & 70cms Amateur bands, plus 900MHz. Length 190mm BNC type connector. Price. **£20.95**

THIS MONTH'S BEST BUY
 As a general wide band scanning receiver, the MS1000 fits the bill from Radio Peking on Short Wave to High Band 900 MHz, this model comes with the lot! Order yours NOW! - and save an incredible £30 off list price:-



Features Include:

- ★ 500 KHz - 1300 MHz (with gaps)
- ★ 1000 Memories
- ★ Automatic Tape Switching
- ★ Audio Squelch
- ★ Tape recorder socket
- ★ 12 Volts or Mains (PSU supplied).....£269

(£4.75 p&p)

PAY BY THREE POST-DATED CHEQUES

Simply divide the price into 3 equal payments. Write 3 cheques dated in consecutive months starting with today's date. Write your telephone number and cheque card number on the back of each cheque. Post them to us, enclosing your name and address and we will (subject to status), send your goods immediately. *The hardest part is deciding what to buy!*

SHOWROOMS:- 1A MUNSTER ROAD, PORTSMOUTH PO2 9BS

MAIL ORDER:- 189 LONDON ROAD, PORTSMOUTH PO2 9AE

This month in the second of our series on DSP noise reduction filters Kevin Nice takes a close look at the Timewave DSP-9 and comes to some interesting conclusions.

DSP-9 Digital Noise Filter

The problem

QRM prevails it is the plague of a modern society. We constantly improve our life style with more and more gadgets of convenience, every thing from cordless telephones, car alarms to central heating systems. The downside to most of these means to making life more pleasant is to increase the amount of man made r.f.i.

It is very rare to listen to a frequency and not hear some form of interference, lets face it who can get very far away from some form of radiation or another. In a society where most homes have at least one television set.

Faced with this problem there is an ever increasing need to pursue the noise reduction path.

The other side of the coin is the increased pressure on the radio spectrum, which causes the inevitable overcrowding of bands.

In an attempt to listen to that exotic DX or even in extreme cases just listen to what should be a relatively easy to copy signal it is becoming increasingly essential to have a very capable receiver and or an effective audio filter.

I have spent many hours using the DSP-9, to find out more read on.

The DSP-9

The DSP-9 is an audio noise filter for voice and c.w. operation. The DSP-9 filters and reduces noise and interference to improve radio reception. The unit uses digital signal processing technology to implement algorithms that perform three basic filter functions. Random noise reduction, adaptive multi-tone notch filtering (tone noise reduction) and bandpass filtering. Push-button switches permit simultaneous selection of the three functions.

The unit is used in audio path of a receiver, it requires therefore

an audio input I used the speaker output into the rear phono with the unit input impedance set to 22Ω, an external speaker (or headphones) are required, rear panel has also a phono plug for speaker output. Two plugs are supplied as is a power jack. There is however no power supply so you will need a 12 to 16V 1A d.c. supply. Once you have connected it the receiver's audio gain on the must be set to a level that illuminates the normal l.e.d. on the front panel care must be taken to not illuminate the overload indicator.

Random/Tone Noise Reduction

The noise reduction functions of the DSP-9 operate by examining that characteristic of signals and noise called correlation, and dynamically filtering out the undesired signals and noise. The degree of correlation is relative. Random noise, such as white noise or static, is uncorrelated. While speech is moderately correlated. Repetitive noise such as heterodyne is highly correlated. The DSP-9 measures correlation and filters out signal and noise that are outside its correlation thresholds. There is little degradation of the desired speech signal. The amount of noise reduction varies according to the correlation characteristics of the noise. Typical noise reduction ranges from five to 20dB for random noise and up to 50dB for heterodynes.

Bandpass Filters

The DSP-9 has bandpass filters that are used in both the voice and c.w. modes of operation. The voice mode of the DSP-9 uses bandpass filters to filter the audio baseband. An example of a situation where these filters improve baseband performance in the voice operating mode is broadband s.s.b. audio signal which is difficult to copy because of poor signal-to-noise condition. Removing the high and low frequency components of the baseband that do not contribute significantly to the speech intelligibility with a bandpass filter, will remove noise and therefore improve signal quality. Another example is a s.s.b. signal corrupted with in-band and adjacent channel interference (QRM) from other signals overlapping into the desired signal. The steep skirts of the bandpass filters allow the interference to be eliminated with minimal impact on the desired signal. In the voice mode of operation, the low frequency edge of the bandpass is fixed at 300Hz. The high frequency edge of the bandpass response is set to either 2.1, 2.7 or 3.4kHz dependent upon the bandwidth selected i.e. 1.8, 2.4 or 3.1kHz respectively.

Morse signals require bandpass filters with steep skirts and linear phase response. Linear phase response minimises the usable signalling rate for a given bandwidth and

minimises ringing often heard on extremely sharp filters. The DSP-9 has six different c.w. filters with skirts so steep that a signal literally falls off the edge of the passband as you tune through a c.w. signal. The bandwidths of these filters can be selected at either 500, 200 or 100Hz. The centre frequency for the c.w. bandpass filters can be either 600 or 750Hz. The narrow filters are useful for trying to dig out extremely weak signals from the noise and QRM. The wider filters allow easy tuning and listening to multiple c.w. signals simultaneously.

Audio Input

The audio input of the DSP-9 is an RCA phono connector on the rear panel of the DSP-9. Matching the output level of the radio to the input level of the DSP-9 is necessary to take maximum advantage of the wide dynamic range of the DSP-9. The best way to make these levels match is to use an adjustable audio output of the radio (typically the speaker output) as the input as the DSP-9. After connecting the DSP-9 to the radio, follow this simple procedure to match the audio levels. First, tune the radio to a strong signal after setting the radio output level gain control to a convenient midrange position. Then, adjust the output level control on the radio so the overload indicator l.e.d. on the front panel of the DSP-9 rarely



flashes and the normal indicator l.e.d. always flashes with the normal audio input levels. Proper adjustment ensures optimum signal-to-noise ratio and minimum distortion. Adjust the radio output level only to maintain the proper input level to the DSP-9. Use the gain control on the DSP-9 to control the listening volume.

The factory default input impedance of the DSP-9 is 22Ω. This impedance is appropriate for most radios when driven by the speakers output of the radio. The DSP-9 can be configured for a high input impedance by removing a jumper which can be accessed by removing the back bezel and the back panel of the filter unit.

Operation

The power switch is intergal with the rotary a.f. gain control. Mode of operation are selected by use of the bank of buttons as can be seen in the photograph.

The two leftmost push buttons on the DSP-9 select one of three operating modes for the DSP-9. Depressing the Bypass push-button places the DSP-9 into a straight through mode. In this mode, the audio input of the DSP-9 is digitised by the analogue-to-digital converter and then looped back to the digital-to-analogue converter. The loopback through the converter is done without any digital signal processing of the signal. The DSP-9 must be powered to operate the bypass mode. This active bypass mode allows the DSP-9 signal processing functions to be switched in and out without any changing gain settings to maintain a desired audio output level. The bypass mode has precedence over the voice and c.w. modes. When the DSP-9 is in bypass, the setting of the mode select push buttons do not affect the bypass operation.

When the bypass push button is not engaged, the voice/c.w. push button selects the operating mode of the DSP-9 and the four parameter select push buttons operate. Depressing the red voice/c.w. push button places the DSP-9 in c.w. mode. The red text below the push buttons indicates the c.w. filter choices.

In c.w. mode the DSP-9 filters the audio input using one of six c.w. bandpass filters and can reduce random noise. First, the c.w. filter centre frequency and the bandwidth is selected using three of the four parameter select push buttons. Depressing the button marked '600/750 Centre' in red text to selects 600Hz centre frequency. In the out position of the '600/750' push

Specifications

Audio Input:	22Ω or 10kΩ impedance			
Voice Filters:	<i>Frequency Range</i>	<i>Attenuation</i>	<i>Type</i>	<i>Delay</i>
Random	entire range of bandpass filter	<20dB	Adaptive	<10ms
Tone reduction (automatic notch)	entire range of bandpass filter	<50dB	Adaptive	<10ms
Bandpass	300-3400Hz 300-2700Hz 300-2100Hz	60dB at 180Hz outside the pass band	FIR linear phase	<10ms
CW Filters:	<i>Frequency Range</i>	<i>Attenuation</i>	<i>Type</i>	<i>Delay</i>
Random	entire range of bandpass filter	<20dB	Adaptive	<10ms
Bandpass	B/W 100Hz 200 & 500Hz Centre freq. 600 or 750Hz	60dB at 50Hz outside the pass band	FIR linear phase	<30ms
Signal Processing:	A-D/D-A converter Signal Processor	16 bit linear, sigma-delta conversion 16 bit 81ns Analog Devices ADSP-2105		
Audio Output:	1.6W into 8Ω at 13.8V 3.2W into 4Ω at 13.8V			
Distortion:	<1% at rated output			
Input Power:	12-16V d.c. at 1A			
Dimensions:	153 (w) x 153 (d) x 45mm (h)			
Weight:	0.9kg.			

button, the centre frequency of the c.w. filter is 750Hz.

Two push buttons, marked 'Bandwidth' in red, select the bandwidth of the c.w. filter. These buttons select a bandwidth of either 500, 300 or 100Hz. When both bandwidth select buttons are out, the bandwidth is 500Hz. When the '200/500' button is pushed in and the other bandwidth select button is out, the bandwidth of the c.w. filter is 200Hz. If the '100/500' bandwidth select button is pushed in, it has precedence and the c.w. filter bandwidth is 100Hz, independent of the state of the other button. No matter what the state of the c.w. filter switch settings on the DSP-9 front panel, one of the six c.w. filters is always in use.

The c.w. mode can also operate with random noise reduction. To enable the random noise reduction feature for c.w. operation, simply press in the button marked 'NRR'.

Voice Mode

In voice mode, the DSP-9, filters the audio input using one of the three bandpass filters, adaptively reduces random noise, adaptively eliminates heterodynes. These three functions can operate simultaneously. The legends that

refer to voice mode are in blue.

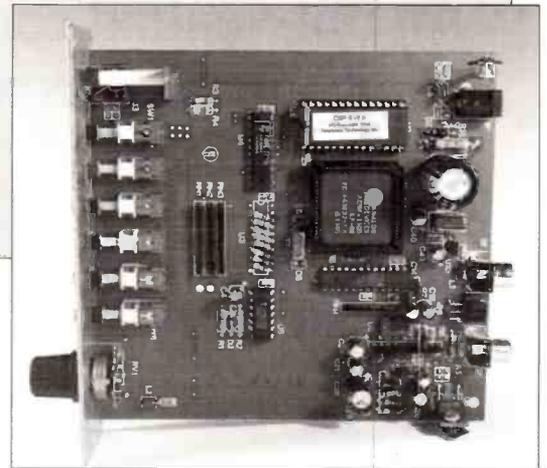
First of all, the selection of the voice mode bandpass filter is performed in a similar manner to the selection of the c.w. filter bandwidth. Two push buttons, marked 'Bandwidth', select the bandwidth of the voice filter. These buttons select a bandwidth of either 1.8, 2.4 or 3.1kHz. With both bandwidth select buttons out, the bandwidth is 3.1kHz from 300Hz to 3.4kHz. When the '2.4k/3.1k' button is pushed in and the other bandwidth select button is out, the bandwidth of the voice filter is 2.4kHz (300Hz to 2.7kHz). If the '1.8k/3.1k' bandwidth select button is pushed in, it has precedence and the voice filter bandwidth is 1.8kHz (300Hz to 2.1kHz), regardless of the state of the other button.

Adding tone and or noise

reduction to the voice filter, is accomplished by depressing the push button that controls the required function.

Conclusion

Unless you are very lucky and live in a noise free enviroment, you cannot afford to be with some form of filter. It can make the difference between a signal being almost inaudible and perfectly readable. The DSP-9 would seem like an ideal choice if you can afford the not insignificant price.tag of **£189.00**. My thanks to Nevada Communications,189 London Road, North End, Portsmouth PO2 9AE. Tel: (0705) 662145 for the loan of the review unit.



RC818 (SSP £219.99)

Multi-band Digital Preset Stereo World Radio with Cassette Recorder

This flagship model demonstrates the leading edge of Roberts technology. With a clear LCD display of all functions, it has 5 tuning methods, 45 preset stations, dual-time display, standby and clock/alarm plus a cassette section for timed recordings from the radio. Provision is made for single side-band and CW transmissions as well as stereo FM on headphones and stereo record/playback of cassettes.

Comes complete with a mains adaptor.

- 5 Tuning methods – direct frequency keying, auto-scan, manual scan, memory recall and rotary
- 45 memory presets
- SW metre bands from 120m to 11m
- BFO control for reception of CW and SSB
- FM stereo on headphones
- AM wide/narrow filter
- Waveband coverage: LW 150-519 kHz; MW 520-1620 kHz; SW 1.621-29.999 MHz; FM 87.5-108 MHz
- Radio standby function



- Pre-programmable radio to tape recording
- LCD display
- Signal strength and battery condition indicator
- Sleep timer
- Safety lock switches
- Adjustable RF gain
- 700 mW Power output

R817 (SSP £189.99)

Multi-band Digital Preset Stereo World Radio

Offers all the outstanding features of the RC818, minus the cassette section.

An unequalled combination of value, quality, technology and choice....in short....

ROBERTS

R808 (SSP £119.99)

Multi-band Digital Preset Stereo World Radio

The R808 has all the advanced features of the R817 with the exception of BFO (Beat Frequency Oscillator) but in a more compact case specially designed for the regular traveller.

R621 (SSP £69.99)

10-Band Compact Stereo World Radio (FM/MW/SW1-8)

All the functions of a much larger model are combined in this compact radio with clock/alarm. Easy SW bandspread tuning with LCD tuning/stereo indicator and FM stereo on ear or headphones. The clock/alarm shows dual time on a backlit display with up to 60 min sleep timer and snooze with wake to radio or buzzer. Comes complete with soft carrying pouch and stereo earpieces.



R101 (SSP £59.99)

9-Band Miniature World Radio (FM/MW/SW1-7)

Exceptional sound quality and facilities in a truly pocket-sized, ultra-light receiver. Easy to tune with featherlight touch-band switches. LED tuning/stereo and waveband indicators. Wide SW bandspread tuning with stereo FM via ear or headphones. Complete with soft carrying pouch and stereo earpieces.



For your nearest stockist contact:

ROBERTS RADIO CO. LTD

127 Molesey Avenue, West Molesey, Surrey KT8 2RL
Tel: 081 979 7474 Fax: 081 979 9995

TV Frequency Offsets Aid DXing

Looking for an early warning of good DXTV conditions? Tim Anderson GOGTF sheds a little light on the subject.

Scanning receivers can be used as an aid to identifying TVDX signals. There are many sophisticated scanners on the market today with a hundred, four hundred or even a thousand memories.

Many TVDX channels can be programmed into these memories and scanned either as an early warning aid to openings or during openings to monitor m.u.f.s and sound channels when using reduced i.f. vision bandwidths on the TV. Many enthusiasts use their scanners to measure the frequency offsets of the received signals as a further aid to identifying them. Putting the measured frequency offset together with a few other clues, time of day, antenna bearing and type of propagation can enable TVDXers to positively identify even the most noisy of pictures received via F2 propagation, for example.

Frequency offsets are used by many TV broadcasters to help reduce the effects of co-channel interference. Not just any old offset will do, broadcasters have found over the years that precise offsets are essential to reduce the patterning effects on the TV picture in enhanced propagation conditions. The best reduction in patterning effects between co-channel transmitters is achieved when the offset is a multiple of one twelfth of the line frequency. So, for the 625-line system one offset unit would be 15.625kHz (line frequency) divided by 12 = 1.302kHz. For the 525-line TV system, the line frequency is 15.750kHz making one offset unit 1.312kHz. In practice, multiples of zero to ±10 are generally used although there are a few larger and in the UK the broadcasting authorities use only five thirds, or twenty twelfths if you prefer, for their offsets. This means that in

Table 1. Band 1 TV Vision Offsets

STATION	LOCATION	CHANNEL	FREQUENCY	OFFSET	COMMENTS
RTQ0	Queensland, Aus.	A0	46.17185		As published in Australia
ABMNO	NSW, Australia	A0	46.239584	-8	
Telemarket	Italy	E2	47.680		
BRT	Antwerp, Belgium	E2	48.236980	-10	Only 100W I
SR1	Germany	E2	48.239584	-8	
SVT1	Orebro, Sweden	E2	48.239584	-8	
?	Indonesia ?	E2	48.239584	-8	Via reports from Brunei & Australia
RTM	Malaysia	E2	48.240886	-7	
CH 3	Thailand	E2	48.242188	-6	
RTP1	Muro, Portugal	E2	48.242188	-6	
IRIB	Iran	E2	48.244792	-4	
GBC	Kisi, Ghana	E2	48.246094	-3	
NRK1	Gulen, Norway	E2	48.246094	-3	
HR1	Germany	E2	48.247396	-2	
NRK1	Varanger, Norway	E2	48.248698	-1	
ORTAS 2	Homs, Syria	E2	48.250000	0	
TVE 2	Santiago, Spain	E2	48.250000	0	
TTL 1	Fih, Lebanon	E2	48.250000	0	
TTL 2	Jounieh, Lebanon	E2	48.250000	0	
TTL 3	Beit Mery, Lebanon	E2	48.250000	0	
TVE 1	Navacerrada, Spain	E2	48.250000	0	
SVT 1	Vannas, Sweden	E2	48.250000	0	
KBC	Kenya	E2	48.250000	0	
TVN	Equatorial Guinea	E2	48.250000	0	
DRCTV	Trade Centre, UAE	E2	48.250000	0	
SRG 1	Switzerland	E2	48.250000	0	
CH3	Sonkta, Thailand	E2	48.250000	0	Measured in Australia as 48.2510
IRIB	Iran	E2	48.250000	0	
RTM	Malaysia	E2	48.250000	0	Drifts ±5kHz
NRK 1	Grepstad, Norway	E2	48.252604	+2	
SVT 1	Bjepsfors, Sweden	E2	48.255208	+4	
NRK 1	Melhus, Norway	E2	48.256510	+5	
ZTV	Gwelo, Zimbabwe	E2	48.257812	+6	
RTM	Malaysia	E2	48.260416	+8	
?	Indonesia ?	E2	48.260416	+8	Via reports from Brunei & Australia
ERTU	Dumyat, Egypt	E2	48.261718	+9	Some reports give 0 offset
MTV	Budapest, Hungary	R1	49.739584	-8	
OK	Lvov, Ukraine	R1	49.739584	-8	
OK	Simferopol, Ukraine	R1	49.739584	-8	
OK	Voronezh, Russia	R1	49.739584	-8	
CST 1	Prague, Czech.	R1	49.739584	-8	
?	S.E.Asia	R1	49.739504	-8	525 lines seen during F2
OK	Minsk, CIS	R1	49.739584	-8	
MTV	Hungary	R1	49.744792	-4	
OK	Moscow	R1	49.747396	-2	Measured as 49.7476 MHz
CCTV	China	C1	49.748698	-1	
TVP 1	Poland	R1	49.748698	-1	
CCTV	China	C1	49.750000	0	525 lines seen during F2
?	S.E.Asia	R1	49.750000	0	
ORF 1	Austria	E2a	49.750000	0	
OK	Leningrad, CIS	R1	49.750000	0	
OK	Krasnodor, CIS	R1	49.750000	0	
CCTV	Nanking, China	C1	49.750000	0	
LBC	Lebanon	E2a	49.750		Accurate offset still needed
CCTV	China	C1	49.750000	0	Measured as 49.7506MHz
CCTV	China	C1	49.753906	+3	Measured as 49.7537MHz
CCTV	China	C1	49.755208	+4	Measured as 49.7554MHz
OK	Novosibirsk, CIS	R1	49.757812	+6	
OK	Sukhozero, CIS	R1	49.757812	+6	
OK	Asiatic CIS	R1	49.757812	+6	Measured as 49.758MHz
CST	Ostrava, Czech.	R1	49.760416	+8	Measured as 49.760MHz
?	S.E.Asia	R1	49.760496	+8	525 lines seen during F2
OK	Latvia	R1	49.760416	+8	
OK	Ovrutch, CIS	R1	49.760416	+8	
CCTV	China	C1	49.765624	+12	Measured as 49.765MHz
RAIUNO	Mt. Nerone, Italy	IA	53.739584	-8	
RAIUNO	Mt.Caccia, Italy	IA	53.760416	+8	
RAIUNO	Mt. Cammarata, Italy	IA	53.760416	+8	
RTE 1	Maghera, Eire	IB	53.757812	+6	Measured as 53.758MHz
SRG 1	Switzerland	E3	55.24		Accurate offset still needed
SVT 1	Sveg, Sweden	E3	55.24		Accurate offset still needed
NRK 1	Kautokaino	E3	55.242188	-6	
ORTAS 1	Syria	E3	55.25		2 TXs, offsets still needed
RTP 1	Portugal	E3	55.25		Accurate offset still needed
TVE 1	Spain	E3	55.25		3 TXs, offsets still needed
TVE 1	Izana, Canary Is.	E3	55.25		Accurate offset still needed
RTBF	Liege, Belgium	E3	55.25		Accurate offset still needed

A Guide to Satellite Radio

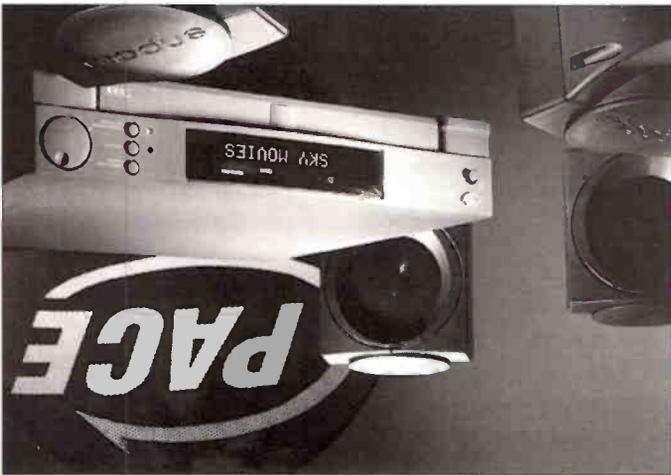
In the past we have received many letters from readers wishing for an explanation of this little publicised subject. John Hockenfull reports on what's where and how to find it.

For most people reception from satellites means Television or Weather/ Data broadcasts. However there are also a multitude of radio stations that can be found on the same frequency bands as those used for television broadcasts. Many of these stations provide a full, reception (i.e. the stations on Astra). The vast majority of the stations are for direct to home of the French stations) although a number of standard audio (in stereo or mono). Once again a number of standard audio stations are normally spaced 180kHz apart. Those generally used are at 6.12, 6.30, 7.38, 7.56, 7.74, 7.92, 8.10, 8.28 and 8.46MHz apart from the French Telecom satellites which use the 6.40, 6.85, 7.25, 7.75, 8.20 and 8.65MHz subcarriers when the TV station uses the 5.80MHz subcarrier.

This might appear overly complicated to the novice and receiver manufacturers have tried to get over this by making reception in Europe where Ku Band is the norm, as a much smaller dish can be used. In this article we will therefore concentrate on Ku Band reception in ITU Region 1 (Europe & Africa) although the same principals can be used for both Ku and C Band reception world-wide.

Standard Receiver

With a standard analogue satellite receiver such as an Armstrad, Nokia or Pace, many television stations such as Sky can be received. These TV stations broadcast their audio on a number of standard audio subcarriers. In the case of Astra these are 7.02 and 7.20MHz. A standard receiver such as an Armstrad, Nokia or Pace, many television stations such as Sky can be received. These TV stations broadcast their audio on a number of standard audio subcarriers. In the case of Astra these are 7.02 and 7.20MHz.



Some TV stations are broadcast using D-MAC i.e. NRK - and the D/D2-MAC Receiver without additional decoding equipment. More than 95% of radio services that broadcast using this standard can be received. There are presently three types of Digital Satellite Radio (DSR): one American (with a European flavour), one French and the other German. The three systems are not compatible and a receiver for one will not receive the broadcasts from the others. DSR is not broadcast alongside a TV channel and can therefore use all of the available bandwidth for their services; however this means that special receiving equipment is required to hear the American service, called Music Choice Europe, is on a digitally compressed signal and is received via the Intelsat K satellite. There are understood to be at least 50 different thematic services available

Digital Satellite Radio

There are presently three types of Digital Satellite Radio (DSR): one American (with a European flavour), one French and the other German. The three systems are not compatible and a receiver for one will not receive the broadcasts from the others. DSR is not broadcast alongside a TV channel and can therefore use all of the available bandwidth for their services; however this means that special receiving equipment is required to hear the American service, called Music Choice Europe, is on a digitally compressed signal and is received via the Intelsat K satellite. There are understood to be at least 50 different thematic services available

TP	STATION	FREQ	POL	AUDIO LEFT	AUDIO RIGHT	LANGUAGE	HOURS	VIDEO CHANNEL
	INTELSAT 602 - 63° EAST	11.003	V	5.56		IRANIAN	0700 to 2200	IRIB 1 IRIB 2
63	VOICE OF TURKEY	11.138	H	8.28		MULTI		TRT 3
69	TRT RADIO 1	11.683	H	7.56		TURKISH		TRT 2
	INTELSAT 604 - 60° EAST							
	EUTELSAT 1 F4 - 25.5° EAST	11.093	H	7.92		ENGLISH	24 Hour	CNN INTERNATIONAL
A1	STAR*SAT RADIO	11.475	H	7.38	7.56	GERMAN	24 Hour	SAT 1
A1	RADIOKOP/INNO	11.475	H	7.74	7.92	GERMAN	24 Hour	SAT 1
A2	RADIO AOVETS	11.525	H	7.38	7.74	GERMAN		3 SAT
A2	NONSTOP MUSIK	11.525	H	7.56		GERMAN		3 SAT
B1	JAM FM	11.549	V	7.38	7.56	GERMAN	24 Hour	ARTE
B2	(DR) RIA/DS KULTUR	11.602	V	7.74	7.92	GERMAN	24 Hour	VOX
B2	(DR) DEUTSCHLANDFUNK	11.602	V	7.74	7.92	GERMAN	24 Hour	VOX
C2	RTL RADIO - GERMAN SERVICE	11.675	H	7.02	7.20	GERMAN	24 Hour	RTL TELEVISION
K2	ISS REDLITIME 1 (radio adverts)	12.559	H	7.02	7.20	GERMAN	24 Hour	PRO 7
K2	ISS REDLITIME 2 (music)	12.559	H	7.90		GERMAN		PRO 7
K2	ISS REDLITIME 3 (music)	12.559	H	8.02		GERMAN		PRO 7
K3	KLASSIK RADIO	12.592	V	7.38	7.56	GERMAN	24 Hour	PREMIERE
K4	BAYERN 4 KLASSIK	12.625	H			GERMAN		
K4	S2 KULTUR (SWF/SDR)	12.625	H			GERMAN		
K4	RADIO BREMEN 2/3 (a mix of the two stations)	12.625	H			GERMAN		
K4	HR2 RADIO KULTUR	12.625	H			GERMAN		
K4	NDR 3	12.625	H			GERMAN		
K4	STAR*SAT RADIO	12.625	H			GERMAN		
K4	(DR) DEUTSCHLANDFUNK	12.625	H			GERMAN		
K4	WDR 3 - KOLN	12.625	H			GERMAN		
K4	(DR) RIAS/DS KULTUR	12.625	H			GERMAN		
K4	SR1 EUROPAPWELLE SAAR	12.625	H			GERMAN		
K4	RFR 2	12.625	H			GERMAN		
K4	KLASSIK RADIO	12.625	H			GERMAN		
K4	RADIO FNN	12.625	H			GERMAN		
	DFS 3 KOPERNIKUS - 23.5° EAST							

KU BAND RADIO GUIDE

although receiving equipment is only available to cable operators (at the moment). The French presently have two services operating, one on the Eutelsat II F1 satellite using a digital system (MVR-20) and another on the Telecom and the other on the Telecom 2B satellite using a more advanced digital compression system (MVR-128) and which can carry up to twenty radio stations (although presently carrying seventeen). Receivers are extremely difficult to obtain. Radio stations available include Modulation France, Fun Radio, NRJ, Europe 2, Sky Rock, Radio Monte Carlo, Radio Classique etc.

German DSR is available from the DFS 2 Kopernikus and TV-SAT satellites (with the same service from both) and broadcasts sixteen radio stations covering a variety of different themes such as News & Information, Classical Music, Culture, Pop Music, Rock Music etc. I have had the opportunity to use one of these receivers and they are extremely impressive, delivering CD quality stereo broadcasts. Radio stations available include Bayern 4 Klassik, Radio Bremen, Klassik Radio, Xanadu and Radiopora Info.

Receivers are widely available and, for anyone needing further information on this system, the contact address is Technisat Satellitenfernsehprodukt GmbH, W-5568 Daun, Germany or Technisat UK, Station Road, Four Ashes, Wolverhampton, West Midlands.

Astra Digital Radio

In 1995 a new DSR service will be receivable from the Astra satellites. Astra Digital Radio (ADR) will use the 6.50MHz audio subcarrier and those subcarriers above 7.38MHz on a number of its transponders to broadcast stereo sound signals which will be digitally encoded to provide CD-like quality. The signals will be compressed which will give a capacity for up to 12 services per transponder alongside a TV picture and one conventional stereo radio service. Special receivers will be required to receive these services as well as a subscription for at least some of the ADR channels. Music Choice Europe are presently negotiating with Sky TV to provide at least some of their services on Astra using the ADR system. Other broadcasters are also expected to use this system.

Other Systems

Satellites carry many other types of services including Telephony, VSAT and other data services. Additionally some radio stations distribute their service using these data based methods. This system uses a small portion of the available bandwidth to broadcast each service and depending upon whether it is encrypted or not, it is technically possible to receive them by connecting a suitable receiver to either the 'baseband' out of your satellite receiver or, the i.f. input to your satellite receiver (depending upon what you wish to receive) and then searching between 100kHz and 30MHz. Results can be somewhat 'hit and miss' and your receiver must be able to search over very small bandwidths.

Details of what stations use these methods and where they are tend to be difficult to obtain - never mind being able to receive them. Some stations that use (or used to use) this method are Virgin 1215 - for its UK network distribution, some of the Eastern European services of Radio Free Europe and Radio Liberty and a number of the international stations heard on World Radio Network are understood to be received into Europe using this method. This system is also used to distribute independent Radio News and the UK Top 40 Chart Show to the Independent Local Radio (ILR) network. There have also been reports that both Deutsche Welle and Radio Nederland have been looking at this system for distribution of their services to various parts of the World - presumably for local re-transmission and in tandem with their existing short wave broadcasts.

New satellite radio stations are appearing all the time, and a few are ceasing broadcasts or moving. Up to date information on where the changes are can be found in the Newsletter *Transponder* which is published 24 times a year and for which I write the radio column. Sample copies can be obtained by writing to Transponder, PO Box 112, Crewe, Cheshire CW2 7DS in the UK.

As you can see radio stations received from satellite can be a large subject. This article has only touched the surface of what is available and if anyone has any queries I would be pleased to answer them.

HAYDON COMMUNICATIONS

YUPITERU'S LARGEST UK DEALER!

★ STILL THE BEST! ★



MVT-7100
0.1→16.50MHz All mode. Out performs any other H/Held. ~~£449~~
£379

Optional case £17.95
Interest Free Available
Inc. NiCads & Charger

★ SPECIAL OFFER ★



MVT-7000
8→1300MHz inc. Nicads & Charger.
SAVE £100
£269

SAVE £100

ALINCO DJ-X1D



0.1-1300MHz
INCL'S NICAD & CHARGER etc.

~~£349~~
£299

FREE POST & PACKING

MVT-8000



8-1300MHz inc. PSU.

~~£449~~ **£349**

inc. P&P

AOR AR-3000A



You won't miss out on those signals with this month's offer

~~£949~~ **£849**

FREE THIS MONTH:-

NEW DSS-1300 ANT & P&P

NEW NEW NEW

TSC-2602

Calling all Yupiteru owners. Need a good rubber Antenna for your Scanner!
TSC-2602:- 10" Long (Flexible)

~~£32.75~~ **£19.95** Free P&P

Yupiteru recommended

AR-8000
It's finally arrived
Phone for details

FREE This Month:-
TSC-2602 High Gain Rubber Antenna & Delivery

OTHER MODELS ON OFFER INCLUDE:- AR2000/RI/MVT-3100/VT225, 125 + MORE NEW /HIGH PERFORMANCE-LOW PROFILE SCANNER ANTENNAS



DSS-1300
Low Profile Desk top Nest of Dipoles
Rx (10-1300MHz)
16" high. Supplied with coax & BNC plug fitted.
Yupiteru Recommended

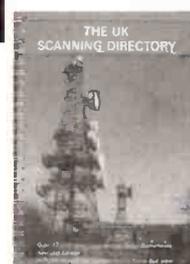
£44.95 £3 P&P



MSS-1300
Car magnetic mount Nest of Dipoles.
16" high Rx (10-1300MHz)
Inc. coax & BNC plug.
Yupiteru Recommended

£44.95 £3 P&P

BSS-1300 **£64.95** £3 P&P
The Ultimate Base Antenna!
(10-1300MHz) Double Nest of Dipoles Supplied with 10m coax lead/BNC plug fitted 34" high-loft or outdoor use flat wall or pole mount.
Yupiteru Recommended



NEW 3rd EDITION
UK Scanning Directory
£16.95
FREE P&P

THE ULTIMATE SCANNER GUIDE!

SHORTWAVE - OUR SPECIALITY - PART EXCHANGE YOUR OLD GEAR TOP PRICES GIVEN



NEW
SONY SW-100

Super miniature SW Receiver with s.s.b.

£199 Free Delivery

ATS-803A



Excellent Portable SW Receiver
FREE DELIVERY

~~£129.95~~ **£119.95**

OUR BEST SELLING LOW PRICED PORTABLE



SONY SW-7600

0.1 - 30MHz
All mode incl. s.s.b.

complete kit

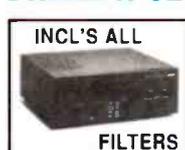
~~£179~~ **£129** (ex demo 1 only)

EX DEMO/USED EQUIP AT LOW PRICES

ICF-2001D	as new	£199
HF-225 (Europa)	as new	£499
R-5000	VGC	£749
AR-3000A	as new	£699
R72E	ex demo	£649
AR 1500Ex	ex demo	£269
MS-1000	ex demo	£229
MVT-7100	as new	£329
R-7100	ex demo	£1199
SW-77	ex demo	£299
PRO-2006	as new	£229

+ LOTS LOTS MORE!
Guarantee:- 2nd hand 6 months
ex demo 12 months

DRAKE R-8E



THE ULTIMATE RECEIVER.

~~£1199~~
£979

FREE HEADPHONES & P&P

YAESU FRG-100



W.R.T.V.
RECOMMENDED
SAVE £100

~~£575~~
£475

INCLUDING FREE PSU AND P&P

JRC NRD-535



UK Spec'd with English instruction book ~~£1695~~
£1399

FREE DELIVERY

NB: ALL PRICES INCLUDE VAT

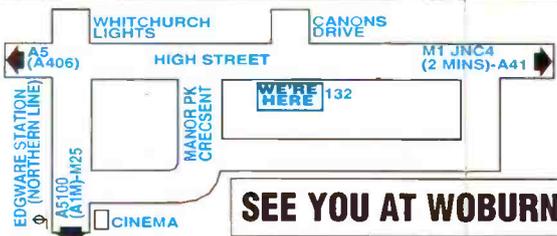
★ Outside office hours 0850 586313 ★ Mail Order: Same Day Despatch ★

Sales/service:- (Phone/Fax) - **081-951 5781-2**

132 High Street, Edgware, Middlesex HA8 7EL

Close to Edgware underground station (Northern Line). Close to M1, M25, A406.

DELIVERY (UK MAINLAND) 24HR £10 / 48HR £7.50



SEE YOU AT WOBURN



★ FREE PARKING ★



★ OPEN:-
MON-SAT 10-6PM



Guide To Satellite Radio

TP	STATION	FREQ	POL	AUDIO LEFT	AUDIO RIGHT	LANGUAGE	HOURS	VIDEO CHANNEL
K4	RADIOROPA INFO	12.625	H	AUDIO 14		GERMAN	24 Hour	DIGITAL
K4	MDR LIFE (including MDR SPUTNIK)	12.625	H	AUDIO 15		GERMAN	24 Hour	DIGITAL
K4	RADIO XANADU	12.625	H	AUDIO 16		GERMAN	24 Hour	DIGITAL
K7	FM RADIO NETWORK 1 (music)	12.726	V	7.70		GERMAN		Test Card
K7	FM RADIO NETWORK 2 (music)	12.726	V	7.84		GERMAN		Test Card
EUTELSAT I F5 - 21.5° EAST								
10	RADIO BELGRADE	11.492	V	7.02		SERBIAN	1800 to 2400	RTS-SAT
ASTRA 1A/B/C - 19.2° EAST								
2	DEUTSCHE WELLE - GERMAN SERVICE	11.229	V	7.38	7.56	GERMAN	24 Hour	RTL TELEVISION
2	DEUTSCHE WELLE - EUROPEAN SERVICE (1)	11.229	V	7.74		MULTI	24 Hour	RTL TELEVISION
2	DEUTSCHE WELLE - EUROPEAN SERVICE (2)	11.229	V	7.92		MULTI	24 Hour	RTL TELEVISION
6	NONSTOP MUSIK	11.288	V	7.74		GERMAN		SAT 1
6	NONSTOP MUSIK	11.288	V	7.92		GERMAN		SAT 1
6	POS 1 (adverts)	11.288	V	8.12		GERMAN		SAT 1
6	POS 2 (music)	11.288	V	8.34		GERMAN		SAT 1
6	POS 3 (music)	11.288	V	8.48		GERMAN		SAT 1
8	SKY RADIO	11.318	V	7.38	7.56	ENGLISH/DUTCH	24 Hour	SKY DNE
8	RADIO 538	11.318	V	7.74	7.92	DUTCH	24 Hour	SKY ONE
9	SWISS RADIO INTERNATIONAL	11.332	H	7.38		MULTI	24 Hour	TELECLUB
9	SWISS RADIO INTERNATIONAL - ENGLISH	11.332	H	7.56		ENGLISH	24 Hour	TELECLUB
9	RADIO EVIVA	11.332	H	7.74		GERMAN		TELECLUB
10	(DR) DEUTSCHLANDFUNK	11.347	V	7.38	7.56	GERMAN	24 Hour	3 SAT
10	(DR) RIAS/DS KULTUR	11.347	V	7.74	7.92	GERMAN	24 Hour	3 SAT
12	VIRGIN 1215	11.377	V	7.38	7.56	ENGLISH	24 Hour	SKY NEWS
12	SUPERGOLD	11.377	V	7.92		ENGLISH	24 Hour	SKY NEWS
13	RTL RADIO - GERMAN SERVICE	11.391	H	7.38	7.56	GERMAN	24 Hour	RTL 4
13	HAPPY RTL	11.391	H	7.74	7.92	DUTCH	24 Hour	RTL 4
14	STAR*SAT RADIO	11.406	V	7.38	7.56	GERMAN	24 Hour	PRO 7
14	RADIOROPA INFO	11.406	V	7.74	7.92	GERMAN	24 Hour	PRO 7
15	RMF	11.421	H	7.74	7.92	POLISH	24 Hour	MTV EUROPE
16	ASDA FM	11.436	V	7.92		ENGLISH	24 Hour	SKY MOVIES
17	N-JOY RADIO	11.464	H	7.38	7.56	GERMAN	24 Hour	PREMIERE
18	SUNRISE RADIO	11.479	V	7.38		HINDUSTANI	24 Hour	THE MOVIE CHANNEL
18	HOLLAND FM	11.479	V	7.56		DUTCH	24 Hour	THE MOVIE CHANNEL
19	SWF 3	11.494	H	7.38	7.56	GERMAN	24 Hour	ARD DAS ERSTE
20	UNITED CHRISTIAN BROADCASTERS - EUROPE	11.509	V	7.56		ENGLISH	24 Hour	SKY SPORTS
22	WORLD RADIO NETWORK (WRN 1)	11.538	V	7.38		ENGLISH	24 Hour	MTV EUROPE
22	RTE RADIO 1	11.538	V	7.56		ENGLISH	24 Hour	MTV EUROPE
22	IRISH SATELLITE RADIO	11.538	V	7.92		ENGLISH	24 Hour	MTV EUROPE
23	BBC WORLD SERVICE - ENGLISH SERVICE	11.553	H	7.38		ENGLISH	24 Hour	UK GOLD
23	BBC RADIO 4	11.553	H	7.56		ENGLISH	06:00 to 02:00	UK GOLD
23	BBC RADIO 2	11.553	H	7.74		ENGLISH	24 Hour	UK GOLD
23	BBC RADIO 5 LIVE	11.553	H	7.92		ENGLISH	06:00 to 02:00	UK GOLD
25	NDR 2	11.582	H	7.38	7.56	GERMAN	24 Hour	N3
25	NDR 4 - GERMAN SERVICE	11.582	H	7.74		GERMAN	24 Hour	N3
25	NDR 4 - GERMAN SERVICE	11.582	H	7.92		GERMAN	2120 to 1800	N3
25	NDR 4 - EUROPEAN SERVICE	11.582	H	7.92		MULTI	1800 to 2120	N3
26	RADIO ASIA (SPECTRUM INTERNATIONAL)	11.597	V	7.38		MULTI	24 Hour	TV ASIA/SKY MOVIES GOLD
26	RADIO SWEDEN	11.597	V	7.74		MULTI	24 Hour	TV ASIA/SKY MOVIES GOLD
28	CNN RADIO NEWS	11.627	V	7.92		ENGLISH	24 Hour	CNN INTERNATIONAL
30	CADENA SER LOS 40 PRINCIPALES	11.656	V	7.38		SPANISH	24 Hour	CINEMANIA
30	CADENA DIAL	11.656	V	7.56		SPANISH	24 Hour	CINEMANIA
30	CADENA SER CONVENCIONAL	11.656	V	7.74		SPANISH	24 Hour	CINEMANIA
34	BBC RADIO 1	10.979	V	7.38	7.56	ENGLISH	24 Hour	UK LIVING
34	BBC RADIO 3	10.979	V	7.74	7.92	ENGLISH	0600 to 0200	UK LIVING
39	WDR 2	11.053	H	7.38	7.56	GERMAN	24 Hour	WEST 3
43	MDR SPUTNIK	11.112	H	7.38	7.56	GERMAN	24 Hour	MDR 3
63	RADIO VLAANDEREN INTERNATIONAL	10.921	H	7.38		MULTI	24 Hour	FILMNET - TCMC
EUTELSAT II F3 - 16° EAST								
25	RTM FIRST PROGRAMME	10.972	V	7.02		ARABIC	24 Hour	RTM MOROCCO
25	RTM THIRD PROGRAMME	10.972	V	7.56		ARABIC/BERBER	24 Hour	RTM MOROCCO
20	RADIO ZAGREB	10.986	H	7.02		SERBO-CROAT	1600 to 2400	VATSKA TV
21	PRT RADIO 1	11.080	H	7.38	7.56	POLISH	24 Hour	TV POLONJA
21	PRT RADIO 2	11.080	H	7.74	7.92	POLISH	24 Hour	TV POLONJA
21	PRT RADIO 3	11.080	H	8.10		POLISH	24 Hour	TV POLONJA
21	PRT RADIO 5	11.080	H	8.28		POL/GER/ENG	24 Hour	TV POLONJA
26	TGRT RADIO	11.095	V	7.38	8.02	TURKISH	24 Hour	TGRT
27	ERTU EGYPTIAN RADIO	11.178	V	7.02		ARABIC	24 Hour	EGYPTIAN SATELLITE CHANNEL
27	ERTU VOICE OF ARABIA	11.178	V	7.20		ARABIC	24 Hour	EGYPTIAN SATELLITE CHANNEL
27	ERTU MIDDLE EAST PROGRAMME	11.178	V	7.38		ARABIC	24 Hour	EGYPTIAN SATELLITE CHANNEL
37	RADIO SHQIPTAR	11.575	V	7.20		ALBANIAN	1730 to 1930	TV SHQIPTAR
38	RADIO MONTMARTRE	11.617	V	7.92		FRENCH	24 Hour	HBB TV
39	TUNIS INTERNATIONAL RADIO	11.658	V	7.02		MULTI	24 Hour	TV7 TUNISIE
39	TUNIS RADIO - ARABIC SERVICE	11.658	V	7.20		ARABIC	24 Hour	TV7 TUNISIE
EUTELSAT II F1 - 13° EAST								
25	BBC WORLD SERVICE - ENGLISH SERVICE	10.987	V	7.38		ENGLISH	24 Hour	NBC SUPER CHANNEL
25	BBC WORLD SERVICE - EXTERNAL SERVICE	10.987	V	7.56		MULTI	24 Hour	NBC SUPER CHANNEL
26	FRANCE INFO	11.080	V	7.20		FRENCH	24 Hour	TV5 EUROPE
26	FRANCE INTER	11.080	V	7.38		FRENCH	24 Hour	TV5 EUROPE
26	FRANCE-CULTURE EUROPE	11.080	V	7.56		FRENCH	24 Hour	TV5 EUROPE

TP	STATION	FREQ	POL	AUDIO LEFT	AUDIO RIGHT	LANGUAGE	HOURS	VIDEO CHANNEL
26	SWISS RADIO INTERNATIONAL (FRENCH/ENGLISH)	11.080	V	7.74	7.74	FRENCH/ENGLISH	24 Hour	TV5 EUROPE
21	RADIO FREE EUROPE - POLISH SERVICE	11.095	H	8.10	6.005 AM	POLISH	24 Hour	RTL 2
27	(DR) RIAS/D5 KULTUR BERLIN	11.163	V	7.02	7.20	GERMAN	24 Hour	DEUTSCHE WELLE TELEVISION
27	DEUTSCHE WELLE - GERMAN SERVICE	11.163	V	7.02	7.20	GERMAN	24 Hour	DEUTSCHE WELLE TELEVISION
27	VOICE OF AMERICA - EUROPE	11.163	V	7.38	7.56	ENGLISH	24 Hour	DEUTSCHE WELLE TELEVISION
27	DEUTSCHE WELLE - EUROPEAN SERVICE (1)	11.163	V	7.74	7.92	MULTI	24 Hour	DEUTSCHE WELLE TELEVISION
27	DEUTSCHE WELLE - EUROPEAN SERVICE (2)	11.163	V	7.92	7.92	MULTI	24 Hour	DEUTSCHE WELLE TELEVISION
27	RADIO FINLAND - EXTERNAL SERVICE	11.163	V	8.10	8.10	MULTI	24 Hour	DEUTSCHE WELLE TELEVISION
27	DEUTSCHE WELLE - ASIAN SERVICE	11.163	V	8.28	8.28	MULTI	24 Hour	DEUTSCHE WELLE TELEVISION
27	DEUTSCHE WELLE - AFRICAN SERVICE	11.163	V	8.46	8.46	MULTI	24 Hour	DEUTSCHE WELLE TELEVISION
32	RADIO MBC FM	11.554	H	7.38	7.56	ARABIC	24 Hour	MBC TELEVISION
32	WORLD RADIO NETWORK (WRN 2)	11.554	H	7.74	7.74	MULTI	24 Hour	MBC
45	RFM	12.542	V	7.56	7.56	FRENCH	24 Hour	DIGITAL (MVR-20)
45	SKY ROCK	12.542	V	7.56	7.56	FRENCH	24 Hour	DIGITAL (MVR-20)
45	FUN RADIO	12.542	V	7.56	7.56	FRENCH	24 Hour	DIGITAL (MVR-20)
45	NRJ	12.542	V	7.56	7.56	FRENCH	24 Hour	DIGITAL (MVR-20)
45	EUROPE 2	12.542	V	7.56	7.56	FRENCH	24 Hour	DIGITAL (MVR-20)
45	NOSTALGIE	12.542	V	7.56	7.56	FRENCH	24 Hour	DIGITAL (MVR-20)
45	RADIO FRANCE 2	12.542	V	7.56	7.56	FRENCH	24 Hour	DIGITAL (MVR-20)
45	FIP	12.542	V	7.56	7.56	FRENCH	24 Hour	DIGITAL (MVR-20)
20	KLAS FM	10.987	H	7.02	7.02	TURKISH	24 Hour	ATV
20	NUMBER ONE FM	10.987	H	7.20	7.20	TURKISH	24 Hour	ATV
20	YENI RAYO	10.987	H	7.38	7.38	TURKISH	24 Hour	ATV
20	SABAN FM	10.987	H	7.56	7.56	TURKISH	24 Hour	ATV
22	RNE RADIO UNNA	11.149	H	7.38	7.38	SPANISH	24 Hour	TVE INTERNACIONAL
22	RNE RADIO EXTERIOR	11.149	H	7.56	7.56	SPANISH	24 Hour	TVE INTERNACIONAL
37	SHOW RADIO	11.575	V	7.02	7.20	TURKISH	24 Hour	SHOW TV
38	METRO FM	11.617	V	7.02	7.20	TURKISH	24 Hour	INTERSTAR
38	KRAL FM	11.617	V	7.56	7.56	TURKISH	24 Hour	INTERSTAR
38	SUPER FM	11.617	V	8.10	8.10	TURKISH	24 Hour	INTERSTAR
39	RDP RADIO PORTUGAL INTERNACIONAL	11.658	V	7.02	7.20	MULTI	24 Hour	RTP INTERNACIONAL
39	RADIO RENASCENCA CANAL UM	11.658	V	7.02	7.20	PORTUGUESE	24 Hour	RTP INTERNACIONAL
39	RENASCENCA FM	11.658	V	7.24	7.92	PORTUGUESE	24 Hour	RTP INTERNACIONAL
39	RDP ANTENA UM	11.658	V	8.10	8.28	PORTUGUESE	24 Hour	RTP INTERNACIONAL
39	RDP RADIO COMMERCIAL	11.658	V	8.46	8.46	PORTUGUESE	24 Hour	RTP INTERNACIONAL
22	CBC FIRST PROGRAM (PROTON PROGRAM)	11.145	H	7.20	7.20	GREEK	24 Hour	RIK
37	RADYO KLUB	11.575	V	7.02	7.56	TURKISH	24 Hour	KANAL D
12	RADIO SWEDEN	11.938	R	7.38	7.38	MULTI	24 Hour	TV 4 SWEDEN
12	Z RADIO	11.938	R	7.56	7.56	SWEDISH	Variable	TV 4 SWEDEN
12	THE VOICE (OF SCANDINAVIA)	11.938	R	7.74	7.92	DANISH	0600 to 2400	TV 4 SWEDEN
26	RADIO SWEDEN	12.207	L	7.38	7.38	MULTI	24 Hour	TV 4 SWEDEN
26	Z RADIO	12.207	L	7.56	7.56	SWEDISH	Variable	TV 4 SWEDEN
26	THE VOICE (OF SCANDINAVIA)	12.207	L	7.74	7.92	DANISH	0600 to 2400	TV 4 SWEDEN
32	NRK PROGRAM 1	12.322	L	7.38	7.38	NORWEGIAN	24 Hour	NRK
32	NRK PROGRAM 2	12.322	L	7.38	7.38	NORWEGIAN	24 Hour	NRK
32	NRK EUROPAKANALEN	12.322	L	7.38	7.38	NORWEGIAN	24 Hour	NRK
40	RADIO SWEDEN	12.476	L	7.56	7.56	MULTI	24 Hour	TV5 NORDIC
40	TT RADIO NEWS	12.476	L	7.56	7.56	NORWEGIAN	0500 to 1700	TV5 NORDIC
40	THE VOICE (OF SCANDINAVIA)	12.476	L	7.74	7.92	DANISH	0600 to 2400	TV5 NORDIC
40	RADIO ARLANDA	12.476	L	7.92	7.92	SWEDISH	0600 to 0900	TV5 NORDIC
40	SAS RADIO	12.476	L	7.92	7.92	SWEDISH	Variable	TV5 NORDIC
40	STORSTADSRADION	12.476	L	8.46	8.46	SWEDISH	24 Hour	TV5 NORDIC
61	RADIO NETTVERK	11.016	H	7.38	7.38	NORWEGIAN	24 Hour	TV NORGE
61	Various Norwegian Local Radio Stations	11.016	H	7.74	7.74	NORWEGIAN	Variable	TV NORGE
63	SWEDISH RADIO PROGRAM 2	11.177	H	AUDIO 2	AUDIO 2	SWEDISH	24 Hour	SVT-2
69	SWEDISH RADIO PROGRAM 1	11.683	H	AUDIO 2	AUDIO 2	SWEDISH	24 Hour	SVT-1
69	SWEDISH RADIO PROGRAM 3	11.683	H	AUDIO 3	AUDIO 3	SWEDISH	24 Hour	SVT-1
1	MOUSQUETAIRE	12.522	V	6.40	6.40	FRENCH	0600 to 2300	M6
1	EUROPE 1	12.522	V	6.85	6.85	FRENCH	24 Hour	M6
1	RADIO UNICO	12.522	V	7.75	7.75	FRENCH	0600 to 2100	M6
1	FOURVIERE FM	12.522	V	6.85	6.85	FRENCH	24 Hour	M6
2	PALAPA FM	12.564	V	6.40	6.40	FRENCH	24 Hour	M6
2	CH RIE FM	12.564	V	6.85	6.85	FRENCH	24 Hour	M6
2	M40	12.564	V	6.85	6.85	FRENCH	24 Hour	M6
2	NOUVELLE GENERATION	12.564	V	7.25	7.25	FRENCH	24 Hour	FRANCE 2
2	RTL RADIO - FRENCH SERVICE	12.606	V	6.85	6.85	FRENCH	24 Hour	FRANCE 2
4	GRANDS MAGASINS	12.648	V	6.40	6.40	FRENCH	0600 to 2100	TMC

TP	STATION	FREQ	POL	AUDIO LEFT	AUDIO RIGHT	LANGUAGE	HOURS	VIDEO CHANNEL
R4	RADIO MONTE CARLO	12.648	V	6.85	8.20	FRENCH	24 Hour	TMC
R11	MODULATION FRANCE	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	FRANCE INTER	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	FUN RADIO	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	NOSTALGIE	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	NRJ	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	EUROPE 2	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	SKY ROCK	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	RFM	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	AFP AUDIO	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	CANAL A (FUSION FM)	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	EUROPE 1	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	RADIO MONTE CARLO - FRENCH SERVICE	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	RTL RADIO	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	RADIO MONTE CARLO	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	RADIO CLASSIQUE	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	M40	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	CH RIE FM	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	FOURVIERE FM	12.711	H			FRENCH		DIGITAL (MVR-128)
R11	INTELSAT 915 - 18° WEST							
61	RADIO NETVERK	11.016	H	7.38		NORWEGIAN	24 Hour	TV NORGE
61	Various Norwegian Local Radio Stations	11.016	H	7.24		NORWEGIAN	Variable	TV NORGE
63	SWEDISH RADIO PROGRAMME 1	11.132	H	AUDIO 2		SWEDISH	24 Hour	SVT-1
63	SWEDISH RADIO PROGRAMME 2	11.177	H	AUDIO 2		SWEDISH	24 Hour	SVT-2
63	SWEDISH RADIO PROGRAMME 3	11.132	H	AUDIO 3		SWEDISH	24 Hour	SVT-1
69	P4 - RADIO HELE NORGE	11.541	H	AUDIO 2		NORWEGIAN	24 Hour	TV2 NORWAY
5	HECTOR	11.804	R	AUDIO 2		FRENCH	24 Hour	CANAL PLUS
14	BAVERN 4 KLASSIK	11.977	L	AUDIO 1		GERMAN	24 Hour	DIGITAL
14	S2 KULTUR (SWF/SDR)	11.977	L	AUDIO 2		GERMAN	24 Hour	DIGITAL
14	RADIO BREMEN 2/3 (a mix of the two stations)	11.977	L	AUDIO 3		GERMAN	24 Hour	DIGITAL
14	HR2 RADIO KULTUR	11.977	L	AUDIO 4		GERMAN	24 Hour	DIGITAL
14	NDR 3	11.977	L	AUDIO 5		GERMAN	24 Hour	DIGITAL
14	STAR-SAT RADIO	11.977	L	AUDIO 6		GERMAN	24 Hour	DIGITAL
14	(DR) DEUTSCHLANDFUNK	11.977	L	AUDIO 7		GERMAN	24 Hour	DIGITAL
14	WDR 3 - KOLN	11.977	L	AUDIO 8		GERMAN	24 Hour	DIGITAL
14	(DR) RIAS/D5 KULTUR BERLIN	11.977	L	AUDIO 9		GERMAN	24 Hour	DIGITAL
14	SRI EUROPAPWELLE SAAR	11.977	L	AUDIO 10		GERMAN	24 Hour	DIGITAL
14	RPR 2	11.977	L	AUDIO 11		GERMAN	24 Hour	DIGITAL
14	KLASSIK RADIO	11.977	L	AUDIO 12		GERMAN	24 Hour	DIGITAL
14	RADIO FNN	11.977	L	AUDIO 13		GERMAN	24 Hour	DIGITAL
14	RADIOOROPA INFO	11.977	L	AUDIO 14		GERMAN	24 Hour	DIGITAL
14	MDR LIFE (including MDR SPUTNIK)	11.977	L	AUDIO 15		GERMAN	24 Hour	DIGITAL
14	RADIO XANADU	11.977	L	AUDIO 16		GERMAN	24 Hour	DIGITAL
63	SIS SATELLITE RACING (1)	11.175	H	7.38		ENG/FR/GERMAN		KINDERNET/TRAVEL CHANNEL
63	SIS SATELLITE RACING (2)	11.175	H	7.56		ENG/FR/GERMAN		KINDERNET/TRAVEL CHANNEL
63	BRITISH HOME STORES	11.175	H	7.74		ENGLISH		KINDERNET/TRAVEL CHANNEL
63	SUSTAINING SERVICE	11.175	H	7.74		ENGLISH		KINDERNET/TRAVEL CHANNEL
63	SIS SATELLITE RACING (3)	11.175	H	7.92		ENG/FR/GERMAN		KINDERNET/TRAVEL CHANNEL
63	TEXAS FM	11.175	H	8.10		ENGLISH		KINDERNET/TRAVEL CHANNEL
79	BFBS 1 (SCRAMBLED)	11.565	V	6.12		ENGLISH	24 Hour	SVC
79	BBC RADIO 5 LIVE	11.565	V	6.30		ENGLISH	0600 to 0200	SVC
79	BFBS NEWS	11.565	V	7.02		ENGLISH		SVC
79	BBC WORLD SERVICE - ENGLISH SERVICE	11.565	V	7.20		ENGLISH		SVC
79	BBC FOR EUROPE	11.565	V	7.56		ENG/FR/GERMAN		SVC
79	BBC WORLD SERVICE - EXTERNAL SERVICE	11.565	V	7.92		MULTI		SVC
79	BBC FOR EUROPE	11.565	V	7.92		MULTI		SVC
79	BBC WORLD SERVICE - EXTERNAL SERVICE	11.565	V	8.10		MULTI		SVC
3	ANTENA TRES RADIO	12.631	V	7.02		SPANISH	24 Hour	TELE CINCO
3	RADIO VOR GALICIA	12.631	V	7.20		SPANISH	24 Hour	TELE CINCO
13	CADENA CIEN	12.671	H	7.02		SPANISH	24 Hour	ANTENA TRES
13	ONDA CERRO RADIO	12.671	H	7.38		SPANISH	24 Hour	ANTENA TRES
14	COPE CONVENIONAL	12.711	H	7.02		SPANISH	24 Hour	CANAL PLUS ESPANA
14	ONDA CERRO MUSICA	12.711	H	7.20		SPANISH	24 Hour	CANAL PLUS ESPANA
14	RADIO TOP CUARENTA	12.711	H	7.56		SPANISH	24 Hour	CANAL PLUS ESPANA
PAS 1 - 45° WEST								
198	RADIO CINCUENTA	11.515	H	7.38		SPANISH	24 Hour	GALAVISION

A Further Look At The Lizard's Radio History Poldhu Amateur Radio Club.

After reading Robert Whistler's account of Lizard in the April issue of SWM Wally Bird G4NBF was concerned that readers may think radio activity had ceased at Poldhu Point. Here he puts the record straight.

In the beginning was Marconi!

12.30hrs on Thursday 12 December 1901.

The letter 'S' in Morse code was received at St. Johns Newfoundland by the great man himself, Guglielmo Marconi. The first transatlantic radio signal, sent from Poldhu on the Lizard Peninsula, Cornwall by Thomas Jenkin Barron and the start of a communication revolution which is still going on. More experiments were carried out and Australia was soon achieved, the ship 'Elettra' was fitted out as a floating laboratory and Marine communication established.

News of the sinking of the 'Titanic' was first received at Poldhu, the liner 'Carpathia' was sent a radio message and 1500 lives were saved. Dr. Crippen was also apprehended by means of Marconi's radio installation. The rest is history and we all know how progress has been made since.

In September 1990, a Raynet group (RAYNET is the name of the Radio Amateur Emergency Network) who met regularly in Goonhilly Earth Station decided to form a radio club, and a month later, a constitution having been obtained from RSGB (Radio Society of Great Britain), the Goonhilly Amateur Radio Society came into being.

Meetings were held in the Goonhilly canteen, after Raynet business had been discussed, British Telecom said they might find us a room or a portacabin which we would be able to use as a club-room, the canteen being very luxurious with armchairs and a bar, but not a place suitable for a shack, but

the months went by and nothing was forthcoming, so we decided to look elsewhere. One of the local schools had a potting shed which was offered during term time and evenings subject to the whim of the caretaker and some of our members thought this would do, but it was not in a very good place and gear could not be left there overnight.

New Home Needed

In the grounds of the Poldhu Residential and Nursing Home which started life as the Poldhu Hotel was a prefabricated building built during the war to house RAF officers from the nearby Predannack Airfield. This building was very dilapidated, leaking roof, broken and rotten windows and completely full of rubbish, having been used as a dump for many years. It really was a mess.

BUT, it was only twenty yards from the base of Marconi's famous antenna so two of us approached the Managing Director of the Nursing Home, Mr Keith Kennedy and after some pleading by us and deliberation from him it was agreed that we could use the building as a radio club. Mr Kennedy later honoured us by becoming our Patron - without him there would have been no Poldhu Radio Club.

Patron - without him there would have been no Poldhu Radio Club.

was decided that we would electicians who did marvellous work. The walls inside were made of compressed straw and the ceilings of hardboard, all rotten out and the building gutted. There was no real plan of campaign, people went there and did what they could when they could until someone realised that December 12 was the 90th anniversary of that famous transmission, and so it was decided that we would

also ran a very successful Christmas raffle which produced a handsome addition to club funds. We also have two highly professional electricians who did marvellous work. The walls inside were made of compressed straw and the ceilings of hardboard, all rotten out and the building gutted. There was no real plan of campaign, people went there and did what they could when they could until someone realised that December 12 was the 90th anniversary of that famous transmission, and so it was decided that we would



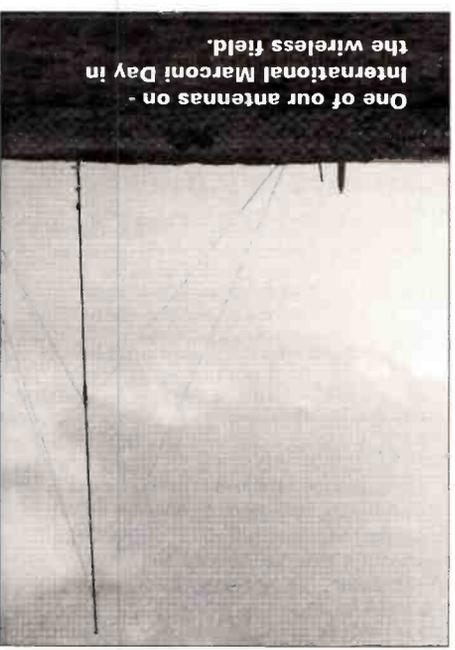
Barry G3KRD having a look around the bands!

Raffle to the Rescue

It was now August and we started to clear out some of the rubbish and tidy things up a bit. There was no electricity or water connected to the building and we had about sixty pounds in the club funds! We did however, have lots of enthusiasm and two very skilled members, John G0JVR and Ken G7FPG who gave lots of their time, and still do, John and his wife Carolyn

opened the club on that day and reproduce the events of 1901. No-one really thought it could be done in the time, but as the weeks went by we laid a new water-pipe and ran an electricity cable underground from a nearby building, re-wired the complete system and built new internal walls to provide a club-room, an h.f. room, a v.h.f. room and a construction room. The original drainage was found to be operational so we built two separate toilets. The roof had been repaired each time it rained until there were no more leaks. Finally, everything was painted inside and out including the floor and we were ready to go with two days to spare. There is still an area to renovate, one day we will have an office and library and two store rooms. But for now it will do.

While all this had been going on, the name of the club had been changed to Poldhu Amateur Radio Club and one of the members, Brian G4ZY0 who had been elected PR man had applied for this special callsign GB2GM and had also contacted the Radio Club of St. Johns, Newfoundland. They were very enthusiastic about the link up and it was arranged



Short Wave Magazine, August 1994

A lot more could be written about all the work put into this project but there is much to do yet. We feel very honoured to have the call sign GB2GM with F009 and 3460 for our numbers. To have all this on what is probably the most famous site in the world, overlooking the beautiful Poldhu Cove is a marvellous experience none of us will forget.

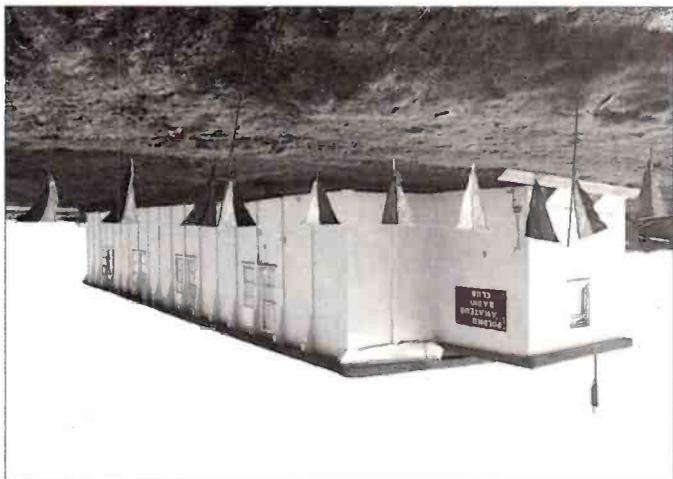
Alive and Well

We have had Field Days and Contests, Lectures and Talks, visited other clubs socially, held inter-club quizzes and we run our own RAE classes and have many other activities planned for the future. The Poldhu Amateur Radio Club is alive, well and thriving.

We have now also received a membership number from the Royal Air Force Amateur Radio Society and are delighted to be able to quote RAFARS 3460 on any of the inter-service nets. Some day we hope to acquire a Royal Navy Amateur Radio Society number but as yet we are unsuccessful.

Up to the present we have over forty members and are still growing steadily. As the club house is in the grounds of a famous retirement home we are sure to get a lot more in the future. What better place to retire to? It should also be mentioned that any licensed amateur retiring to, or on a visit to Poldhu residential and Nursing Home automatically becomes a honorary member of the Poldhu Amateur Radio Club with the full use of the clubs facilities during their stay.

The Poldhu Amateur Radio Club House.

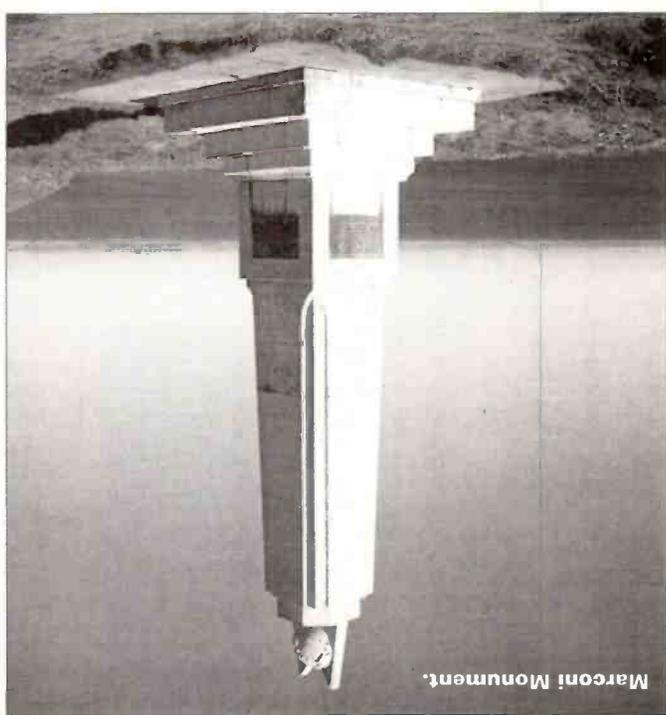


Many events have taken place since this account was first written. It is now April 1994 and the club has acquired a TS430S with an a.t.u. for h.f. working and an f.m. 2m rig for v.h.f. Many museum exhibits have been acquired and some shelving erected to display them. The roof has been professionally repaired and the rooms are now dry and the

other activities possible to do with radio such as JOTA etc. One member and his XYL also run a CB radio link for older people (even a visit from our sister magazine PW - Ed.). Many radio amateurs on holiday or touring have paid visits and some have become associate members of the club.

We have now also received a membership number from the Royal Air Force Amateur Radio Society and are delighted to be able to quote RAFARS 3460 on any of the inter-service nets. Some day we hope to acquire a Royal Navy Amateur Radio Society number but as yet we are unsuccessful.

Up to the present we have over forty members and are still growing steadily. As the club house is in the grounds of a famous retirement home we are sure to get a lot more in the future. What better place to retire to? It should also be mentioned that any licensed amateur retiring to, or on a visit to Poldhu residential and Nursing Home automatically becomes a honorary member of the Poldhu Amateur Radio Club with the full use of the clubs facilities during their stay.



Marconi Monument.

When it was first realised that we could have a permanent special event call sign, we contacted Ray G3EKL, Secretary of the Royal Signals Amateur Radio Society and through his good offices we were allocated the affiliated number F009 and as time goes on we will be joining in more RSARS activity. The club does not yet have a rig of its own, members have to take a rig to the club house if they want to operate from there, but when the rooms are properly finished, gear will be acquired and everything will be on a more continuous basis. Speaking of which, if anyone

The station at St. Johns was on the precise spot that Marconi used, their call sign being VO1AA. They had intended to use a kite as the receiving antenna and had one available, but in the event, a wire antenna was used for convenience. At least neither

Colling St. Johns

station had the bad weather from a strong wind it was a glorious day at Poldhu with bright sunshine. All the VIPs spoke to their counterparts in St. Johns and we were lucky enough to have a clear frequency right through. When the contact was completed we had another one with the Mayor of Sasso and lady members had provided a magnificent buffet for the occasion with tea and coffee on the go all day, much appreciated by all.

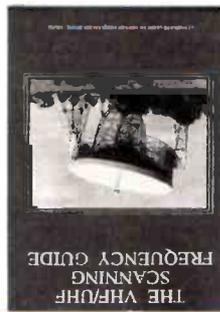
enactment as it took place. That Marconi suffered. Apart from a strong wind it was a glorious day at Poldhu with bright sunshine. All the VIPs spoke to their counterparts in St. Johns and we were lucky enough to have a clear frequency right through. When the contact was completed we had another one with the Mayor of Sasso and lady members had provided a magnificent buffet for the occasion with tea and coffee on the go all day, much appreciated by all.

VHF/UHF Scanning Frequency Guide

- * 26MHz - 12GHz
- * Full Frequency Info.
- * Duplex Info
- * Masses of Data
- * 160 A4 pages!

£9.95

Carriage £2



AT-2000 ATU

With Unique "Q" Selector

£99.95



Now you can tune your antenna and adjust the "Q" of your tuner to 4 different levels. The lowest "Q" is best for daylight use when conditions are normal. The sharpest is ideal for night use when signals are strong and the noise level is high. It adds selectivity to your receiver front-end and dramatically improves receiver performance.



The complete range from stock!

- R5 5 band no radials 20 - 10m £299.95
- R7 7 band no radials 40 - 10m £399.95
- AV-3 3 band vertical 20 - 10m £199.95
- AV-5 5 band vertical 80 - 10m 2Kw £179.95
- AP8A 8 band vertical 80 - 10m 2Kw £239.95
- A3S 3 band 3 element beam 2Kw £395.95
- A4S 3 band 4 element beam 2Kw £495.95
- ARX-2 .. 2m Ringo Ranger 6dB vertical £49.95

Free Carriage if ordered before 31st July

MFJ-1024 HF Active Aerial

100kHz - 30MHz inc. 50ft coax and external whip. Ideal for small gardens. Requires 12V DC.

£149.95



ERA Microreader MK-II

CW - RTTY - Amtor - CW Tutor Cart. £4.50

Ever wondered what all those strange sounds were on the short wave bands? Now you can read them on the built-in LCD panel. 12V operation with 232 output



Scanning Short Wave Aerial

Greatly enhances reception between 500kHz and 30MHz. The 956 tuner gives good matching and excellent pre-selectivity. Simply connect between wire aerial supplied and your scanner. Includes 50ft of aerial wire, end insulator and patch lead terminated BNC to match your scanner



- * 50' Wire
- * Tuner
- * Patch lead

£59.95

DJ-XID Scanner

200kHz - 1300MHz AM - NFM - WFM

- * No gaps
- * 100 Memories
- * Battery Saver
- * Ni-cads & Charger
- * Fully programmable
- * Helical whip
- * LCD readout
- * Rotary tuning knob

Maglin £50 cash back. Pay £349 at any store between 1/3 and 30/4 and send receipt to us.

Offer ends 30th June

£299

~~£349~~

-fits easily into the pocket-



Optoelectronics

3300
£169.95
Carriage £4.50

LED's Are Out!
Lower battery consumption

1MHz - 2.8GHz

Handled counter with new LCD readout that can sniff a handheld transceiver frequency up to 150Hz. Just switch on and read the frequency. 6 gate measurement periods, ultra accurate, no-cad, charger and aerial included, display hold feature, ideal for scanner owners, service engineers etc.

Low HF-150 Receiver

Short Wave 30kHz - 30MHz AM - SSB - CW

£389

Carriage Free

"The best of British!"

Great Value



Yupiteru

Plus the proper chargers!

MVT-7100

SSB-NFM-WFM-AM 530kHz - 1650MHz

£389.95
Carriage £4.50

Factory direct supplies from Japan mean you get the latest model from us with our own service engineers to give you added re-assurance. We introduced Yupiteru to the UK as the first appointed distributor. Nothing much has changed apart from our prices!

Sky-Scan Mobile

Complete System 25 - 1300MHz



Complete magnetic receiver aerial system covering 25MHz - 1300MHz with cable and BNC plug. Height 60cm. Great value.

Get Mobile with your SS-Mobile Scanner

£19.95
Cart. £3.00

AA-7 Active Aerial Kit

1.6MHz - 400MHz



New Yupiteru Scanner

"Mobile Enhancer"

This speaker has a built-in amplifier with low distortion. 1.2 Watt output, plus 12V DC feed for your scanner. Ideal for mobile use, you get big receiver performance. Motorway monitoring at its best! Includes all leads. 12V Cigar Plug 3.5mm Audio Plug 12V DC to Scanner

£29.95
Cart. £2.50

MFJ-16010

Random Wire Tuner



MFJ-959B HF Receiver Pre-selector

1109.95 Cart. £4.50



Two for the price of one! You get a pre-selector to hot up your receiver plus an anti-Covers I.6 - 30MHz Requires 9 - 13V DC

Wideband Scanning Aerials - The Best!

D-707 £129.95

D-505 £99.95

HX-7000 £20.95

HX-9000 £32.95



Great Value

D-707 96cm long fibre glass SO-239 plus junction box. Needs 12V 150mA

D-505 Mobile whip 1MHz - 1300MHz. 75cm SO-239 inc cigar lead junction box.

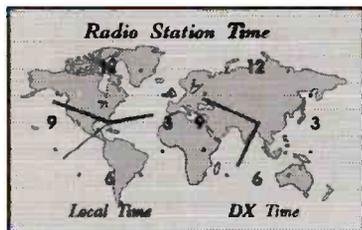
HX-7000 100 - 950MHz whip 19cm BNC

HX-9000 100 - 950MHz whip 47cm BNC

Everything for The Listener

0702
206835

DT-1 Dual - Time Quartz Station Clock
£24.95
Carr. £2.50



This smart dual-time clock gives you local and DX time. Measures 10" x 8" with brushed alloy "world-map" panel mounted in wood hanging frame. Requires 2 AA batteries.

Sangean ATS-803A Short Wave Receiver
£128.95

150kHz - 30MHz SSB, CW, AM. Runs from 6 x AA cells and gives digital frequency display to 1kHz. 10 memories, built-in clock and alarm make this ideal for those who want to keep in touch with the world



New! 24 Hour Clock



£24.95 Carr. £2.00
This new clock from MFJ gives you a true 24-hour readout with sweep second hand. Powered from an internal AA cell (not supplied) and measuring 26cm, it will grace the wall of any radio shack.

Order: MFJ-105B

SONY ICF-SW55
£279
Carriage £6 **£239**

Great Value



This top range portable gives you a complete station in a single package. On-board computer lets you store frequency and station name. You direct dial your frequency for high quality SSB or AM reception. Includes mains AC supply etc.

AOR ABF-125

Airband Receiver Filter

Dramatically cleans up spurious responses in any scanning receiver when operated between 118 - 137MHz
£24.50
Carr. £2



Magnetic Longwire Balun



MLB £39.95 Carr. £2
100kHz - 30MHz, lets you feed your long wire receiving antenna with coax cable. Reduces noise and improves matching automatically.

NEW MFJ Short Wave Regenerative Receiver Kit

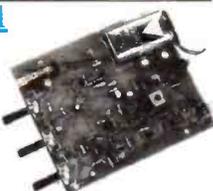


AM/SSB/CW/RTTY Super Sensitive
As reviewed in QST. Amazing value and sensitivity. Just 10ft of wire will bring in the DX and you can build it yourself.
£71.95 Carr. £4.50

Ramsey AR-1 Airband Receiver Kit

£29.95 Carr. £2

As reviewed in Maplin Magazine. You get everything you need to build this receiver. Features squelch and loudspeaker output plus AGC and superhet circuit. All you need to add is a PP3 battery. Covers 108 - 136MHz AM



W9GR Digital Audio Filter



299.95
Carr. £4.50

Reduces: * Static * Power Line Noise * Ignition Pulses * TV Time Base * Computer Hash
The top seller in USA. Need we say more!
There's a full review in our catalogue.

MFJ-8400 2m Rx Kit £79.95
(£4.50)

Build this 2m FM monitor kit with dual IF's and built-in speaker. Also squelch control, slow motion vernier dial, Packet audio output and SO-239 socket. Runs off PP3 or ext. 12V



Yaesu FRG-100 Receiver



HF receiver. All modes 50kHz - 30MHz, and 50 Memories. An excellent buy. Come and hear it on a decent aerial!



£529
£459

MVT-7000

New Price! £289

100kHz - 1300MHz Scanner Receiver

We've slashed the price from £325. And to add to the value we'll give you a 24 month warranty if you order this month. Phone for our data sheet. Comes with factory made power supply and official Yupiteru warranty.



AOR-8000 Scanner 500kHz - 1.9GHz In £Phone Stock

The new AOR-8000 has arrived and it looks like being a winner. FM, SSB, AM, it's all there with proper SSB filters and amazing computer controlled programming facilities. A complete communications monitor in one small handy. Great!



New MFJ-784 DSP Filter
£249.95



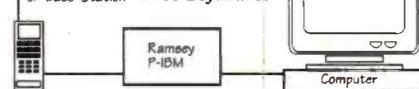
This is the first fully tunable DSP filter. It means you can tailor it to suit any mode; AM, SSB RTTY and all data modes. **Automatic notch filter** - handles multiple heterodynes. **Tunable high & lowpass filters** - puts you in control - 200Hz - 2.2kHz & 1.6 - 3.4kHz. **Tunable bandpass filters** - you can adjust the centre frequency from 300Hz - 3.4kHz. **16 pre-set filters** - factory set but you can re-programme them to suit your needs. **2 Watt amplifier** - gives you plenty of room-filling volume. The most advanced DSP filter ever - just connect 12 volts DC and hear the difference.

Phone for Secondhand List

Packet on a Budget! P-IBM Kit

£59.95! Carr. £2.00

Hand-held or Base Station **Free Software!**



This Ramsey kit can be put together in an evening. Self powered from IBM computer RS-232 port. Just connect to scanner or transceiver audio output and watch the data appear on the screen. Also can be used to transmit Packet. 100's sold in UK.

"On-Glass" Scanning Aerials

30 - 1200MHz Black Finish

- * 22" whip
- * 17ft Coax
- * BNC plug
- * Screw-on whip
- * High performance

TGSP
£32.95
Carr. £4.50



Just the job for scanner owners. Gives superb reception and fits the modern car in seconds.

Shop and Mail Order: 22 Main Road, Hockley, Essex. SS5 4QS. Tel: (0702) 206835/204965 FAX: 205843
Branch Shop: 12, North Street, Hornchurch, Essex. Tel: (07084) 44765

VISA

MAIL ORDER To Hockley - 24 Hour Answerphone and Fax. Open 6 Days 9am - 5.30pm

ACCESS



30 kHz ~ 2036 MHz ALL MODE 'computer controllable'

**Whatever your requirements,
AOR has a receiver to suit ~
Base : Base/mobile : Portable**

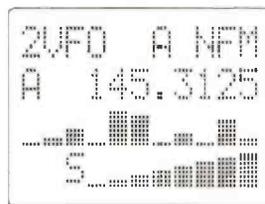
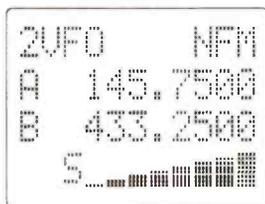
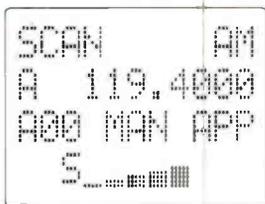
If you require a dedicated high performance short wave receiver: The **AR3030** with a frequency coverage from **30 kHz to 30 MHz** combining a classical appearance on the outside with a high-tech DDS (Direct Digital Synthesizer) design inside. All mode reception is provided 'as standard': AM, S.AM (synchronous), NFM, USB, LSB, CW & FAX. The legendary high performance 6kHz Collins mechanical 8 resonator filter is fitted as standard for the ultimate in AM selectivity. A Temperature Compensated Crystal Oscillator (TCXO) is also fitted as standard to ensure the highest levels of stability making the AR3030 ideally suited for ECSS and DATA reception. **RS232 (fitted as standard)**. VHF converters are also planned.



If you require wide coverage in a single base / mobile unit: The **AR3000A** offers a high level of performance and versatility from long wave through shortwave, VHF and onward to the upper limits of UHF and SHF **100 kHz to 2036 MHz**. Not only will the AR3000A cover this extremely wide range, it will allow listening on any mode: NFM, WFM, AM, USB, LSB and CW. 400 memory channels, rapid scan and search rate up to 50 increments per second. The AR3000A also features an **RS232C computer control port**.



If portability is of prime concern: The **AR8000UK** provides a frequency coverage from **500 kHz to 1900 MHz** without gaps in the range (actual acceptable frequency input from 100 kHz) and is the result of AOR's long term ambition to produce a new breed of radio receiver which combines full computer compatibility with advanced wide-band radio receiver technology. The all-mode reception provides AM, USB, LSB, CW, NFM and WFM. An independent ± 2.0 kHz SSB filter is fitted as standard and the USB/LSB modes use true carrier re-insertion with correctly calibrated frequency read-out (not offset by 1.5 kHz). Step size is programmable in multiples of 50Hz for smooth tuning. A custom manufactured ferrite bar aerial is neatly internally installed at the top of the receiver's cabinet to enhance receive performance when listening in population centres to Medium Wave services. The high visibility LCD is of a new dot matrix format and many new facilities are provided, these include a signal strength bar meter, band-scope, twin VFO frequencies displayed simultaneously, ALPHANUMERIC comments stored along with frequency, mode & attenuator status simplifying the job of recalling and identifying memory channels, password protection etc. **Computer control** and clone of data between two AR8000UK receivers (optional interface required).



*Other popular brands available
such as YUPITERU ~ ICOM
DRAKE ~ LOWE*



IBM-PC software available for the AR3000A with software for the AR3030 & AR8000UK to follow soon. Please phone or forward a large SAE for full details.

World Radio Centre is a retail division of AOR UK LTD. All trade marks acknowledged E&OE



WORLD RADIO CENTRE



**Adam Bede High Tech Centre, Derby Road,
Wirksworth, Derbys. DE4 4BG. ENGLAND**

YUPITERU ICOM

TEL: 0629 825926

FAX: 0629 825927

A Day In the Life Of A Radio Inspector

A Television Antenna

Life for a Radio Inspector is never easy. J. Edward Brown reveals some more adventures.

The radio inspector's office was busy as usual this hour of the morning, a couple of telephones ringing, one of the radio inspectors trying to arrange the street lighting gang to do a job on a modulation hum problem caused by blended bulb street lamps. It was difficult to get the gang, they were all old men, too old for regular electric lines work, they always had an hour for morning tea and another hour for afternoon tea and two hours for lunch. Street light interference was difficult, it was hard to find the bulb causing the trouble. Once the gang were on the job they were obliging, but it meant putting out every bulb until the one causing the interference was found. The complainant was a school teacher, arty music type, listened to the YC network, not that that was relevant...

Another inspector was talking to a long-time complainant whose problem was that he lived in a valley and he had no television signal.

Mrs Hooper rang in to say their radio interference was on again, bad on her Columbus wireless. Kilocycle Ken didn't believe it. She accused the milkman of causing her interference, every time he parked outside, the rattle of his milk bottles caused crashing noises, but it was too early for the milkman so she was accusing the postwoman. Mrs Hopper was as mad as a meat-axe. She listened to Parliament avidly, which was an indication. She sometimes came into the office to see the chief radio inspector, always dressed in a black suit, green cloth overcoat with fur round the neck. Her eyes was as glassy as the fox fur. It was said in the office that she and the chief radio inspector had had something going, years ago. The chief radio inspector was in his office now, eating pig's trotters, his usual breakfast.

"Come on, let's hit the road," Kilocycle Ken said loudly to Young Golly, his trainee. "We're off to investigate the sea of interference swamping our city." Though there wasn't

going to be anything meaty in the first complaint on the clipboard this morning.

The address was a greengrocer's, in a red brick block of shops, probably built in the late nineteenth century to serve the working class people who lived around. It had been almost a slum a few years ago, now the area was trendy.

An Indian was unloading potatoes from the old Chevrolet truck at the curb, his name, Patel, painted crudely on the yellow door. And Son had been added in red.

"Radio inspectors," Kilocycle Ken said. "A Mr Mayo at this address has complained about television interference."

Inside the shop the pregnant Indian woman in the sari wrapping carrots in newspaper for a customer had suddenly smiled, showed a gold tooth, twirled her hand in a meaningful circular motion.

"Mr Mayo lives upstairs, but he is not all there." The Indian stabbed a cauliflower viciously with a wired price tag. "Always trouble."

"We would like to have a look at his television set."

"He complain to everybody."

"Do you live on the premises?"

"Oh no sah, live long way away." His lips curled at the thought. But this was an area where a man could feel he was living in the heart of all happenings.

Hands of bananas hung artistically around the shop doorway, pineapples dangled, apples were stacked, but there were racks of Fido canned dog food. Watties canned peaches, a frozen food cabinet with imported French beans and Jerusalem artichokes, frozen cauliflower, all expensive, but there would be customers.

The Indian greengrocer gestured. In the back of the shop a set of concrete washing tubs filled with large leafy leaks, water trickling from an old-fashioned brass tap; a lavatory pan, white with one of those without a lift-up seat, just two strips of wood cemented on the wax and wane sides.

Up the worn stairs, the



peeling wall painted a sickening green, the remains of an old gas lamp on the landing ceiling. There was a graceful curve to the stairs and the banisters. This could be a very nice place to live, cleaned up, only needed money spent.

Along the corridor. "Are you there?" the Indian shouted through the door. He didn't wait for an answer, turned the old fashioned brass knob and pushed aside the sacking mat inside which impeded the door opening.

The old man sitting on the unmade bed in a striped pyjama top and white underpants studying the Best Bets looked at them with watery eyes.

"Here are the radio inspectors investigating your television interference complaint."

"I do get bad interference," he said, almost apologetically, rising.

The wall of the big room were wide horizontal bare boards from which the scrim had been striped - and the wallpaper had once been pasted to that. It smelled of old age.

"I don't usually have television on at this hour of the morning. Nothing on."

"The test pattern is on. Could we have a look at the screen?"

A boarded up ornate fireplace at the far end, one bed, a chrome hot water jug on the floor by an old-fashioned white porcelain power point, salt and pepper shakers, a Christmas card on the mantelpiece, an old Gulbransen radio and a large Philips K9 television set.

Snow Flakes

The old man walked across the old worn strip of faded orange carpet and plugged the TV into the wall socket.

Kilocycle Ken noted there was no aerial. The test pattern appeared amidst falling snow flakes as large as saucers.

"Not a good picture. You need an aerial, outside."

The old man shook his head as if he didn't understand.

Kilocycle Ken approached the television set and the picture revolved madly; he retreated and it steadied. It was a classic case of a television set without enough signal being fed into it. It was a waste of time searching for interference, anything could upset this picture. He explained it to the old man, but the old man obviously didn't understand, maybe he didn't want to understand.

"How much would an aerial cost?"

"Installed - a hundred dollars, one fifty, maybe."

He shook his head. "I can't afford the aerial."

Kilocycle Ken wondered what he had done with his money in his lifetime? Lost it on horses? The old man had picked up a Post Office pen with its bent paper clip logo and was marking horses in Best Bets. Who knew? Might have been unfortunate, or never been fortunate.

Ribbon Dipole

A simple ribbon dipole aerial would probably improve his reception one hundred percent, cost a few dollars for a couple of metres of black television ribbon and two drawing pins, pinned high up on the wall, but they weren't paid to do that.

"A young active friend could buy a TV aerial, you can get them for fifty dollars or so, put it up for you."

"Haven't got any friends."

The Indian greengrocer in his white apron stood with folded arms. Did he own this building?

"Anybody else live here?" There were doors shut down the corridor.

"Nobody else, only him. Building will be demolished soon."

Kilocycle Ken sighed. "Go back to the car, Young Golly, and get a length of 300Ω ribbon, we'll put up an indoor aerial for him."

"It's not our job," Young Golly protested.

"It's be kind to a complainant day."

One of the panes of glass in the window was broken, stuffed with newspaper. The noise of the busy street below was loud.

The old man was still quiet, but he had been loud on the telephone yesterday, he had threatened to write to the minister of broadcasting when he had been told that if he didn't have an outside aerial, the radio inspectors would not investigate. However, they'd come to have a look. The fact that he called the radio inspector a yellow bellied civil servant was immaterial. Some people were just plain anti.

Young Golly came back with a roll of black aerial feeder ribbon and a handful of tools. Kilocycle Ken snipped with the side-cutters, cut a length of ribbon by eye, joined in a feeder length. The wall was about at right angles to the television transmitting station. There were two convenient tacks to hang the aerial on.

Kilocycle Ken inserted the ends of the ribbon into the television set and immediately the snow disappeared and a bright test pattern emerged. "There, what do you think of that."

The old man barely glanced at it.

Young Golly gathered up the tools.

"You'll be okay now,"

Kilocycle Ken said.

The old man marked his book.

"Say thank you," Young Golly said.

The old man ignored him.

"Say thank you," Young Golly said very loudly.

Kilocycle Ken said, "Come on."

"We never get any thanks."

"The TV set supplier should have done something for him, but it's left for us."

"He probably thinks the government should do everything for him," Young Golly said.

"We are living in a welfare state."

"Where does it say that free television aerials are supplied. What do we charge the ribbon up to?"

"Write it off under working expenses."

Too Expensive

Kilocycle Ken and Young Golly departed through the shop.

Next door in the block was a laundromat, and next door a butcher's shop, on the other side a restaurant - hadn't it recently featured in 'Metro' magazine and been given four and a half stars, not that he'd ever eaten there, too expensive for a common public servant. A Samoan woman was wet mopping the floor, the morning sun sparkling on wine glasses.

"Did you see a stove in that old man's room?" Young Golly asked.

Kilocycle Ken shook his head.

"How would he cook?"

"Probably eats out, fish and chips, hamburgers."

"There wasn't a refrigerator either."

"Nobody had refrigerators, in the old days, but then nobody had TV sets either."

Who was responsible for supplying such old people with TV aerial? Social Welfare? Certainly not, and certainly not the radio inspectors, it was the viewer's decision whether to buy an aerial or not. The old man had bought the television set - presumably. He could cut down on beer to buy an aerial? There had been a crate of empty beer bottles on the landing.

"You could end up like him," Young Golly said rudely.

"If I'm ever tempted to leave my wife I'll remember that room."

"It might not be so bad."

Kilocycle Ken shuddered.

"He would get national super, adequate to live on," Young Golly said, almost puzzled.

"Depends on how much he pays in rent."

"He might live there free, out of the kindness of the Indian's heart."

Hot Bread

They walked past a bread shop with the scent of hot bread, a delicatessen with hand made easter eggs, marinated pork shops, scotch eggs, pork pies, it was enough to make a man very hungry.

Next door was a second-hand book shop. "How do they make a living?" Kilocycle Ken mused. But they must make a living, for how did they pay the rent? There was nobody in the shop buying, the book were not popular titles - astrology. On the window an advertisement, handwritten, for poetry reading and another as for a do-it-yourself co-operative publishing venture.

The old man was certainly out of place in this area, but where would he go when his building was flattened?

A coffee shop, the smell of freshly ground coffee; a shop specialising in brass-ware, once again popular, for letter box numbers, door knobs; a video shop; a gallery displaying prints and paintings. Young Golly went in. The shop was bright, stark, white, clean, all the picture frames chromium-plated, the woman behind the counter and glass wore a white smock, smoked a mentholated cigarette.

"Isn't that Marilyn Monroe?" Young Golly asked, pointing at the print.

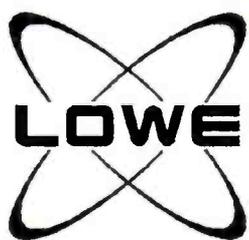
"Could be." It wasn't her, but she had probably been the idea behind the original painting.

Old Dark Pictures

A second hand shop with the detritus of an earlier age, a wedding dress, a dirty chromium-plated toast rack, old dark pictures in ornate wooden frames, an oak dresser, two old fireside chairs in oak and uncut moquette, a crockery teapot. "My mother had one of those," Kilocycle Ken said sadly.

"Must have been a long time ago," Young Golly said rudely.

Kilocycle Ken nodded, sadly. ■



Lowe Electronics

THE RADIO OF THE FUTURE IS HERE NOW...

SoftWave™

By ComFocus

Computers are playing a much bigger part in peoples lives today, both at work and in the home. There are a growing number of short wave enthusiasts using computers to enhance their listening, using computer logging and decoding. It was inevitable that the technologies of radio and computing would come together at some stage and ComFocus Corp. of America have done exactly that.

SoftWave consists of a remote receiver, built into a screened box plus an interface card that plugs into your PC and of course the software. You will need to have a IBM PC type computer, and we recommend at least a 386 type with 4MB RAM and 6MB hard disk space. A maths coprocessor is also desirable. You will also need DOS 5.0 and Windows 3.1 or higher.

The built-in map-driven station database makes selecting world band radio stations very easy and you can change the "personality" of the receiver to give you just the functions you need for various applications. You get no less than six receiver functions with SoftWave:

- ◆ AM DX receiver
- ◆ Communications receiver
- ◆ Worldband receiver
- ◆ VHF receiver
- ◆ Time sync receiver
- ◆ Wideband spectrum analyser

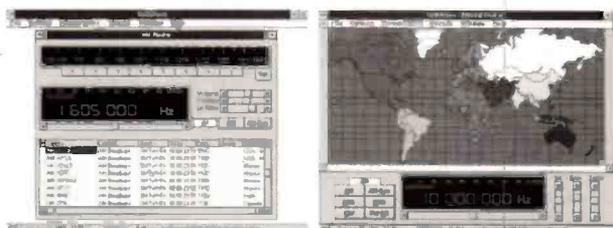
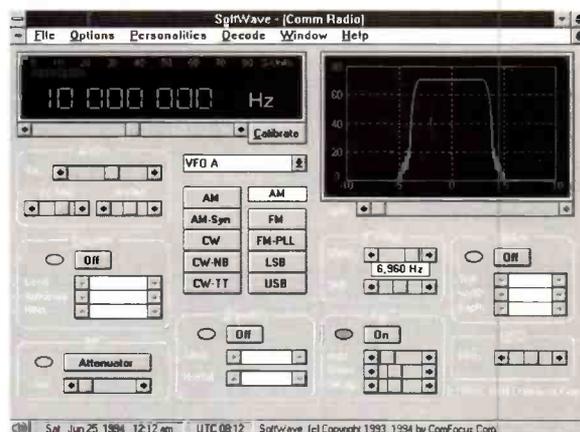
As you would expect, the specification and facilities are also excellent:

- ◆ Frequency range: 0.5 to 30MHz and 108 to 174MHz
- ◆ Tuning resolution: 1Hz
- ◆ Modes: AM, AM-sync, WFM, NFM, CW, USB, LSB
- ◆ Selectivity; 11kHz to 49Hz in 48 steps
- ◆ Dynamic range: 97dB
- ◆ 3rd Order Intercept Point: 2.5dBm (HF, 20kHz spacing) and 5.5dBm (VHF, 20kHz spacing)

SoftWave is unique. Being software driven, upgrades should be straightforward. Already planned are decoders for FAX, RTTY, SSTV and these will become available in due course.

But you can have the radio of the future today for just £1495.00 including VAT

We'll be happy to send you a set of demo disks so you can "see" SoftWave for yourself. Just send us your cheque for £5.00, refundable on purchase of SoftWave.



SoftWave™

By ComFocus

Exclusive UK Distributors:

Lowe Electronics Ltd
Chesterfield Road, Matlock,
Derbyshire, DE4 5LE
Tel 0629 580800
Fax 0629 580020

(Also available at Martin Lynch in London)

MOMENTUM COMMUNICATIONS



**LOWE RECEIVERS
NOW AVAILABLE
HF150 & HF225
PHONE FOR DETAILS**

Monitor shown optional

**PHONE EASYREADER
HOT-LINE FOR SPECIAL
STARTER PACK DETAILS**

☎ 0384 896879

MCL 1100 DATA DECODER

The MCL 1100 Easyreader Data Decoder will automatically make sense of some of the strange noises that you can hear on your H.F. Radio Receiver enabling you to make FULL use of your equipment. The MCL-1100 processes data transmissions without the need of a separate computer and displays a full screen of text on your video monitor.

Why make-do with one or two lines of information as offered by other manufacturers. And it's designed and manufactured in the U.K.

STANDARD FEATURES:

- SMARTLOCK system for easy tuning.
- Full screen of readable text with on-screen tuning indication.
- Automatic decoding of RTTY, CW, FEC (NAVTEX) and ARQ.
- Auto or manual selection of transmission speeds.
- Extremely rapid lock onto signal.
- Connection for a parallel type printer.
- Made in the U.K.

**SEE REVIEW
IN THE MAY
ISSUE**

**EASYREADER STILL ONLY
£255.00 inc. VAT + Postage**



Authorised Dealers Martin Lynch Lowe Electronics ARC



6 & 7 Clarkson Place, Dudley Road, Lye, West Midlands DY9 8EL

HF-150

**Compact
Communications
Receiver**

£359 inc VAT

Designed as a logical alternative to the Japanese 'push button portables', the HF-150 places a 'real radio' within your price reach. Whilst reflecting the Lowe approach to simplicity of operation, the HF-150 nevertheless has all the features and facilities you need. This truly is 'Real Radio'.

Frequency coverage: 30kHz-30MHz.

Modes: USB/LSB/AM/Sync. AM (selectable S'band).

IF Bandwidths: 2.5kHz & 7kHz.

Tuning: 8Hz steps with variable speed.

Memories: 60 holding frequency & mode.

Aerial inputs: 600 ohms, 50 ohms & Hi-Z Whip.

Power: 12Vdc from mains adaptor (supplied).

Case: All metal light alloy case.

Size: 185mm(W) x 80mm(H) x 160mm(D).

Weight: 1.3kg (less batteries).



We are a main dealer for all popular makes of receivers, transceivers, scanners, ie. YAESU, ICOM, KENWOOD, ALINCO & LOWE. Prices are correct at time of going to press.

AR3000A

The AR3000A is a follow on from the highly acclaimed AR3000. 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, x10 buttons have been added to make step size faster and more convenient. All information is contained on the LCD instead of a separate status LED indication. The RS232 facility has a switch on the rear panel to enable/disable operation. Memory clear and full microprocessor 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.



£949



**The
AR2000**
500kHz-1300MHz
with better sensitivity
than the original
2000

£309

HF-225 Gateway to the world

£479 inc VAT

Frequencies: 30kHz-30MHz.

Tuning: 8Hz steps. **Memories:** 30 channels.

Filters: IF filters for all modes fitted.

Tuning: Keypad & spin-wheel.

AM/FM Sync. Detector (optional).

Keypad for remote entry (optional).

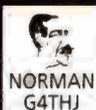
EXCELLENT QUALITY at a REASONABLE COST



AR1500

100kHz-1300
MHz and
same modes
as the
AR2000. Price
to be
confirmed
Approx.

£349



Lee Electronics

400 EDGWARE ROAD, LONDON W2
OPENING TIMES: 9.30am-5.30pm Mon-Fri. 10am-4.30pm Sat.

Telephone: 071-723 5521 Fax: 071-402 9305
Normally 24hr despatch but please allow 7 days for delivery



THE FLYING SHOP

BIGGIN HILL AIRPORT



THE NEW!!! YUPITERU MVT-7100

- 1000 Channels
- All Mode AM/FM/
MW/LSB/USB
- 500kHz-
1650MHz
- SSB tuning in
10Hz steps

**LOWEST
PRICE
£369
INCL. VAT**

YUPITERU MVT-7000

- 1MHz-1300MHz
- AM-NBFM-WBFM • Multiple steps
 - Better than 0.5µV • 200 memories
 - Rotary dial • S-meter • Fast scan speed
 - Lockout/priority • Ni-cads
 - Charger/AC PSU • 12V lead

The MVT-7000 from Yupiteru provides unbroken coverage throughout the spectrum. Each one is carefully tested by us and supplied with a unique power supply that will not only recharge the ni-cads, but also run the set directly from the mains. Its beautifully styled lines and superb engineering make it the best buy for the customer who wants the widest frequency range possible. **£310 inc. VAT**

YUPITERU VT-125 MkII

- Excellent reception • 108-142MHz
- 30 memory channels
- Illuminated LCD display! 25, 150 or 100kHz steps
- Search, scan or direct frequency entry
- Keylock • Keyboard beep tone • LCD signal meter

£179 inc. VAT

Complete with 3 AA size ni-cad batteries, 240V mains adaptor, 12V d.c. cigar plug & carry strap

YUPITERU VT-225

£235 inc. VAT

The Flying Shop, Biggin Hill Airport, Westerham, Kent TN16 3BN

24 hr delivery £7.50 48 hr delivery £5.00

Prices are subject to change with out prior notification



Tel: (0959) 576370 0900 - 18.00 (Mon-Sun)

(0959) 572352 0700-0900 & 1800-2000

Fax: (0959) 576711 24 Hour.



GUIDE TO FAX RADIO STATIONS

14th edition • 400 pages • £ 22 or DM 50

The reception of weatherfax radiostations and meteorological satellites has become a mere child's play. Inexpensive FAX hard- and software connects a radiq receiver directly to a laser or ink jet printer. Advanced digital technology puts real-time satellite images on your PC video monitor, with fascinating colour and zoom features. This manual is the basic reference book for everybody interested in FAX via radio.

The new edition of our FAX GUIDE contains the latest equipment information, frequency lists and precise transmission schedules - to the minute! - of 62 FAX radio stations and meteorological satellites, including those of Bracknell Meteo, Royal Navy London, METEOSAT, and the new Bracknell meteo telefax polling services. The most comprehensive international survey of the "products" of weather satellites and FAX stations from all over the world is included: 353 sample charts and pictures were recorded in 1993 and 1994! Here are that special charts for aeronautical and maritime navigation, the agriculture and the military, barographic soundings, climatological analyses, and long-term forecasts, which are available nowhere else. Additional chapters cover abbreviations, call signs, description of geostationary and polar-orbiting meteorological satellites, regulations, stations, technique, and test charts.

Further publications available are our unique *Modulation Type CDs, Guide to Utility Radio Stations and RTTY Code Manual* (12th ed.), and *Air and Meteo Code Manual* (14th ed.). We have published our international radio books for 25 years. They are in daily use with equipment manufacturers, monitoring services, radio amateurs, SW listeners and telecom companies worldwide. Please ask for our free catalogue, including recommendations from all over the world. For recent book reviews see *SW Magazine* 10/93 p. 60, and *RSGB's RadCom* 6/93. All books are published in the handy 17 x 24 cm format, and are of course written in English.

Do you want to get the **total information** immediately? For the special price of £ 115 / DM 270 (you save £ 23 / DM 55) you will receive all our manuals and supplements (altogether more than 1800 pages!) plus our **Cassette Tape Recording of Modulation Types**.

Our prices include airmail postage within Europe and surface mail elsewhere. Payment can be by £ or DM cheque, cash, International Money Order, or postgiro (account Stuttgart 2093 75-709). We accept American Express, Eurocard, Mastercard and Visa credit cards. Dealer inquiries welcome - discount rates on request. Please fax or mail your order to ☺

Klingenfuss Publications

Hagenloher Str. 14

D-72070 Tuebingen

Germany

Fax 01049 7071 600849 • Phone 01049 7071 62830

news Extra

Maritime Stop Press

We have just been informed by Stonehaven radio that BT's m.f. coast radio stations are broadcasting the following historic message

"The broadcast of navigation warnings, gale warnings and weather bulletins by MF W/T from UK coast stations will cease at midnight on Sunday 31 July 1994. Distress and urgency broadcasts will continue to be made by W/T. There will be no changes to m.f. R/T or h.f. W/T broadcasts.

BT Maritime Radio Services, London 051330Z July 94 +"

If readers are interested in listening to any of the final m.f. W/T broadcasts on the 31 July, I would recommend monitoring 500kHz, where Cullercoats/GCC, Lands End/GLD, Niton/GNI, Portpatrick/GPK and Wick/GKR will be heard at various times announcing their intention to broadcast a message on their respective working frequencies.

The announcements on 500kHz of the final broadcasts of weather bulletins will be at the following times:

GNI	2018UTC
GCC/GKR/GPK	2030UTC
GLD	2048UTC

Navigational warnings will be finally announced at:

GLD/GPK	2000UTC
GCC/GKR	2048UTC
GNI	None

Working frequencies are:

GCC: 515.5kHz, GLD: 448kHz, GKR: 517kHz, GNI: 447kHz, GPK: 442kHz.

Thanks to W. Smith GM0ENQ for the above information.

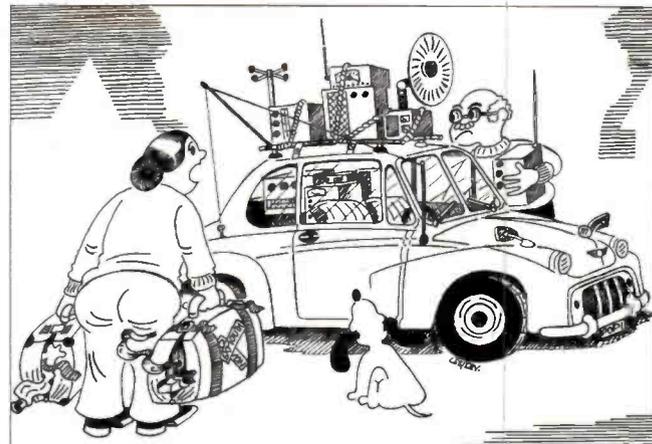
Short Wave Magazine, August 1994

Competition Winner

We are pleased to announce the winner of the Dressler ARA2000 50MHz - 2GHz Active Antenna. This Antenna has been kindly donated by South Essex Communications and is worth £299. It has been won by **Ian Shields of York**, Ian will soon be receiving his new antenna.

Listen With Grandad

By Leon Balen & David Leverett



Do you think you could leave a little space for the luggage, George?



For The Very Best

Ring the Honeymoon

AOR 8000UK



AOR always lead with technology in scanner design and every time details are 'leaked' to the press, the phone doesn't stop ringing for months. A detailed specification sheet is now available for this truly amazing item and is available to those of you who call in or phone. Stocks will be limited but I am assured of a limited quantity from June onwards. The price? I'm told around the region of £440. A

deposit of only £50 will secure your 8000UK and payments in the region of £33 a month are given as a reasonably accurate estimate.

MRP £449.00

MVT 7100

The new AR800 has arrived but



sales of the MVT7100 will continue as strong as ever - especially as the price is slashed to only £389! All mode, no gaps and it's available from stock.

AR 1500EX

I remember when you had to wait almost six months to get your hands on this one - no more, they're in stock and excellent value.

VT125

The no nonsense, simple to use Air Band handie. It only retails at £189.00 and it comes complete. Give yourself a birthday present. Order one today and I'll pay the delivery charge. (U.K. only mind).

VT225

The same as its little brother, but this one's matured to enable you to listen to Military AIR Traffic as well as civil. Just a touch more green backs and I'm still throwing in FREE CARRIAGE and the very latest AIR BAND FREQUENCY GUIDE. Deposit your £269.00 with me today.

AR3000A

Still the best selling base scanner/receiver and at a price that's unbeatable. If you want ZERO FINANCE, we can arrange that too!



DRAKE SW8

Available since the London show, the new Drake SW8 is an ideal base/transportable receiver for the nineties. Featuring coverage from 500kHz to 30 MHz and built-in AIR BAND, this is a world first in communication receivers. For good measure you even get 88-108 (FM broadcast band) and a built-in telescopic antenna. All for £599? Have they got the price wrong? Buy one before the price goes up!!

AOR3030

At last! I've got stock. With a distinctive AOR 'style', the new 3030 stands out amongst the crowd. Not because

of its li
maxim

FRG1

Countin
receivers
this one
high up
Now fitte
AM filters
selectivity,
from as litt

DRAKE F

The only rec
standard. CC
NRD535 and
discount the
price of unde.

★ All filters fitt
detector for AF
10Hz readout
★ much more!

Accessories

The "Eavesdropper" From The USA. The ultimate in SHORT WAVE LISTENER ANTENNAS

Direct from the USA, the EAVESDROPPER is a fully developed multi-band receiving antenna for the dedicated listener. Including 100ft of 72 ohm transmission line*50ft of 450-pound test nylon support rope*Automatic bandswitching by trap circuits*All connections soldered & enclosed in ultrasonically sealed, weather resistant trap covers*Heavy 14SWG hard drawn stranded wire*Zap Trapper Lightning Arrestor*Only 42ft long*Full 12 month warranty & built like no other wire antenna you've ever seen!

£39.95

The U.K. SCANNING DIRECTORY

Compiled by Interproducts and now in its 3rd edition, this is the definitive "bible" for the intrepid scanner enthusiast. Thousands of frequencies listed between 25 to 1213MHz. order one today, before its taken off sale again!

£16.95

Noise Reduction Filters

Not just one make, but the lot, on demo in one shop. No biased opinions - you choose for yourself. They ain't cheap, but technology never is. Yes they do work and after playing with all of them side by side, we all agree if you're using a receiver without one, then your brain is getting unnecessarily fried for no reason. Reduce the listener's noise fatigue instantly! Fit a DSP!!

W9GR DSP Multimode Filter.....£299.00

TimeWave DSP-9 Noise Filter.....£169.00

TimeWave DSP-59 320 filter variations.....£299.00

JPS NTR-1 Wide band noise & tone remover.....£199.00

JPS NFR-7 As above with selectable centre frequency.....£279.00

JPS NIR-10 As above with notch filter, removing multiple hets.....£399.00

Antennas and Accessories

MyDEL TPA Tuneable PreAmp Antenna

Housed in one neat unit, the MyDEL TPA is the latest innovation from the USA. Ever wished you could increase the input signal just a little bit when the going gets tough? MyDEL thought so, and for the first time, the TPA offers an effective ATU for short random wires together with a pre-amp, and as an alternative a telescopic whip for the occasional indoor short wave listening. Powered by one 9V PP3 type battery, it could be the answer to your tuner problems! Ideal for listeners who only have limited space for antenna systems.

£69.95 incl. VAT. (9V battery not supplied)

MyDEL ATU-1

A more conventional approach to resonating that length of wire or centre fed dipole for an antenna system is the NEW MyDEL ATU-1. Built in the U.K. to our own specification, the ATU-1 is housed in a strong metal case and employs two good quality tuning capacitors with a tapped coil in the standard "Pi" configuration. Almost identical to a similar Japanese model costing nearly 40% more, isn't it time you bought British?

£59.95 incl. VAT and patch lead to your radio.

The new MyDEL SCAN-2513 Wide band scanner antenna

Ideal as a direct replacement to the telescopic antenna offered with the Yupiteru models, the NEW MyDEL SCAN-2513 flexi antenna covers 25 - 1300MHz. It's a far more convenient than the standard unit and a lot safer! Will suit any hand-held scanner.

£19.95 incl. VAT, plus £2.00 p&p.

As you are reading this, I'm sunning myself on a beach somewhere on my honeymoon - I've married my favourite employee. Not Chris (or any of the other blokes for that matter!), but Jenny Sutton, now Jenny Lynch. More new business cards, more expense. It's the first break I've had for years and I think if I didn't take one with my darling wife I really would get 'Lynched' this time!

In the meantime, I've instructed my right hand man, Chris Taylor, to sell off as much stock during my absence as he possibly can. If you're buying or enquiring, call him now. Quote "What about the Lynchy Honeymoon Special Price", and he'll blow you away with deals during the end of July and August that would even make me gasp for breath. Except, I won't be there to argue. Go on, give yourself a treat, you deserve it.

Ring the Honeymoon Hotline...Now!! 081-566 1120!

Mr. & Mrs.

MARTIN LYNCH
G4HKS

THE AMATEUR RADIO EXCHANGE CENTRE

140-142 NORTHFIELD AVENUE

In Wedding Reception

on Hotline...NOW!!

oks, but the 'feel' and performance. The um selling price is £699. Phone for yours.

00

g sales of last month, scored very on the list. d with better giving extra Deposits e as £50.



KENWOOD R5000

Built like a rock but looks and feels decidedly more beautiful.

The R5000 is offered this month with an easy payment plan that I think you will find attractive. If we get your order by the end of July, claim your additional £25 worth of MARTIN LYNCH GIFT VOUCHERS - FREE!!

Deposit only £99 with 12 payments of £75 (total£999), INTEREST FREE FINANCE.



literally hundreds of pieces and say "they're British". If you used to use an R1155, AR88D (o LF), HRO or B40 many years ago and always wanted to get back into listening, then wait no longer. The HF150 is not covered in knobs and hasn't got thousands of memories but it will take you into the world of listening at a very acceptable price. £389. That's all.

LOWE HF225

Now in its third year, the HF225 is a milestone to which others are compared. It can take an optional FM board, (the HF150 cannot), covers 30kHz to 30MHz and has 30 memories. Available from stock. £479, also available on interest free finance.



8E

ever with all the major options fitted as compare the prices of accessories for the JRC you can see why suppliers have to receiver by £300. For a maximum selling - £1000, you get the following:

ed, 5/1, 8/2, 4/6kHz ★ Synchronous 4 fitted ★ Notch and Pass band fitted ★ Keypad operation ★ 100 memories

LOWE HF150

Since Lowe Production introduced their receiver range, I've been proud to sell



Lowe And Behold

Without a Lowe shop in London, I've agreed to stock as much of their excellent range as possible

- ModeMaster, Data decoder software.....£139
- Magnetic Balun£39.95
- WireMatch antenna system£89
- HF-150£389
- HF-225£479
- HF-225 Europa£699
- HF-235 Professional RX.....£1116
- PR-150 a must for the HF150.....£235

Plus the Watkins Johnson HF1000 receiver, all their DSP Audio Filters and lots more. Support your very best BRITISH RECEIVER MANUFACTURER, buy a LOWE RECEIVER or accessory from your favourite MARTIN LYNCH STORE today!

NEW RANGE OF SCANNERS FROM TRIDENT, THREE MODELS TO CHOOSE FROM. PHONE FOR DETAILS.

SUPPORTING THE FUTURE OF AMATEUR RADIO

LIVE '94

THE CONSUMER ELECTRONICS SHOW EARLS COURT • LONDON 20-25 SEPTEMBER 1994

Universal Range of Decoders

M-400

As featured in August Short Wave Magazine, the NEW UNIVERSAL M-400 decoder is a must for those who want a serious RTTY, SITOR, FEC, WEATHER FAX plus much more. CODE CONVERTOR at a sensible price. Available from stock. **£399.95 incl. VAT. PSU extra at £19.95.**



M-900

Similar in features to the M-400, the M-900 has a powerful FAX-to-SCREEN processor built in, enabling weather and other 'picture' transmissions to be viewed by a simple video monitor, before dumping to printer. **£529.95 incl. VAT. PSU extra at £19.95**



M-1200

Got a PC and want a powerful decoder using your own computer as part of the system? The UNIVERSAL M-1200 is a complete CODE CONVERTOR on a single card, ready to slot into an IBM compatible PC. Full colour on screen graphics are at your disposal. This one IS fully recommended - our Chief Engineer uses one! **£399.95 incl. VAT**



M-8000

The ultimate in all mode code converters. Mainly used by commercial organisations throughout the world, UNIVERSAL have managed to engineer the package at a price within reach of the true hobbyist. A true colour VGA output is given to enhance the incredible definition obtainable in all modes by this advanced piece of hardware. It's easier to use than you think - a few hours will soon bring decoded data to your own screen from around the world. Open your eyes to a new world just waiting for you to explore. Put your NRDS35 or R5000 or Drake R8E to real use today! **£1299.95 incl. VAT. A 10" VGA HIGH RES COLOUR MONITOR is available for only £179.95 incl. VAT**



NEW IMPROVED OPERATING FIRMWARE AND MORE MODES

New Super Low Finance Number: 0973 339339



£10 Carriage On All Large Items

Fax: 081-566 1207

WUE, EALING, LONDON W13 9SB

Preselectors were common place a few years ago - so does the launch of the Lowe PR-150 indicate a revival? Mike Richards takes a closer look.

In my early days as a short wave listener accessories like the old Codar preselector were recognised as very worth while add-ons. It's also worth noting that many of the better quality communications of that time had built-in preselectors. In recent years however, they have all but disappeared - so why? I rather suspect one of the main reasons is miniaturisation, as the multiple tuned circuits required to build a good preselector take up quite a lot of room.

Why a Preselector?

So what is a preselector and why should it be needed with today's sophisticated receivers? The name actually describes the function quite well as it pre-selects the wanted signal from the wide range offered by the antenna system. It is in fact a high quality tuneable r.f. filter designed to let a relatively narrow band of frequencies pass through. Back in the latter days of valved communications receivers most featured quite comprehensive r.f. tuning stages before the signal got anywhere near the first mixer. However, this is not the case with many modern synthesised receivers. With the better designs you will find banks of electronically switchable bandpass filters, but most just have a simple 30MHz roofing filter.

The problem with these relatively simple front ends is that they can allow strong out-of-band signals to get to the mixer stages. If this happens the result can be a number of spurious signals appearing that add to the general noise and



An uncluttered front panel reflects the ease of use of the Lowe pre-selector.

Lowe PR-150 Preselector

interference levels on the band. This effect can be particularly troublesome in the evening when the signals from continental broadcast stations are at their strongest. The problem tends to be at its worst with the cheaper receivers, particularly if you have a good external antenna. One of the most common, but crude, solutions is to reduce the signal level at the receiver by switching in an attenuator. Although quite effective, this also reduces the strength of the wanted signal so is not very helpful to the DXer! The real answer is to add some filtering to reduce the level of the unwanted out-of-band signals. This is exactly what a preselector is designed to do.

The Lowe Approach

So let's have a look at how Lowe Electronics have tackled the problem of producing a modern preselector. You will see from the photographs that the PR-150 has been styled to match the very popular HF-150 receiver.

Electronically the design is very sound with a passive dual-tank LC filter circuit for each of the seven bands used to provide the wide 100kHz to 30MHz coverage. The use of passive circuitry for a preselector is absolutely essential to avoid generation of additional spurious signals within the preselector itself. This filtering technique produces good r.f. selectivity with the a -6dB

bandwidth of 5% of the tuned frequency. The -30dB point occurred at a healthy $\pm 25\%$ of the bandwidth.

In practical terms this meant that if you were listening to a DX signal at around 14MHz the potential interference from the powerful 7MHz broadcast bands would be reduced by at least 50dB. This is far more than you could practically achieve using simple attenuation or antenna tuning units. Although early versions of the PR-150 were criticised for poor intermodulation performance, this has been resolved following a number of important changes. The main tuning is now handled by a mechanical, twin-gang,

variable capacitor and all high impedance switching is by relay contacts. From an intermodulation point of view this is far superior to the Varicap system previously used.

For handling severe overload problems, the PR-150 includes a switchable 16dB resistive attenuator positioned ahead of the tuned circuits. There is also a modest switchable 10dB pre-amplifier that follows the tuned circuits. This is available to compensate for the 6-10dB loss incurred by the preselector. It's perhaps worth noting that there is no point in adding high gain preamplifiers to a preselector as most h.f. receivers have more than enough gain.

Just to complete the picture the PR-150 included a low capacitance matching transformer for 300Ω receiving antennas inputs.

Setting-up

Connecting the PR-150 was very simple, as you would expect. This is particularly true if you're also using an HF-150 receiver. The PR-150 is supplied with a short PL-259 patch lead to connect between the receiver and preselector. The power arrangements were also very neat with a pair of parallel power sockets on the rear panel that could be used with the supplies lead to daisy chain the PR-150 with the receiver's main supply. This was a great idea that saved having to buy yet another plug-top power supply.

The PR-150 featured two switchable antenna inputs with wire and coaxial sockets for the 50Ω input and just wire sockets for the 300Ω input. The output from the PR-150 is via a standard SO239



Versatile antenna connectors and power out socket make this an extremely good mate for the Lowe Electronics HF-150 communications receiver.

Specifications

Frequency Coverage	100kHz-30MHz in seven bands
	1 100-220kHz
	2 220-500kHz
	3 500kHz-1.2MHz
	4 1.2-2.6MHz
	5 2.6-5.9MHz
	6 5.9-13MHz
	7 13-30MHz
Antenna Input A	50Ω unbalanced SO239 or wire
Antenna Input B	600Ω balanced wire
Receiver Output	50Ω SO239
Power Input	2.1mm coaxial socket
Power Requirement	11-15V d.c. at 50mA
Bandwidth	-6dB ±5% of tuned frequency -50dB±25% of tuned frequency
Insertion Loss	5 to 10dB
Attenuator	-16dB
Pre-amplifier	+10dB
Dimensions	185 (w) x 80 (h) x 175mm (d)
Weight	1.1kg

socket mounted on the rear.

On Air Performance

Using the PR-150 is simplicity itself and barely requires reference to the clearly written instruction manual. The front panel layout is very straightforward and features a large knob for the main tuning control. Switching between the seven bands is done using a pair of UP/DOWN buttons with the selected band indicated by a set of well sign-written l.e.d.s. All other features are selected using push-buttons on the front panel. The frequency coverage of each band has

been well thought out with a 10% overlap between ranges. This helps prevent frequent band changes when operating towards the edge of a band.

To use the PR-150 you first set it to WIDEBAND mode and tune-in the required signal. By doing this you effectively by-pass the internal filtering.

Once the wanted signal is properly tuned-in you can then select the appropriate band using the UP and DOWN buttons and rotate the main tuning knob for best signals strength.

If your receiver has an S-meter it's best to use this to find to optimum tuning point. If you don't have an S-meter, you will have to

tune by ear for best signal strength. The trick here is to move the tuning knob quickly, or the receiver's a.g.c. will mask the rising signal strength. In practice this worked well, particularly when dealing with weaker signals.

Scanners

Achieving improvements in received signal quality are rather difficult to quantify and is dependant on a number of factors. The better the antenna you use, the more likely you are to gain from using a preselector. It is also a fact that cheaper receivers will benefit far more than top of the range models. One growing receiver type that cries out for a preselector is the v.h.f./u.h.f. scanners that have had their coverage extended to include the h.f. bands. Many of these receivers have wide open front ends and have great difficulty handling the strong signals that occur when they are fed with effective external antenna systems.

Summary

The PR-150 is a well engineered product that can produce a worthwhile performance improvement from many receiver systems. It's good to see that Lowe have continued the common sense line and resisted the temptation to add novelties like excess r.f. gain. The improvements in this latest variant are well worth the wait.

The PR-150 preselector costs **£235.00** and is available from **Lowe Electronics Ltd, Chesterfield Road, Matlock, Derbyshire DE4 5LE**. My thanks to Lowe Electronics for the loan of the review model.

Amateur Bands Round-up

Listening to the Amateurs

Since writing the last piece, I have had a brief holiday in El-land, where GW3RJY and I met EI9HO in Killarney, for a wonderful evening of El hospitality, and I followed this with a weekend at the NFD entry of GW3JSV/P, Offas Dyke Contest group.

We had dipoles for 28, 7/21, 14, 3.5MHz and Top Band, initially using an Icom 735 plus Datong FL-1, and then after equipment problems surfaced, with my trusty old Kenwood TS-440s that had a c.w. filter fitted. At the back-end, the audio output was fed into a GW3RJY special mackerel-fillet tin, from which three parallel headphone outputs emerged, enabling operator, logger and dupe-sheet keeper all to hear the output of the rig and, of course, the outgoing c.w. sidetone.

Now, while many listeners use a loudspeaker, there are several reasons why we chose to stay with headphones. First, headphones isolate one from the external noises such as the chat from off-watch ops outside the caravan. Secondly, partly because of that, there is no doubt at all that signals perfectly copiable in the 'cans' disappear beyond recall when the 'speaker' is used. A third reason, though it did not apply to our group is that if a suitable network is used with stereo headphones it is possible to separate out the received audio such that the sidetone frequency appears equally in both ears, lower frequencies predominantly in one ear, and the higher ones in the other. This makes separating two signals easier. Fourthly, if you happen to have an ancient pair of high-impedance phones, you will find in them a noticeable 'peak' at one frequency that can be made to yield a mite more selectivity yet!

The moral is obvious: look around your station carefully, and be sure you use the 'free offers' sitting around unused before you speculate money! Our dipoles made matching simple, and we got the best we could from the gear we had to hand. If we don't win, we will know that it was because we ourselves weren't quite up to the standard of other NFD stations.

Letters

A first letter from **Frank Lennon** in Hyde, Cheshire. Frank notes apropos the discussion on batteries in a recent column that he uses the power pack for his Black & Decker cordless professional drill; he had to find the positive and negative on the battery-pack, and then make up a suitable lead with a 500mA fuse in the line.

These batteries have a two-hour recharge time, so, as Frank has a couple, he can use one for his receiver while the other is recharging. In summer this is handy for visits to the local hill-tops near home. On the receive side, Frank sticks to sideband, and on Top Band noted German DK3VE and 4L1AA for the Republic of Georgia. 7MHz yielded GS4BJC/P on the Isle of Lewis, while on 14MHz I notice TF3KM, VK3MO, KC1VM, WA0QBC, VU2DK, 4Z4DG and JW0C. On 18MHz TK/DL0HZ and AB4VO in the American Georgia were booked in while 21MHz showed with 6W6JX, UK8BWO and SV5TS (Rhodes).

Another first letter comes from **Bob Bertram** who lives in Galashiels, Selkirkshire, and has an FR-101 receiver. This is an oldie, but was a cracker in its day, and is capable of giving a good account of itself given half a chance. For Bob, it stumped up in the first couple of hours with WB3KPK in Pittsburgh, S92SS in Sao Tome, V85GA in Brunei, and of course the usual crop of Europeans. The bug has bitten, and Bob now looks forward to getting his own 'ticket.'

From Lindfield, another first letter, even though **Tony Capon** has been a short wave listener on our bands for thirty-five years. Tony says he has never joined RSGB because 'he is not sure they really welcome s.w.l.s'. Of course they do, Tony; while RSGB isn't perfect - nothing man-made ever is! - it is the only bastion we have against the complete loss of our bands. Every one who reaches RSGB's Council, remember, will have started out as an s.w.l. and the Society is very aware of the need to keep the new blood flowing in.

Turning to Tony's listings we find that his Eddystone 730/4 and two Trio 9R59DS receivers are now normally laid aside in favour of the IC-R70, fed from a Datong ADR370 active antenna installed in the loft. A transient 28MHz opening at lunch-time on April 29 produced Z23JA. 14MHz showed AH2C, ZB2JO, LU3UF, WA4JTK, VO1MP, ZL1AV, 9H4O, 9Y4SF A61AN OD5JY VE2TBK, 7X2BK, C21BS/M, HG5MM for a special-event job in Budapest, ZB2IB, KP2C and YV5ENI. On 7MHz Tony had an assortment of Europeans, some on c.w. Clearly the favourite is 21MHz, where sideband speech was logged from YC2EWZ, RW6HFD, 5B4MT, ZB2GR, SV5/PA3GIO/M, CT6ARU, a net comprising CX5AAF, FS5PL, PT7AT, PT7BI, CT1ESW, PY3AJ, VP8CPC (South Orkney), PY7ZL, LU3FYV and another group comprising RA3QUY, PP2AU, LU3AQ, 4M5BX, LU8MP, SP4EEZ, ZP6CC, LY2ER & T91AAW.

On another day the same band gave 4Z4UR, K3OO, K2SIJ, 4X4BE, JA9IFF and 9Y4IBN. That leaves 18MHz where EA8ZO, 7X2DG, JA1JRK, JH0IXE, EA8/DJ3OS, JA7BWT, JN3OBF, JA0DAI, PJ8AO and W3FX got into the book. Incidentally, Tony logs some of the c.w. and RTTY stuff, though he doesn't say what he uses.

Yet another newcomer is **Ken Cathcart** in Walsall, who has a Sony ICF PRO-80 bought last October. Ken mentions three amateur signals he copied, as 9Y4SF, YV4AZF and VP2VF; all were heard between 2000 and midnight on the 14MHz band.

Where all the Brits? asks **Geoff Crowley** up in Aberdeen. Mostly QRT due to TV, I guess! Geoff is still using the same tackle he had in Iceland, but now has a half-sized G5RV antenna up. Geoff says he managed eleven of the Marconi Day stations, and at the time of his letter was listening to Spanish stations monopolising an opening on 21MHz to South America: as he says, it's hard to listen in Spanish and write letters in English at the same time! 14MHz came up with ZD9BV, VR2IH, PZ1EL, 5Z4MM, EW2WP near Minsk, JA4UK, EG1TU, ER1CW, A61AN, VL1MP and Y11MH. 7MHz produced the usual Europeans, and 9V1XQ was noted one evening on 3.789kHz. On 18MHz 4L4TZ and EK7ZH were spotted, and 21MHz gave VU2RBI/RG giving QTH as New Delhi, A71AC, UN7BD, EK4JJ, HB9ARE and VU2RBI/RG again. On a different tack, Geoff has lashed out on a Yaesu FRG-100 and is pleased with the results.

Now we turn to **Gerald Bramwell**, in Swinton, Manchester. Gerald is now splitting his time fifty-fifty between the computer and the radio, but, as he says, the computer has made logging much easier as well. G3OAG on c.w. was noted on Top band, while on Eighty, he notes EA8/DK3PO, J79W, 9V1XQ, EX0M, RA9CMO, CX3AN, TA4A, 7X5DJ, TL8ND, EA8AFJ, JY8IC, LU5FCI, PP5WK, EA9PB, LU2JCW, PY3JZ and VK3DZM all with lower sideband. 7MHz s.s.b. signals came in from ZS6BIB, 5B4ACZ, EA9PB, EA8BYL, EZ5AA, VK7IK, 3X0YU, C91AI, CE8NKR, ZS6YA, UN7A and RK9WH. On 14MHz RTTY came in from AA1BV, K4HSF, TU4EI, 7X2DS, UX0KA, VE2KKP, PY7MG and W3GG, plus c.w. from KT2I, K9FW, KU8H, K4UFF and UX0HA.

As for the sideband here, suffice it to say that among Gerald's dozens of loggings we see all the continents and plenty from each. Over to 18MHz where the c.w. from W2BR and YV6AM were copied, plus sideband

from N0AKD, 6W1/DK3SQ, UX0UN, TL8LD, EA8AMT, EG8ITU, ZS6PXZ, Z21CS, ZP6DN, EA8BYL, D44BS, 7X2JF, K3DV, UA0AP, K4FDP, W3FX, K2LQ, W2NFP, N3ADL, N9DEO, JA1JRK, JR1MAF, JA3REK, JM1PJO/2, W8AH, JH8BOE, JA8EAT, W4MYA, JH4EZI, W8PIT, K4KOD, W9LKJ, KD3UI, PY0TUP, 9K2WA, PJ8AD and YV5CMI. All sideband on 21MHz, where the score included LUs, PYs, CEs, ZS6JCV, J37ZY, ZS1FF/MM, TL8NG, 5B4AAG, JAs, 9K2MU, TR8KW, 4Z4UR, S92YL, 9J2ZS, ZS6AMX, 7Q7JL, CX4AGH, PP7GAG, 7Q7RM, RV9AZ, PP7/EA4EP, 4X4CN, PZ1EL, various Ws, T2MS, 4Z4SZ, 5Z4PL, ZD7WIG, YC00JT, 8P6QM, V51C, 3X0YU and many many more. On 24MHz Gerald managed EG8ITU and 5Z4RM, while even on 28MHz he managed to catch a fleeting 4Z4LX.

D. L. McLean writes from Yeovil and notes that the band conditions have been pretty abysmal. On 14MHz the pick of the crop were DL8YR/ST2, FS5PL, J28GG, KH2/VP9BP, P29WK, S1STAR, V85S and 5H3DC. On 18MHz Don mentions AP2JZB, BV3BW, D44BS, FS/W1FC, TJ1AD, and Z21CS. Turning up to 21MHz, he logged ET3SID, JU55UAB, PY0ZFB, S79CK/D (Desroches), ZD7WRG and 3X0YU. Up again to 24MHz for EZ5AA, S21ZG and Z21CS; but on 28MHz - Nix!

On again to **John Heys**, near Hastings; John reckons that while conditions have been pretty poor, too many operators and listeners take a spin over the bands, and decide they are in a useless state, when in fact a bit of a probe deep into the murk will turn up something of interest. He cites JT1BH on 7MHz, and changed to sideband for 21MHz to book in AP2JZB, noted twice, BV7GA, XX9GD, 9K2IC, DU1JUX, 9V1ZR, 9V1YJ, ZD7GWM, 7Q7RM, YC5JEN, S21ZG, DU4JU, DU1JUX, YC0YBS/9, PY0ZFB believed to be on Fernando do Noronha, FH5CB, FH5ET, plus ZS94F for a 'special'. 14MHz sideband coped with XX9AS, JR5JJAQ, OD5JY, VK6UE, VK6WC and 9V1ZR. Finally on 18MHz, the c.w. from 4K2BY was copied. For a change, John found both the 'Channel Tunnel' stations soon after they started - the GB0CT on 7MHz sideband, and the TM5TSM.....on two-metre f.m.!!

Wrap-up

So, there you have it for another issue. Letters and comments grave or light-hearted, to reach me as usual by the beginning of the month, addressed to me at Box 4, Newtown, SY16 1ZZ.

Aerial Techniques

11 Kent Road, Parkstone, Poole Dorset BH12 2EH

Tel: 0202 733232 Fax: 0202 716951

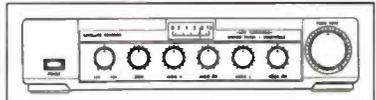


Specialist Televisions

We can offer a range of television sets that are ideally suited to the DX TV enthusiast and we have something for every pocket.

WE SPECIALISE IN TVDXING, SATELLITE DXING, THE SUPPLY OF ALL TERRESTRIAL AND SATELLITE EQUIPMENT, MULTI-STANDARD TVS AND VIDEO RECORDERS.

RR-50 Manually Tuned Satellite Receiver



This fully manually controlled satellite receiver is ideal for the enthusiast as it has a fully variable I.F. control (12-26MHz) plus a secondary audio I.F. bandwidth control, eight front panel user controls, a signal level meter, video and audio output options, 14/18V LNB options, C/Ku switching, two standard 5.5/6MHz system B/G/I modulator and two individual audio subcamer viewer, just call or write for full specifications and details on the various options.
For the ultimate in versatility this is hard to beat at just £199 (+ £9 carriage).

Complete Systems

If you are looking for a complete enthusiasts motorised satellite system, just look at this for value:-

- A 90cm or 1.2m spun aluminium prime focus dish
- A polar mount
- A galvanised heavy duty ground stand
- A wideband feedhorn
- A wideband electromagnetic low pass Racal polariser
- A 0.7dB (very low noise) LNB covering 10.95-11.7GHz
- A 12" Superjack actuator arm
- A BEC-1600 RR-50 manually tuned stereo satellite receiver complete with variable bandwidth filter
- An Alba indoor manual satellite positioned

All this for just £499 (with 90cm dish) or £599 (with 1.2m dish).

7" Mono

This 7" portable (12V or mains) monochrome multi-standard V.H.F./U.H.F. TV is perfect for use in the UK, France & Europe. It has 5.5/6MHz automatic sound switching plus 6.5MHz A.M. sound together with positive/negative video

switching. Both V.H.F. and U.H.F. have continuous varicap tuning with good sensitivity and sharp selectivity and there's a 75Ω aerial input as well as the supplied whip antenna.
All this for just £133 (+ £6.50 carriage).

23cm (9") Colour

This 23cm (9") colour set has a black matrix picture tube and is perfect for multi-system reception. With coverage of 9 TV standards and 12V d.c. or 240V a.c. operation, it can be used world-wide. It covers the V.H.F. bands (Bands 1, 2 & 3), U.H.F. (inc. in-between cable channels), PAL System 1 (UK), PAL System B/G (Europe), PAL System D (China), SECAM L (France), SECAM D/K (Easton Bloc), SECAM B/G (E. Germany) as well as NTSC System M, NTSC 4.43/5.5MHz.

It also has the usual features you would expect from a quality colour television such as:-

- High Tech tuning with a p.i.l. frequency synthesiser - direct channel input or automatic tuning
- On screen display with programme indent, levels of volume, colour, contrast and brightness
- On screen menu guide (10 languages)
- Sleep timer with direct menu input via remote control

- Digital lock
- Automatic standby switchover - at the end of a transmission the set will automatically switch to standby
- 2 watts music power
- Optional Teletext (Fastext) board
- Infra-red remote control
- Multi-voltage capability: 190-264V a.c., (50/60MHz) or 10-30V d.c.

The superb DXTV is incredible value at £329 (+ £9 carriage).



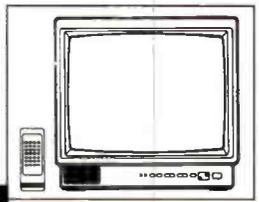
21" Colour

This 21" multi-standard colour television offers:

- 5 Systems - PAL B/G, PAL D/K, PAL 1, SECAM B/G, SECAM D/K & NTSC 3.58/4.43
- Personal Preference memories (volume, colour, brightness, contrast & hue)
- Infra-red remote control
- 90 pre-set channels
- On screen display of volume, brightness, contrast, hue & channel

- EURO-AV (SCART) Socket
- Pre-settable power off function (15-10 minutes)
- Auto power off 10 mins after broadcast signal is received
- Full v.h.f./u.h.f. coverage
- Cable tuner
- Single or dual digital controls

A very versatile television for just £269 (+ £9 carriage).



Send for our 34 Page Catalogue at £1

Great Radio Books

Satellite Times

The FIRST full-spectrum monitoring magazine for space!

Are you looking for the best news, information and ideas you can get dealing with satellites? If so, you will not want to be without *Satellite Times*. This new bi-monthly magazine will cover every phase of satellite communications, including commercial military, broadcasting, amateur, scientific, government, personal communications and even private satellite systems on a worldwide basis. Each issue will have the latest news from NASA, satellite launch announcements, technical information, product announcements and equipment reviews.
Price: single issue £3.75 UK or £4 overseas. Subscriptions 1 year (6 issues) £18 UK or £21.50 Europe (airmail) and sea mail to other countries. Ask for other airmail rates.

Monitoring Times

Plug into your authoritative source.

The leading full-spectrum radio hobby magazine has now expanded to bring you even more frequencies and information from longwave to microwave. Shortwave listeners will discover more than 25 pages devoted to broadcasting schedules, international newscasts and propagation charts. Utility listeners are especially catered for with columns dedicated to military, maritime, aeronautical, RTTY, etc. plus large frequency lists. For reviews, features, listening tips and much more, *Monitoring Times* is the one listening tool you can't afford to be without.
Price: single issue £3.75 UK or £4 overseas. Subscriptions 1 year £33.50 UK or £39 Europe (airmail) and sea mail to other countries. Ask for other airmail rates outside Europe.

The UK Scanning Directory

3rd Edition - Lists Over 12,000 Spot Frequencies
Here is the book every scanner owner has been waiting for! Listing over 12,000 spot frequencies 25MHz - 1.215 GHz, remains the biggest and best guide, and covers utilities, security, telephones, military and lots more we dare not mention!
Price £16.95 inc UK Post. Overseas post add £2 Europe & sea, or £5 airmail.

- | | |
|---|--|
| Intercepting Numbers Stations.....£9.95 | International Callsign Handbook.....£18.50 |
| Monitoring Yugoslav Conflict.....£4.95 | Computerized Radio Monitoring.....£19.50 |
| Grove Shortwave Directory.....£18.75 | Prices incl. UK post. Overseas post extra |

Ask for FREE Catalogue of all books Allow 10 days for delivery

INTERPRODUCTS (S84)
8 Abbot Street, Perth, PH2 0EB, Scotland.
Tel. & Fax 0738-441199

RADIO AMATEURS EXAM? PASS FIRST TIME!

Before you enrol check the benefits of RRC'S unique Home Tuition Service

RRC has helped thousands of students to success in their examinations with this unique system of postal tuition, one which guides you, step-by-step, to qualify in the shortest possible time. Only The Rapid Results College offers you all these advantages:

- | | |
|--|---|
| <input checked="" type="checkbox"/> A qualified personal tutor | <input checked="" type="checkbox"/> Free advice before you enrol |
| <input checked="" type="checkbox"/> Study material prepared by specialists | <input checked="" type="checkbox"/> Telephone Helpline |
| <input checked="" type="checkbox"/> Completely self-contained courses | <input checked="" type="checkbox"/> Free 'How to Study' Guide |
| <input checked="" type="checkbox"/> Handy pocket-size booklets | <input checked="" type="checkbox"/> Instalment Plan |
| <input checked="" type="checkbox"/> Personal study programme | <input checked="" type="checkbox"/> Free Postage on course material |
| <input checked="" type="checkbox"/> Regular marked tests | <input checked="" type="checkbox"/> Worldwide Airmail Service |
| <input checked="" type="checkbox"/> Courses regularly updated | <input checked="" type="checkbox"/> Extra tuition free if you don't pass first time |
| <input checked="" type="checkbox"/> 48 hour despatch | |

POST COUPON TODAY FOR FREE RADIO AMATEURS PROSPECTUS
Please send me my prospectus as quickly as possible.

Mr/Mrs/Miss/Ms _____

Address _____

Postcode _____

The Rapid Results College
Dept. JV150, Tuition House, London SW19 4DS. FREE ADVICE: 081 947 7272 (9am-5pm)
PROSPECTUS: 081 946 1102 (24 hour Recordcall Service quoting Dept. No. above).

ACCREDITED BY
COUNCIL FOR THE ACCREDITATION
OF COLLEGE PROVIDERS (CACC)

DXTV Round-up

After many years this is the last of my DXTV columns in its present form. I have enjoyed writing it and receiving your letters, however, technology has marched on and the time has come for a change in style.

Sadly, I have to end a very happy series with the knowledge that one of my regular contributors, **Simon Hamer** (New Radnor), died toward the end of May. He will be remembered for his detailed knowledge of the television bands and of the multitude of stations that used them. His book *DXTV For Beginners* shows just how dedicated he was to the subject and his wish to help others enjoy it like he did. I will certainly miss his monthly reports and often witty comments. Simon can be seen outside the Vintage Wireless building at the Amberley Museum back in 1985 with David Rudram on the right and myself on the left in **Fig. 1**. May I extend our deepest sympathy to Simon's family and to his many friends at their sad loss.

A Wider Field

Next month I am starting a new column called 'Reflections' with a wider range of subjects to meet the requests of today's readers. Where applicable I plan to include such subjects as astronomy, computers, propagation reports, DX, slow-scan and vintage television and the weather. While thanking all of you who have written to me in the past may I add that I look forward to hearing from you again in the future.

Band I DXing

Sporadic-E disturbances were observed by **Lt. Col. Rana Roy** (Meerut, India) early on April 3 and 29 and around 1700 on May 9, 0845 on the 10th, 1300 on the 12th,

Fig. 4.

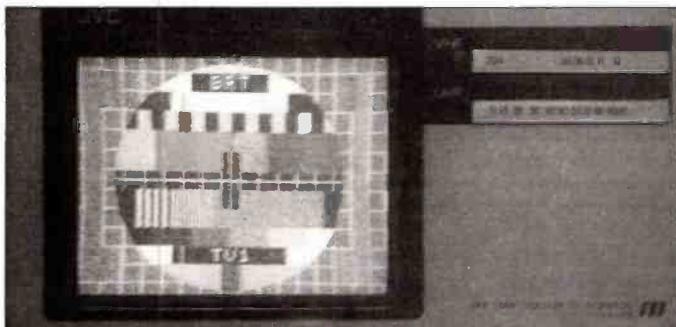


Fig. 1.



0730 on the 14th, 1430 on the 17th, 0930 on the 18th and 0727 on the 19th. During these events he received colour pictures from Dubai TV, **Fig. 2**, on Ch. E2 (48.25MHz) and a variety of programmes from the Commonwealth Of Independent States on Ch. R1 (49.75MHz). At times the signals from the CIS (formerly USSR) and Dubai TV were fighting for predominance on the screen. Typical Sporadic-E Rana.

Around 1330 on May 22, **Richard Gosnell** (Swindon), using a Grundig multi-standard receiver, saw a film, with good sound, from Spain on Ch. E3 (55.25MHz). "The Spanish event faded gradually around 1430 but another started up from Italy," said Richard, who then received pictures from Italy on Ch. Ia (53.75MHz) and, on Ch. E3 he saw the logo 'SLO 1' at the top right hand corner of a clear picture. Richard said that the language seemed East European and thinks it may have come from the newly-born country Slovakia.

"At last I have something to report for the 1994 season," wrote **John Woodcock** (Basingstoke)

on May 26. He received pictures from Italy, Spain and Sweden from 0845 to 1415 on the 17th. During the afternoon of the 22nd he logged Austria (ORF1) on Ch. R1A (49.75MHz), Germany (ARD) on Ch. E4 (62.25MHz), Italy and a football match from Russia on Ch. R2 (59.25MHz). John told me that conditions on the 22nd were erratic but very strong on peaks and, like Richard, he also saw the 'SLO 1' logo.

Satellite TV

At 1600 on December 21st, 1992, **Peter de Jong** (Leiden, Holland) received strong signals from Vatican TV, **Fig. 3**, via Eutelsat II, F4.

Weather

I recorded 3.60in of rain during May compared with 1.91in for the same period in 1993. There were falls of 0.20in, 0.23in and 0.27in on the 7th, 14th and 21st respectively. Heavy falls of 0.95in were logged on the 17th and 26th and small amounts on days 4, 5, 8, 12, 15, 18, 22 and 24.

"During May, Scotland seemed to have got the best deal weather-wise, with only two days of rain in the Clyde Valley", wrote **Arthur Grainger** (Carstairs Junction) at the end of the month. His lowest barometer reading was 30.1in on the 5th and a real high of 30.6in on the 8th.

The daily variations in atmospheric pressure for the period April 26 to May 25 were taken at noon and midnight from the recording chart on my own barograph and will be found on a

Fig. 2.



Fig. 3.



Fig. 5.



Fig. 6.

graph elsewhere in this issue.

"The weather conditions have certainly changed," wrote Rana Roy on May 25. He told me that "it should be hot and dry, instead we are having hot and humid conditions. We usually have this kind of weather after June 15 when the monsoons start coming in".

Tropospheric

"Have spent the last seven days on the Isle Of Man," wrote **George Garden** (Edinburgh) on May 12. While there he tried his JVC 610 TV at Spanish Head at the Southern end of the Island. He logged pictures in Band III from Ireland's RTE 1 & 2 on Chs. 6 and 9 and watched BBC, HTV and S4C from Wales and Ulster TV, in the u.h.f. bands.

Back home in Edinburgh,

MAIL ORDER SPECIALIST - UK OR ABROAD



SATELLITE & SOUND 2000 LTD.

UNIT 1, 86 CAMBRIDGE STREET, ST. NEOTS, CAMBS PE19 1PJ

Tel. 0480-471001 Fax. 0480-470771

Same day despatch on all items in stock

SCANNERS

AOR AR8000UK	£439.00
AOR AR3000A	£845.00
AOR AR3030	£695.00
AOR AR2800	£395.00
AOR AR2000	£275.00
AOR AR1500	£312.00
YUPITERU MVT7100	£345.00
YUPITERU MVT7000	£269.00
YUPITERU MVT8000	£369.00
YUPITERU MVT225	£249.00
YUPITERU MVT125	£185.00
YUPITERU MVT3100	£199.00
TRIDENT TR2400	£369.00
TRIDENT TR1200	£299.00
TRIDENT TR980	£249.00
BEARCAT 220XLT	£198.00
BEARCAT 65ALT	£99.95
BEARCAT 890XLT	£299.00
BEARCAT 2250XLT	£299.00

RECEIVERS

DRAKE R8E	£995.00
SPEAKER FOR ABOVE	£49.95
PC DRIVE SOFTWARE	£59.95
WORKSHOP MANUAL	£29.95
VHF CONVERTOR	£225.00
DRAKE SW8	£599.00
YAESU FRG100	£499.00
LOWE HF225	£479.00
LOWE HF150	£389.00
LOWE PR150	£199.95

ACCESSORIES

TIMEWAVE DSP9	£189.00
TIMEWAVE DSP9+	£239.00

AERIALS

SCANMASTER BASE	£39.00
SCANMASTER DISC	£49.95
SCANMASTER DBL	£59.00
SCANMASTER MOBILE	£29.00

SATELLITE

ICS MET2A Weather Sat (one only)	£775.00
ICS MET2B Weather Sat	£975.00
D2MAC decoder with f.net card	£210.00
D2MAC cards available from	£40.00
PACE MSS500 receiver	£210.00
PACE MSS1000 receiver	£299.00
NOKIA Sat 1700 II receiver	£180.00
NOKIA 5152 Positioner	£127.00
60cm dish C/W .7 enhanced LNB	£41.00
EHOSTAR SR8700 RX/POS from	£575.00
EHOSTAR SR7700 RX/POS	£399.00
60cm Mesh dish C/W .7EXT LNB	£41.00
85cm Dish C/W .7EXT LNB	£59.00
1 Metre dish C/W .7 EXT LNB	£89.00
1.2 Metre dish C/W Polarmount	£160.00
SHARP .7 extended LNB	£35.00
SWEDISH microwave triple .9LNB	£125.00
Twin Output LNB	£48.00
H-H Mount (up to 1 mtr)	£77.00

ALL ITEMS ADVERTISED ARE BRAND NEW AND INCLUDE VAT. WE ARE THE U.K.'S LARGEST SATELLITE RETAILER OFFERING 24-HOUR DELIVERY ON ALL ITEMS LISTED. THE ABOVE LIST IS ONLY A SMALL SELECTION TAKEN FROM OUR EXTENSIVE RANGE. E&OE

CD RECORDING OF MODULATION TYPES

71 emissions • 2½ hours • £ 43 or DM 100



This unequalled product is based on 25 years of experience in the radio monitoring and publishing field. Two standard audio compact discs include 71 different recordings with superior digital quality. These CDs allow rapid access to the typical sound of all conventional and exotic radio communication systems found nowadays on HF. Connect your audio CD player to state-of-the-art decoding hard- and software and practice tuning these professional teleprinter and radio paging systems for easy analysis and display. Synchronization is perfect as a result of digital recording techniques that prevent any play-back speed deviations. Registered airmail within Europe included! Major credit cards accepted - please fax or mail your order to ☺

Klingenfuss Publications
Hagenloher Str. 14
D-72070 Tuebingen
Germany

Phone 01049 7071 62830
Fax 01049 7071 600849



SOLE U.K. IMPORTER FOR VARGARDA
HIGH PERFORMANCE - HIGH QUALITY

VHF/UHF ANTENNAE

AVAILABLE NOW AT THESE RADIO OUTLETS:

MARTIN LYNCH	LOWE ELECTRONICS
BREDHURST ELECTRONICS	SKYWAVE
ALAN FOULIS	JAYCEE ELECTRONICS
PHOTO ACOUSTICS	ICOM RADIO HAMSTORES

If your local dealer doesn't have stock - ask why.

Toroidal Transformers for 13.8V DC Power Supplies

9T845 16.1 VOLT AT 42 AMPS (PW MARCHWOOD PSU)
8C267 18 VOLT AT 27.8 AMPS (500VA)

Complete standard range of 107 types of ILP Toroidal
Transformers and the full range of ILP Audio Amplifier Products

UK DISTRIBUTORS FOR 

Write, phone or fax
for free Data Pack

Jaytee Electronic Services

Unit 171/172, John Wilson Business Park,
Whitstable, Kent CT5 3RB. U.K.

Telephone: (0227) 265333 Fax: (0227) 265331





Fig. 10.



Fig. 7.



Fig. 8.



Fig. 9.



Fig. 12.

George noted a good tropospheric opening on May 30 and 31.

"Conditions were at their best around 0045 on the 31st when pictures from Tyne-Tees at Bilsdale on Ch. 29 were received in strong colour," he said and remarked that, "the return of very mild warm weather, with a lot of hot air aloft probably provided the duct". George also received the Tyne-Tees signal on Ch. 61 from the transmitter at Pontop Pike. Although the signal faded for very short periods during *News At Ten* he was able to see their local news right through.

From his home in Meerut, Rana Roy, received strong colour pictures in Band III from Lahore on Ch. E5, Kasauli on E6, Barielly on E8, Jalandhar on E9, Pakistan TV on E10 and Bhatinda on E12 during tropospheric openings, between 0800 and 1000 on March 3, 9, 11, 13, 15, 17, 19, 21 and 25-29 and between 1800 and 2300 on the 18th.

TF1, F2 and F3 from Caen, on Chs. L22, 25 and 28 respectively, were among the French stations logged by **Tim Bucknall** (Congleton) while he was in East Jersey from May 29 to June 3. He also watched BBC1, BBC2 and CH.4 from Fremont Point on Chs. E51, E44 and E47.

There was co-channel interference on some u.h.f. stations while the high atmospheric pressure was slowly falling overnight on June 15/16 and 17/18.

JVC TV

One of our Manchester readers, **Paul Agbaku**, reading about George Garden using a JVC 610 receiver, asks, "where can I purchase one of these sets?". I also have a 610 Paul, **Fig. 4** and it works very well. However, as the model is now about 15 years old

the chances of getting a new one must be small. Briefly, the 610 is a colour portable with an approximate 110 x 75mm screen. It has two dials, upper right **Fig. 4**, one for the v.h.f. Bands I and III and the other for the u.h.f. bands. The main tuning knob is on the right of the dial and push buttons, along the top right, for on/off and band-change. A set like this, that can also be used as a colour monitor, is ideal for both DXing and/or domestic use. Mine has been used for many years as a monitor for my video recorder. I suggest that you ask a JVC stockist if there is a current version of this set, or have a word with David Martin at Aerial Techniques, 11 Kent Road, Parkstone, Poole, Dorset BH12 2EH, about the JVC CX60GB that appeared in his catalogue.

SSTV

Several months ago **Ian Macartney** (Co. Antrim) purchased a Lowe HF-150 in order to pursue his interest in receiving slow-scan television signals. "I am using an Amstrad ALT-386 portable computer along with the JVFAX 6.0 [program] and a home-built HAMCOMM interface. I was able to build the interface into the casing of the 9-pin D-connector. The display on the 386 computer is only monochrome so I use my 486SX to display the colour pictures," said Ian. So far he has received some impressive colour pictures, around 3.372 and 14.230MHz, from stations in Italy, **Fig. 5**, Portugal, **Fig. 6**, Spain, **Fig. 7** and Switzerland. I said 'impressive' because Ian kindly sent me a 3.5in floppy disc containing 16 of his SSTV pictures in the .GIF format that reproduced very well on my Packard-Bell 486SX computer using the DTP program

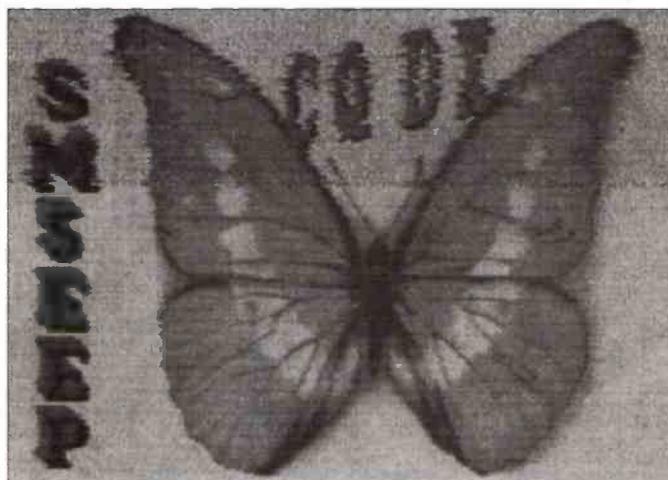
Pressworks. This package is published by GST Software plc. I originally used their Timeworks 3 publisher program before upgrading to Pressworks.

Briefly, you begin by creating an area where you want to install the picture. Next, having placed the floppy in drive 'A', go to the 'File' menu and select 'import picture' and from that menu select drive 'A' and an index of the .GIF files on the disc should be listed. Highlight the one you require and press OK. Once the picture appears in the predetermined area it can be edited. It appears that Pressworks can import about 14 types of picture including Gem image (.IMG), Lotus 1-2-3 (.PIC), PC Paintbrush (.PCX), TIFF bitmap (.TIF) and Windows bitmap (.BMP). I also quickly checked an item called 'Pixfolio 2' which I found on the CD-ROM supplied with the February issue of *PC-Home* and Ian's pictures came out very well. This looks to be an interesting and useful program which I plan to try out properly and let you know the results later in 'Reflections'. I understand that back issues of *PC-Home* are available from their

editorial offices. No doubt like many of you I have several CD-ROMs from a variety of magazines but, to date, have had little time to try them.

"The 14MHz band has been buzzing at times with SSTV signals and last week I received my first signals from Morocco, **Fig. 8**," wrote **John Scott** (Glasgow) on May 29. John told me that it was a good signal, but, he only just managed to get one frame when the interference got too bad to continue. The latter is the dotted lines in two rows across the faces in **Figs. 8 and 9**. During the month he copied pictures from stations in France, Italy, Portugal, **Fig. 9**, Spain, **Fig. 10**, Sweden, **Fig. 11**, Ukraine and Yugoslavia on the 14MHz band. Going from h.f. to v.h.f., John received strong pictures from GM0NAF in Paisley on 144.5MHz and, while on a visit to the home of GM8HGT he saw an exchange of coloured slow-scan signals with GM3ULP, **Fig. 12**. "That was the first time I have seen colour pictures on 144MHz," said John and remarked about the good copy and no interference on the image.

Fig. 11.



LOWE ELECTRONICS LTD
 Chesterfield Road, Matlock
 Derby DE4 5LE
TEL: 0629 580800

SPECIAL OFFER
1992 Edition of "POOLEY'S FLIGHT GUIDE"
 This "Aviator's Bible" contains details of all UK airfields, all ground, tower, approach and radar frequencies, all lower airspace and radar information, all UK aviation addresses and phone numbers, airways frequencies, private airstrip and helipad locations and much, much more. This is last year's edition but almost all data is still correct. Normal price: £17.50.
OFFER PRICE ONLY £4.00
 plus £2.00 post & packing (if's heavy with information!!)
 Just send a cheque for £6.00 or phone with your credit card details to:



"AIRWAVES 94"
THE COMPLETE MILITARY AVIATION HF/VHF/UHF FREQUENCY DIRECTORY

Information is listed in both frequency and location order - Plus appendices: Tower - Area Approach - Radar - Ground ATIS - Area Radar - Military Area Radar Tactical Radar - SSR Squawk Codes Airline Operations - Aerobatic Teams Squadron Operations - Air Refueling Air to Air - European Area Radar Plus world-wide civil and military HF communications - Includes all the new London Control Frequencies. Introduced March '94 to April '95.
 Price £7.95 including p&p - cheques payable to Photavia Press
 To order or for further information please write to
Photavia Press, 21 Downlands, Pulborough, West Sussex RH20 2DQ

BK-MULTY for IBM PC
Amor CW Fax Factor RTTY SSTV Tuner
 From SWL to Novice to experienced Amateur Radio Operator Your selection of modes in one convenient integrated program. AMTOR: Fast reliable synchronous in ARQ or FEC, Sitor Navtex etc. FACTOR: The new high performance HF digital mode. RTTY & CW: Advanced digital outprint responds to valid signals only. TUNER: Real time signal analysis display. SSTV/FAX Reception of B/W HF signals. Complete Z-mode system with matching modem £169 + £2 p&p. Individual priced from £15. PK-232 interface £39 + software. Atari ST/STE - Amor, CW and RTTY available. Send SAE for full details.
Grosvenor Software (G4BMK)
2 Beacon Close, Seaford East Sussex BN25 2JZ
Tel: (0323) 893378

NEW BOOKS

James Military Communications 1989, 10th edition. A vast volume (62 pages). Large format warps. Contains descriptions, photographs and basic technical details of the world's military communications equipment. Brand new in carton. Published at £80. Special offer £45 including postage UK. Foreign postage extra.

Messenger Gods of Battle by Tony Deneviera. The story of electronic warfare and the development and military use of radar, radar and sonar, particularly WWII applications. Contains drawings and photos of some of the early wireless equipment and radar installations. An informative study of a little known subject. 222 pages, brand new hardback, published at £32. Our price £14.50. P&P £2.50.

The Teletypewriter Handbook by A. G. Hobbs (G1AJ). The Teletypewriter Handbook covers in detail the theory and practical aspects of teleprinter equipment, both European and American. Includes full description and maintenance data for most machines including Creed and Lorenz. Fully describes the design and use of ancillary equipment. Invaluable for those searching teleprinter equipment, over 300 pages, numerous circuits, photos and data. Now out of print. Brand new £9.95. P&P £2.50.

Principles and Practice of Multi-Frequency Telegraphy by J. D. Harpiss. This book presents a study in detail of multi-frequency telegraphy which, since the early 1960s, has formed the main means of h.t. communication between the UK foreign office and its embassies. Invaluable to anyone concerned with telegraphy and data communications. 206 pages, brand new. Published by the I.E.E. at £55. Our price £22.50. P&P £2.50.

(Dept S) CHEVET SUPPLIES LTD.
 157 Dickson Road, BLACKPOOL FY1 2EU
 Tel: (0253) 751858, Fax: (0253) 302979. Telephone orders accepted.



CIRKIT DISTRIBUTION LTD
 Park Lane · Broxbourne · Hertfordshire · EN10 7NQ
 Telephone (0992) 448899 · Fax (0992) 471314




Cirkit!

STILL ONLY £1.90 + 30p p&p

Send for your copy today!

- Available from most large newsgents or direct from Cirkit
- Further additions from Europe's leading kit manufacturer - Velleman
- Expanded entertainment section with in-car amps, speakers, crossovers and low cost disco equipment
- 100's new products
- 256 pages, 26 sections, over 400 products from some of the worlds finest manufacturers and suppliers
- £200 worth discount vouchers
- A further 16 extra pages included in this issue:

The new enlarged Catalogue is out now!

NEW EDITION!

Electronic constructors catalogue

Save up to **£200** with our new discount vouchers

Summer 94

components
 test equipment
 kits

SUMMER 1994 CATALOGUE

£1.90

THE VINTAGE WIRELESS BOOK LISTING
 Published regularly. Containing 100s of out of print, old and collectible wireless and amateur radio books, magazines etc. Send six first class stamps for catalogue or £3.75 for next four issues.

Satellite TV News

The Latest from the Clarke Belt

It's 50 years since the Allies landed on the Normandy beaches and the anniversary was marked with numerous outside broadcasts from both the UK and French coastlines. Prior to 6 June 1994 - as with 1944 - preparations were well advanced and rehearsed with activity increasing on the 3rd and 4th, the first of the main ceremonies was at Portsmouth, with a major outside service and fleet review, followed on the 6th with services and other commemorative programming from the French coast.

On both June 2 and 4 graphics feeds were seen transmitting via Eut. 16°E and Intelsat 27°W, the former for NBC and latter ABC New York - the graphics feeds consisting of campaign drawings, photographs and general background material, such as old newsreels, etc. Sunday 5th brought the major Portsmouth OB (outside broadcast) from Southsea Common with satellite links outbound to Europe and the 'States. The 6th again produced many OB circuits with greater French involvement via Telecom and Eutelsat birds, live hook-ups from the beaches and the infamous Pegasus Bridge, GMTV taking a live insert via Eutelsat II F1 13°E for their morning show. Over the main two days of D-Day remembrance there were OB feeds on most satellites, the most unusual was the docking of RY *Britannia* in Normandy which was closely followed both from land and helicopter.

Meanwhile the results of another sad occasion was being told. Over on Eutelsat II F3 16°E, Israel Television was covering the arrival - live - at Ben Gurion airport of a medical relief flight from Russia with children from the Chernobyl region, all had suffered contamination from the nuclear station explosion. The mercy flight, paid from American public subscription, brought hope of recovery to these youngsters in Israel. The band played, the children sang and speeches were made. Unfortunately there seemed to be little publicity of this modern day exodus on UK TV, overshadowed as it was with the D-Day tributes. A moving broadcast.

Just a few days later and more flurries of activity with the Euro-elections on June 11. For political enthusiasts a wealth of TV circuits, interviews, opinions, 1-way reports and 2-way hook-ups, in a variety of European languages and most generally boring. Satellites from 21°W through to 25°E all seemed at some points to be carrying political offerings and activity was greater than the D-Day events 5 days earlier.

The Mull of Kintyre, famous from the Wings recording years ago,

unfortunately became the centre of the UK media June 1/2 following the crash of a Chinook helicopter carrying NI security officials. The Uplynx UK1 40 SNG truck made the difficult road route to the crash area and were offering live inserts into Sky News via Eut. 16°E 12.538 vertical. Weather was less than wonderful, winds, rain and the 1800hrs insert was aborted due to reverse communication difficulties.

I wonder if the 14°W Gorizont has foundered or gone into extreme inclined orbit since little has been seen of the 11.525GHz downlink for weeks. 'Cable Plus' the Czech cable feed on 11°W for a period was using Videocrypt (or son of) but then the 3rd week of June Cable Plus disappeared from 11°W only to reappear amongst the EBU circuit feeds on Eut. II F4 7°E - in clear PAL - even the 'naughty' films were also clear! Meanwhile back on 11°W the Reuters Moscow Bureau has been seen with their European Westbound feed. Another new channel seen on test via Eut. 16°E has been GSTV, a new Asian channel at 11.160GHz horizontal.

To end my own snapshot of recent satellite receptions, and on a more serene note, a new theatre building facility has been opened at the Glyndebourne Opera House, near Lewes, East Sussex. To mark this event *The Marriage of Figaro* was screened May 28 on both Channel 4 UK and the French ARTE/La Sept network - the satellite feed into France in clear PAL was via Eut. 7°E at 10.989GHz vertical. And a final observation of a Dutch 'Intrax' SNG feed June 2nd from an unknown location via 13°E differed from the norm. The RTL-4 'Luxcrypt' encryption was in use but in addition the video was inverted prior to encoding into Luxcrypt. Most odd for what seemed a simple and uncomplicated programme insert.

A slight correction to earlier information from **Jean Louis-Dubler** in Montreux relating to the NICAM introduction in France, the subcarrier will be on 5.85MHz for both terrestrial and Telecom satellites. RTL-TV on Telecom 2B is still in the clear and is using both audio carriers of 5.8MHz/J17 and 6.6MHz/50µs. There is speculation that Videocrypt may be used for encryption, the first for a French satellite, rather than the Smartcrypt (Schlumberger) which uses more expensive decoders and a current lack of mass availability. Apparently at this time there are no SECAM-L modulators available for cable head ends and currently any progress into NICAM stereo has been delayed!

John Locker (Wirral) found D-Day feeds across the whole arc

between 25°E and 45°W, the most unusual being a 'France 2' circuit from Arronanche Beach via PAS-1 at 45°W on the NHK transponder.

A letter from **Alexander Wiese** in Germany advises that the *Tele-satellit* magazine has now discontinued the English language (International) edition and that the German version will now carry extra English language pages. This same magazine has organised a TV programme for satellite enthusiasts which airs for one hour the last Friday in each month at 8pm GMT (9pm BST) with a repeat the following Sunday at the same time. Check out Eutelsat II F1 at 13°E 11.596GHz horizontal with audio at 6.50MHz and in clear PAL.

Meanwhile in C Band **Bob French** in South Warks. has noted the loss of Gala Americana on TDRS 41°W though a new caption was 'Chalfont Teleport' on colour bars but never any news or programme feed is every carried. And **Ian Waller** (Lincoln) also monitoring the same 4GHz bird has seen BBC unilaterals carried from the 'States and a new pattern 'Micronet Dallas 214 712 3990' which is thought to be in readiness for the World Cup. TDRS also carried outgoing D-Day material with incoming (Eastbound) video channels from the CBC in English and French.

With compression the buzz word, check out Telecom 1C at 3°E on 12.522GHz vertical since MPEG-2 will be in use 'soon' and with MPEG-2 going onto Telecom 2C from 1996. If you want to try out your conversational French then check out the new shopping channel on Telecom 2C at 5°W.

Colin Grellis (Bridport) writes to say that NASA runs a Space Shuttle transmission with live coverage, various comms, etc. on the Spacenet-2 satellite, transponder 5 in C Band 3.880GHz horizontal with audio subcarrier at 6.80MHz. In Geostationary orbit at 69°W it may ...j.u.s.t.... be visible to enthusiasts in favourable locations on the West UK coast though certainly above the horizon to our readers in much of Eire.

Finally **Fred** living in the Arabian Gulf region is using a 4m dish with inclined orbit tracking and various C/Ku band equipment. He can cover from Intelsat 27°W through to ChinaSat 115°E. Astra is unwatchable though several Eutelsats can be resolved in Ku. A 5m dish is shortly to be installed and Fred promises a progress report.

Orbital News

As I type these very words, a 'phone call from **Gareth Foster** (Middx) advises that the BBC World Service -



French feed via Telecom 2B @5°W.



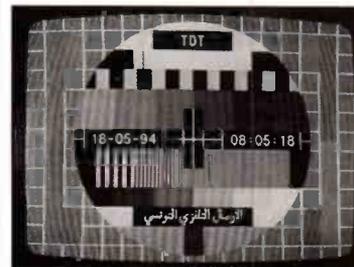
Test pattern Intelsat K prior to 90 minute two-way discussion on N. Ireland.



Caribbean Broadcasting Union. Rare test pattern via Intelsat K. John Lockes, Wirral.



Hispasat at 30°W. Roger Bunney.



Tamil TV test card. 16°E. **Berry Habekotte**, Holland.

Berry Habekotte, Holland.

Arabic version is to be found on Eutelsat I F4 at 25°E, check out 11.660GHz horizontal, unfortunately yours truly is screened by trees past 16°E, has anyone seen this new transmission?

And one for geography freaks, Intelsat has just admitted the Kyrgyz Republic as its 133rd member with an initial investment share of 0.05%. And joining the Eutelsat club from mid-May were Andorra, Bulgaria and the Federation of Russia.

Telecom 2B at 5°W is now transmitting 'La Chaine Info', a form of shopping channel. On test mid-June using PAL, the programme went into SECAM for programme launch June 24 at 2030CET, check out 12.584GHz for the very strong signal.

BET YOU'D LOVE TO GET YOUR HANDS ON THESE TWO LITTLE BEAUTIES

POP ALONG TO A RADIO HAMSTORE TODAY AND DO JUST THAT

With these two terrific twins from ICOM you can achieve total receive coverage - now read on...

IC-R7100 VHF/UHF RECEIVER

The VHF & UHF IC-R7100 features: •Direct keypad entry for improved programming versatility
•Advanced window scan. •25MHz-1999.999MHz coverage (25-1000MHz & 1240-1300MHz guaranteed).
•900 memory channels. •4 memory modes.
•SSB, (USB/LSB), AM, FM & wide-FM.

IC-R72E HF RECEIVER

ICOM's compact HF IC-R72E features: •Frequency range of 30kHz-30MHz •USB, LSB, CW, AM and optional FM •99 memory channels and 2 independent scan-edge channels •Built-in 24-hour clock and timer •Advanced DDS system •100dB dynamic range and much more.



RADIO HAMSTORES



ICOM

2 YEAR WARRANTY ON ALL NEW ICOM HAM RADIOS

BIRMINGHAM: (JUST OFF M5 MOTORWAY JUNCTION 2) - GORDON & JOHN, International House, 963 Wolverhampton Rd. Oldbury, West Midlands B69 4RJ. Tel: 021 552 0073. Fax: 021 552 0051.
LONDON: - PAUL - 11 Watford Way, Hendon, London NW4 3JL. Tel: 081 202 0073. Fax: 081 202 8873.
HERNE BAY: - CHRIS - Unit 8, Herne Bay West Industrial Estate, Sea Street, Herne Bay, Kent CT6 8LD. Tel: 0227 741555. Fax: 0227 741742.
OPENING TIMES: Tuesdays to Fridays: 09:00-17:00 & Saturdays: 09:00-16:00.

JAVIATION

THE AIRBAND SPECIALISTS - 0274-732146

CAMNIS HSC-050 NEW!!

At last something to consider against the MVT-7100. Basic Features: 100kHz - 2060MHz (2GHz!!) continuous coverage, 1000 channels, 10 search banks, increment steps 1kHz - 999kHz, modes AM/NFM/WFM & SSB with BFO. Same size and dimensions nearly as the AR2000. Supplied with all accessories including 4 x AA Nicads & charger.

CAMNIS HSC-010

Exactly the same as the AOR AR2000

£249

If aviation is your interest and you are looking for advice on a new scanner or perhaps an antenna then please feel free to give us a call and have a chat. We are more than happy to talk with you about your interests whether they be civil, military or HF. If you would like a catalogue please send a large sae and we will get one to you by return - Thanks.

£329

Inc. VAT & Carriage

VHF/UHF Frequency List

NEW edition due out in May

VHF/UHF Guide: £7.50 including p&p

**CARLTON WORKS, CARLTON STREET
BRADFORD, WEST YORKSHIRE BD7 1DA**

Bandscan

America

The Guyana Broadcasting Service is now inactive but hopes to return to the air someday. Watch 5.950MHz.

Time again for our quarterly look at what's happening on the short wave scene in North, Central and South America, as well as the Pacific.

ANGUILLA - Dr. Gene Scott will apparently get a short wave station on the air from this Caribbean island after all. Earlier this year it was reported that the government had refused to allow the station because of the environmental problems it was felt the station might cause. But now, according to reports, Scott may even have the station active by the time you read this.

BOLIVIA - A couple of reactivated stations in this country are Radio Estacion Frontera that is operating on 449.5 and Radio San Joaquin, using 4.508MHz.

BRAZIL - Radio Sentinelada da Amazonia has moved to 4.865 from its former 3.285MHz. Radio Cultura on 6.105 now relays Radio Transamerica FM between the hours of 2200 to 0100. 11.905MHz is no longer used by Radio Rural. Radio MEC says its short wave operations are irregular but when on active it's between 0900 and 1100. Frequencies that may be in use include 5.990, 9.600, 11.950 and 17.875MHz. Another station with an irregular schedule is Radio Clube de Marilla on 3.235MHz.

Many long time Brazilian short wave stations are inactive, at least on some of their frequencies. The list includes Radio Por Um Mundo Melhor, 4.835MHz; Radio Alvorada, 4.965MHz; Radio Pioneira, 5.015MHz; Radio Borborema, 5.025MHz; Radio Rio Mar, 6.160MHz and Radio Inconfidencia, 15.190MHz. Some of these stations that have more than one frequency continue to be active on at least one of their other dial positions.

Back on the 'plus' side of the chart, old timer Radio Clube Ribeirao Preto has resumed activity, using its old frequency of 15.445MHz. And such stations as Radio Globo, Radio Bandeirantes, Radio Gazeta and Radio Record have all either recently expanded their short wave schedules or are operating on all or nearly all their assigned short wave frequencies.

CHILE - Little known Radio Triunfal Evangelica that has been inactive for some time has returned to the air and is operating between 2300 and 0200 on 5.825MHz.

COLOMBIA - Meridiano 70, formerly on 4.925MHz has ceased its activity on short wave. La Voz de Guaviare, 6.035MHz, is being heard again, around 1000.

Some reports said the anti-government station Radio Patria Libre was located and closed by government forces. However, Patria Libre is still being heard by several

monitors in the United States so perhaps not all of the facility was captured. The schedule is 0030-0110 on 6.530, 1130-1210 on 6.260, 1330-1410 on 15.050, 1500 to 1540 Sundays on 6.600MHz. You should, however, not take all this too literally. Frequencies tend to be widely variable at times. The schedule - at least the 0030 broadcast - seems to be fairly consistent. 15.050MHz has been noted active around 2100 on occasion.

One very difficult Colombian catch is Radio Catolica, that operates on 3.580MHz. It signs on at 0900, broadcasting from Cuatro Esquinas a part of Tuquerras which, in turn, is in the department of Narino. The station appears to be using quite a low power transmitter. It's reported only rarely by North American listeners.

COSTA RICA - Adventist World Radio (AWR) has completed the changes it has been working on at its Costa Rica station. The initial transmitter site at Alajuela is no longer operative. All activity has now been moved to Cahuita, on the Caribbean coast. This is where the now defunct Radio Impacto had its a.m. transmitter. A couple of years ago AWR purchased Impacto's transmitters and set about moving the entire AWR transmitting facility to this location. The former Impacto a.m. transmitter and Cahuita has been converted to short wave operation (the short wave transmitters had been located outside of San Jose).

Incidentally, AWR now offers specially endorsed QSL cards for its transmitter sites in Central America - AWR Cahuita using 5.030, 6.150, 9.725, 11.870 and 13.750MHz, Union Radio, Guatemala City on 5.980MHz, as well as AWR broadcasts via Radio Amanecer, Dominican Republic on 6.025MHz. Reception reports should be sent to AWR Special Projects, 903 Tanninger Drive, Indianapolis, IN 46329, USA.

ECUADOR - HCJB has added a mid-week DX news update they've named *The Latest Catch*. The broadcast for Europe is aired Wednesdays at 0700 and again at 2.130MHz.

GUYANA - The Guyana Broadcasting Service, never a very easy catch even as close as North America is currently off air and a return date seems very uncertain. GBS normally operates on 5.950MHz and, when audible, is usually heard around 0800 or 0900UTC.

HAWAII - While most of its air time is taken up with relaying the religious and other programming of sister station WHRI, Indiana, KWHR in Hawaii does have a bit of Hawaiian flavour on its schedule. *Sounds of*

Guyana Broadcasting Co. Ltd.

Radio Demerara 760 KHz 395 METRES
10 Kw

Q.S.L.

WE THANK YOU FOR YOUR REPORT DATED 8/27/69 WHICH WE ARE PLEASED TO CONFIRM.

E.I.C.

Aloha is broadcast from the Hilton Hawaiian Village Hotel, on the famous Waikiki Beach, on Sundays from 0800 to 0830UTC. KWHR carries this on 9.830MHz but it's also aired via WHRI on 7.315 and 7.355MHz.

HONDURAS - A new short wave station on the air from this country is Radio Internacional on 4.930MHz, slightly variable, broadcasting from San Pedro Sula and heard in North America around 0300UTC. The station's address is Box 1473, San Pedro Sula.

The latest schedule for Radio Copan International on 15.675MHz is Monday to Saturday from 1400 to 1500UTC, 1800-0000UTC on Sunday, 1900-2300UTC Tuesdays to Fridays. The programmes are a mixture of Spanish and English and the schedule includes several programmes produced by anti-Castro groups. Radio Copan is related to Radio Miami International - WRMI (see later).

PAPUA NEW GUINEA - First the National Broadcasting Commission opened up a 50kW international service on 9.675 and discontinued its use of 4.890MHz. Then 9.675 disappeared and 4.890MHz came back on. Now both channels seem to be in use.

PARAGUAY - Like its neighbour, Uruguay, short wave activity in Paraguay has never been very extensive. There's word, though, that a new addition to the short wave bands may be coming from this country. Radio Cardinal AM Stereo reportedly intends to open up on 15.200MHz. The government station, Radio Nacional, recently resumed transmitting on 9.735MHz after technical problems shut it down for several weeks.

As for Uruguay, try tuning for SODRE. It operates on 6.125, 9.620 and 15.275MHz (variable) using just 300W or so (at least on the two lower frequencies). Best times seem to be between 2200 and 0300UTC.

KIRIBATI - This Pacific Island nation continues to be represented on short wave by Radio Kiribati, using 9.825MHz. The station signs on at 0558 with identification in both English and Kiribati and, at 0600, picks up a BBC news relay.

PERU - There is always lots of news from this very 'radioactive' country. A few recent North American loggings include Radio Internacional de Peru on 3.397MHz around

1000UTC and Radio La Hora on 4.858MHz also around 1000UTC. New ones include Radio La Oroya, 4.9048MHz, signing on at 1029UTC and Radio Paucaratambo, 5.9847MHz around 1000UTC. Also active is Estacion Yurimaguas on 6.238MHz. It formerly used 5.046MHz. Another new one is Radio Luz y Sonido on 6.4725MHz, signing on at 1045UTC.

UNITED STATES - As this is written the long awaited Radio Miami International has still not begun regular broadcasts. A few test broadcasts some months ago created harmonic signals that caused interference to aviation communications. At last report, WRMI's engineers were still working to correct that problem. Keep checking 9.955MHz for more tests or even start of regular broadcasts from WRMI. The broadcast is expected to run from about 2100 to 0500UTC.

The Voice of America has expanded its Serbian language broadcasts to four hours and fifteen minutes a day. The Creole Service (to Haiti) has also been increased - up to two hours per day (from one and a half). As you probably know by now the VOA was to discontinue its broadcasts to Latin America after the World Cup concluded. The VOA's new Morocco relay in now in full operation and the former relay site at Tangier has been turned over to the government of Morocco.

VANUATU - The broadcaster in this Pacific Island nation has changed its name to Vanuatu Broadcasting and Television Service. It still operates with 10kW on 3.945 from 1900-2300 and 0600-1115UTC (to 1000 on Sundays) and on 7.260 from 2200 to 0700UTC.

VENEZUELA - Radio Caracas Radio has been making test broadcasts on 25.705MHz upper sideband, using just 120W. The Spanish language broadcast consists of relays of news broadcasts from the station's medium wave outlet. At last report the broadcasts were scheduled Monday to Friday at 1900-1930, Saturday at 1800-1830, Sundays for a half an hour at 1500, 1600 and 1700UTC, though this is reported to be erratic. Reception reports can be sent to PO Box 65657, Caracas 1066, Venezuela.

That covers everything for this time. I'll update you again in three months. Until then, good listening!

SSB Utility Listening

HF Sideband

For all those short wave listeners who spend countless hours listening to the h.f. aeronautical frequencies, one of the most frustrating problems is how to identify an aircraft from its Selcal. The only available source of information is the successful *High in the Sky* book. This book is now a few years old, and many airlines have now acquired new aircraft. Often, the only way to identify an aircraft is from its Selcal. There are many occasions where the ground controllers do not read back the aircraft's Selcal code, or you just hear the distinctive tones as an aircraft is summoned by the controllers.

Now, a company in the West Midlands has designed a superb accessory that allows you to decode the Selcal tones as they are transmitted. Seldec have produced a Selcal decoder that will indicate the letters corresponding to the transmitted tones. The decoder is a metal box (225mm wide, 70mm high, 175mm deep) with two prominent rows of l.e.d.s along the front panel. It only requires 12 volts d.c. applied to the socket on the rear panel, and the audio from your short wave receiver connected to the audio-input of the decoder. Apart from the two rows of l.e.d.s, the only other front panel controls are a small 'on-off' toggle switch, a single l.e.d. to show the unit is working, and a small reset button. Between the rows of l.e.d.s are the tone letters 'A' to 'S' (less 'I', 'N' and 'O') that indicate the letters of the Selcal code when the l.e.d.s are lit.

When operating, as a Selcal tone is detected, the decoder displays the decoded tones on the two rows of l.e.d.s; the top row displays the first two tones, and the bottom row of l.e.d.s display the second pair of tones. For example, if the tones of Selcal AE-LP were to be received, in the top row l.e.d.s 'A' and 'E' would light-up, and in the bottom row 'L' and 'P' would light-up. The l.e.d.s remain lit until the RESET button is pressed, and the decoder is ready for the next pair of Selcal tones.

To avoid electrical interference with sensitive h.f. receivers, the Seldec decoder does not use any micro-processor technology. The information received from Seldec did not include a price, but further details can be obtained from: SELDEC, Remlane House, Hagley Road, Stourbridge, West Midlands DY8 1QH. The photograph on this page will give you a good idea of the look and style of the unit.

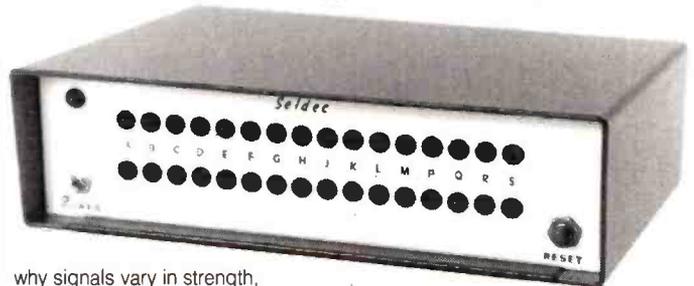
Incidentally, I hear through the

grapevine that a new edition of *High in the Sky* is soon to be produced. Although no firm dates have been announced, sometime 'during the late summer' can be expected.

Questions

Mr T. Ford from Sheffield is searching for German Navy frequencies that use the call sign DHJ 59. 6.779MHz appears to be an initial contact frequency, but they often QSY to another channel, for example 'QSY MRL 59/08'. The only ones that I can find listed are 2.6805, 10.1925, and 10.197MHz; these are all from the latest *Klängenfuss Guide to Utility Stations*, but there may be more. Do you know of any more?

Mike Jones from Clwyd has just bought a Yupiteru MVT-7100, and has started to tune around the high frequencies. He uses a long-wire antenna of about 18m, but without an a.t.u.; he wants to know



why signals vary in strength, often starting strong, fading to nothing, only to return later to full strength. Well, Mike, the signals that arrive at your antenna are subject to a large number of factors, such as the 11-year sunspot cycle, local time of day and the weather. Also, signals can arrive by either of two paths (the 'sky wave' and the 'ground wave'), and frequently arrive by both methods at the same time. When they do arrive together, they can be 'in-phase', making the signal louder, or the signals may arrive 'out of phase', making the signal weaker or even disappear altogether.

Mike asks whether an a.t.u. (antenna tuning unit) would help,

and whether he should extend his existing antenna. I will always recommend an a.t.u., whether you have a simple or cheap portable, or an expensive 'mega-pound' black-box receiver.

An a.t.u. will 'electrically' tune your antenna so that the maximum amount of signal is passed into your receiver; it also prevents other powerful signals on other frequencies getting into your receiver and causing it to overload. I would suggest that you leave your antenna as it is for the moment, and see what an a.t.u. does for your set-up.

Traffic Log (frequency in MHz, all u.s.b. unless indicated)

- 2.182 Genoa Radio reporting a man overboard from the vessel *Claudia* at 41°03'N 009°55E.
- 2.754 Coastal Control working an unknown station, being advised that Roseheart Bombing Range bouys had been repaired. This is the calling channel for ships for Coastal Control channel 'Bravo'.
- 2.761 Ostende Radio transmitting navigation warnings
- 4.372 HMS *Ark Royal* and HMS *Coventry* working Portishead with several crew-members making phone-patches.
- 4.386 Round the world yachtsman Mike Golding talking with the *Daily Telegraph* via Portishead. His position was just south of the Scilly Isles and he was heading for Southampton.
- 5.197 Cosmos 1 working Cosmos Control. Communications were established by voice, and operational messages were passed by RTTY.
- 5.650 Station 'E90' working 'E34', both had US accents. 24 hours later they were still here, using call signs 'F49', 'F47' and 'F97'. At one point, 'F49' was called by Shanwick on 5.649, but they never replied.
- 5.694 Air Force Rescue 206 working Rescue Ops, later joined by AF Rescue 205 and Rescue 970. '205 and '206 were helicopters heading for a Lithuanian registered ship at 57°37'N 36°32'W. The only medic on the ship was a Lithuanian doctor, but the C-130 (Rescue 970) did have a Russian speaker on board. Rescue 970 mentioned that he had contacted 'Reno Control' (Rescue Ops, Keflavik NAS, Iceland), and even called-up once as 'King 70'.
- 5.703 'Cyrano' working an unidentified French Air Force stations. Cyrano was a French Air Force E-3 AWACS aircraft; they also use the call sign 'Roxanne'.
- 6.647 Several Royal Navy ships operating with the fisheries protection forces around the UK, all working MAFF Base. GBPC (HMS *Bicester*) en-route to Gibraltar, while GYHJ (HMS *Cattistock*) was in the North Sea watching some Irish and French fishing vessels. Watchdog 91 was operating around the Isle of Man, and required assistance in identifying a ship marked 'BOU319'.
- 6.728 SAM 27000 working Andrews VIP, with a phone-patch to USAF Metro for OSDI (Damascus International, Syria). They also mentioned that they were trying to set-up a data-circuit on F5 and F108.
- 6.779 DRAO calling DHJ59 for a radio-check. DRAO may be a German Naval ship.
- 6.836 Several stations involved in target tracking. 'L' and 'AW' (English accents), 'E' (US accent) and 'F' (French accent). 'F' was slightly off-frequency, and was asked by 'L' to 'authenticate 'TBE'.
- 8.737 Nicosia Radio transmitting 'This is Cyprus Radio, radio-telephone monitoring service' in English and Greek.
- 8.867 Several aircraft working ATC stations in Australasia; Japanair 744 and Swissair 646 working Sydney, and Solomon 710 working Auckland ATC. The reader who sent in these logs remembers serving in the Far East with the RAF during the 1950's, and comments on their problems with Morse code.
- 11.176 Spar 67 (a Gulfstream C-20 aircraft from Ramstein AB, Germany) working Croughton for a phone-patch to Andrews VIP. '67 reported that they had just arrived at Ankara, Turkey, and would call again in 20 minutes. Andrews asked '67 to call on F7 upper. This is the lowest 'Foxrot' channel that I have heard Andrews use, all the lists that I have seen start at F10.
- 15.015 ORNAMENT working Lajes GHFS, requesting the frequencies for PRIME MOVER. Lajes said they were on X904 and S311. X904 is 9.017MHz, and S311 is 11.494MHz; these are both USAF STRATCOM frequencies. ORNAMENT was heard calling for PRIME MOVER on both frequencies.

Airband

Now you can decode Selcal tones - just like on board an aircraft! The Seldec Selcal Decoder requires feeding with a d.c. power supply and audio tones. When Selcal tones are detected, four l.e.d.s glow on the front panel so as to show the four-letter code. If the tones come from a receiver's audio output then precise, drift-free tuning is essential or the indicated letters could be 'out-by-one'. Some audio peaks can cause false triggering, but adjustment of the level control should minimise this. Enquiries to Seldec at Remlane House, Hagley Road, Stourbridge, West Midlands DY8 1QH, Tel: (0384) 370394.

Information Point

Good to hear that 'Airband' reaches Waterford, Ireland, where Chris and I spent a lovely holiday last year - taking the picture of a Jetstream that appeared in April. Over there, **Mark Zee** is interested in radio navigation and needs the appropriate chart. I believe, Mark, that you'll have no difficulty in obtaining British currency (pounds sterling) and so I suggest you contact Aerad and find the current price of two charts: these are EUR 1/2 and H201/202. How to contact Aerad? See my *Airband Factsheet*. This single A4 sheet is free from the Broadstone Editorial Office if you send a stamped self-addressed reply envelope (or a couple of IRCs if from overseas). So many answers to readers' questions involve the *Factsheet* that you will see it mentioned plenty more times in the remainder of this article.

Where's MC6? It's a military reporting point at N52°28' E2°47' and is shown in light grey print on RAF chart 523. These charts can be bought by post from Northolt, and again, the *Factsheet* gives details. **Howard Miller** (Norwich) will now send off for one, I'm sure!

M. Randall (Woodley) can't find the Westcott radar corridor. My RAF chart 510E (to order, see the *Factsheet* again) shows this to be about 7nm wide, starting at the eastern edge of the Brize zone and passing over the Westcott beacon to terminate west of Cambridge. Vertical availability: FL210 and FL220 only, putting it in controlled airspace. The RAF *British Isles and North Atlantic En Route Supplement* shows the corridor traversing the Daventry sector, London Mil Joint Area Organisation (291.0MHz).

When answering the Readers' Requests survey as part of the last Christmas Quiz, many of you wanted to know about air-to-air refuelling

areas. **M. Randall** specifically asks this now. There are presently 13 rectangular airspace segments, not all of which are necessarily active. Most are arranged along the North Sea but they also exist over the West Country and the Highlands. Most start above FL100 but there are exceptions, area 9 (just out to sea off Great Yarmouth and Lowestoft) going down to 2000ft altitude - should be observable from the coast, report your sightings here! Again, you need that *Factsheet* (haven't you sent off for YOURS yet?) so as to order CAA chart RAC 5-0-1, which is free! For extra details you will need RAC 5-5-1 that is part of the expensive *UK Aeronautical Information Publication* and NOTAMS sometimes also report on activity. Again, the *RAF Supplement* referred to above shows radar control areas for some of these areas (see near back of Supplement).

Your News

A friendly contact in the RAF (Oxford) is a member of 612 Volunteer Gliding School, temporarily located at Halton. Next year this is to move to Abingdon, its Grob 109Bs causing resumption of fixed-wing activity at this ex-RAF base. The Grobs won't be disappearing from over Aylesbury, however, since 613 School remains at Halton. Long may both units continue to fly from their respective stations.

Earlier this year, **J.B. Chamen** (South Africa) enjoyed the Port Elizabeth Airshow. The packed programme (0930-1635) provided an enviably wide range of flying, but J.B.C.'s favourite was (understandably) the Shackleton - glad you've still got one flying!

Roderick McKenzie (King's Lynn) also got to a few displays this year. Duxford's Easter Fly-In gave the chance of pleasure flights in a Dragon Rapide or a Harvard (that's an unusual opportunity!). These are run by the Clacton Aero Club with (appropriately) 'Classic' callsigns. Did you take to the air, Roderick? A few days later at Sywell, the Rotary Fly-In didn't produce many helicopters. I believe the event is so named because Rotary International in Great Britain and Ireland organised it. They're a voluntary organisation with charitable aims; another of their activities is a net for the licensed radio amateurs among their members.

Bournemouth International Airport (Hurn) received some unexpected trade on the day the terrorists bombed Heathrow and **Geoff Williams** (Ringwood) was on hand to observe British Airways 737s and other



A.310-204 D-AHLX (487) of Hapag-Lloyd. Seen at Tenerife South (Reina Sofia).

Christine Myneke

commercial flights diverting. Hurn has its own hazards, though, in the form of local deer wandering onto the runway! Positioning back to Gatwick tended to be via Southampton and Mayfield. Good to see a new airline at Hurn - hope it lasts. Euro Direct serve Leeds/Bradford, Dublin and the near continent with Jetstream equipment. The airline was set up in a short time, but I expect they were spoilt for choice when it came to recruitment: so many airline staff, especially pilots, are currently out of a job.

A few days ago I went to the Halton Show where they again helpfully displayed their frequencies: Approach 130.425 (the usual Halton Air/Ground frequency); aircraft during display 126.05; aircraft in hold 123.35MHz. No u.h.f. There was an obvious vertical antenna for each frequency.

Follow-ups

In May, I inadvertently moved the Preston LATCC relay site from Lancashire to Cumbria. Howard Miller noticed my error - but Chris (originally from Bury) didn't! Readers 1, authors nil. Sorry.

Last month I mentioned a temporary helipad frequency allocated to special events. This is elaborated by A/C 55/1994 (from the CAA). Epsom was equipped with this facility on Derby Day (June 1), arrivals calling 132.9 and Tower being on 121.175MHz.

Back to June and I didn't get QNE quite right. **Martin Sutton** (Arundel) is an air traffic control examiner at the CAA and I only got half marks! Martin explains that intense low pressure weather causes QFE values too low to be set on an altimeter. In this case, the standard pressure (1013.25mb) is instead set and the controller issues the QNE: the reading that the altimeter will now show when on the ground. I would add that altimeters manufactured in the USA can't be set below 950mb but the British specification goes down to 800mb.

Medevac helicopters are always topical - perhaps more so following recent television publicity. **Peter** (Surrey) notes that 'Mike Sierra'

communicates with the London Hospital on 122.95MHz which is also DEPCOM. This is an exception; all other helicopters are permitted to transmit their intentions to lift only while on the ground. In the London zone, everything is controlled although in practice many light aircraft can be worked around the periphery at low level, away from the commercial flights. 'MS, Capital Radio Flying Eye (G-FLII) and Police helicopters ('Specials') can and do work Special VFR 119.9MHz for this purpose. This enables them to receive a radar service from Heathrow. Peter thinks 132.65MHz to be available for M-Medevac but this is a new one to me. I would also suggest UNICOM, 130.425MHz, on which emergency helicopters co-ordinate their movements at the scene of a major incident.

Frequency and Operational News

Graham Tanner (Harlington) has discovered a huge list of LATCC frequency changes, as follows: original 134.45 now becomes 128.625; 126.875 becomes 129.275; 130.925 becomes 133.175; 135.575 becomes 134.125; 127.7 becomes 135.325; 125.8 becomes 118.825; 125.95 becomes 121.225; 132.6 becomes 126.075; 127.1 becomes 128.425; 132.45 becomes 134.45; 127.95 becomes 118.475; 120.475 becomes 120.025; 126.3 becomes 121.275; 134.425 becomes 126.875; 134.175 becomes 127.7; 133.525 becomes 136.275 and 124.275 becomes 136.6MHz.

The *GAS/L* from the CAA usefully summarises frequency changes, the following being introduced by the May issue. Syerston's new Air/Ground frequency is 125.425MHz.

Birmingham's n.d.b.s have changed, GM (371kHz) and GX (347kHz) being withdrawn with new beacon BIR (433kHz) instead. On the subject of beacons, Lydd's i.l.s. arrangements seem to have changed and the v.o.r. on 108.15MHz changes its callsign to LDY.

The visual reporting points and lanes within the Glasgow zone have



Piper Single Comanche. Taken at the PFA Rally, Wroughton.

Christine Mlynec.

also been amended: I've no further details, but the update service to *Pooley's Flight Guide* is bound to illustrate these. To buy this guide I suggest you first consult the list of suppliers on my *Airband Factsheet*.

That extra 1MHz above 136MHz is being put to good use and *AIC* 46/1994 explains. Clacton Sector (LATCC airways control) is now on 136.55MHz.

News from the balloon and airship world comes via **David Dodwell** (York). Readers may know that balloons liaise with their retrieve

ground crews on 129.9MHz (that frequency is also shared with other users including parachuting). New allocation 122.475MHz is expected to take effect next year; the rest of Europe have 122.25MHz for the same purpose. One thing I would point out. David's information suggests that the 25kHz channel spacing will reduce to 8.33kHz by 1998; as far as I know, the much simpler 12.5kHz spacing is what will actually be adopted - and even that will bring problems. As always I advise anyone involved in the procurement of new radio equipment

Abbreviations

AIC	Aeronautical Information Circular
CAA	Civil Aviation Authority
d.c.	direct current
E	east
FL	flight level
ft	feet
GASIL	General Aviation Safety Information Leaflet
i.l.s.	instrument landing system
IRC	International Reply Coupon
kHz	kilohertz
LATCC	London Area & Terminal Control Centre
l.e.d.	light-emitting diode
mb	millibars
MHz	megahertz
N	north
n.d.b.	non-directional beacon
nm	nautical miles
NOTAM	NOTice to AirMen (includes AirWomen)
QFE	altimeter pressure setting, reads zero when on aerodrome
Selcal	Selective Calling
u.h.f.	ultra high frequency
VFR	Visual Flight Rules
v.o.r.	very high frequency omni-directional radio range

to ensure that it covers the full 108-137MHz spread and that it's capable of functioning on 12.5kHz channels.

Red Arrows plan to display (dates in August) as follows, courtesy of *AIC* 56/1994. Land's End & St. Mawgan (August 3), Boumemouth (August 4), Bristol (August 5), Cromer & Weymouth (August 17), Fowey & Plymouth (August 18), Torbay (August 19), Eastbourne (August 20), Clacton (August 25), Dartmouth (August 26),

Carlisle & Leicester (August 28) and Elvington & Hoylake (August 29) plus a few foreign sorties.

The next three deadlines (for topical information) are August 5, September 16 and October 14. Replies always appear in this column and it is regretted that no direct correspondence is possible. Genuinely urgent information/enquiries: 081-958 5113 (before 21:30 local please).

THE AVIATION HOBBY CENTRE

1st FLOOR, MAIN TERMINAL BUILDING,
BIRMINGHAM INTERNATIONAL AIRPORT
BIRMINGHAM B26 3QJ

Telephone: 021 782 2112 or 021 782 6560

OPEN 7 DAYS A WEEK
(including bank holidays)

Why not pay us a visit and watch the aeroplanes at the same time. We have two shops, one on the first floor by Mag-Lev (have a free ride to BR station and back) and one in the Airport Visitors Centre (Viewing Gallery open everyday - Admission 50p).

Airband Radios from £9.95 and Scanners from £190.00 plus a variable selection of good secondhand and part exchange models usually available.

We stock radios by Fairmate, Jupiter, Icom, Uniden, Steepleton, Texet etc., Models and Prices to suit you.

Come and see the finest range of books on Aircraft and associated subjects there is, by publishers such as Ian Allan, Airlife, Putnam, PSL, Haynes, MCP and many more. Air Maps, Frequency Charts, Books on ATC, even books on how to fly a Cessna or a Jumbo Jet, we stock 'em all. Books for the Student Pilot and PPL, Checklists, Flight Cases, current Topo Charts always in stock, Nav-Flight Computers and much more. We also stock aviation postcards, posters and badges (callers only). Can't visit? Then send £1 for our mail order catalogue or telephone us on:

021 782 2112 or Fax: 021 782 6423

We accept all major Credit Cards and Cheques with Bankers Card Number (up to £500 for Personal Callers with I.D.)

SSE HIGH QUALITY ACCESSORIES

FOR SCANNING MONITOR RECEIVERS

JIM PSU-101

1. **JIM PSU-101 MkIV.** A high quality UK manufactured fully regulated 220-240V AC power supply with RADIO BASE HOLDER combined. For use with nearly all pocket scanners in the UK (please state radio type) 2DC output sockets one for radio and the other for accessories. Separate DC leads included. A 9 volt version for Tandy, Comtel, Netset etc available (PSU101TA). **PRICE £29.95.**

2. **★ NEW JIM PSU-101 MkIVC.** Now includes fitted coaxial cable assembly approx 12" long with right angle BNC plug and BNC socket for base antenna connection etc.

SPECIAL PRICE £34.95

3. **JIM BH-A3.** Universal base stand for handheld scanners-transceivers etc. convenient, safe support of radio. Adjustable front stop. Heavy duty chromed base. Bracket for BNC socket for base antenna connection. **PRICE £10.95.**

*4. **JIM BH-A3C.** Now fitted as standard with approx. 30cm (12in.) high quality low loss 50 ohm RG58A/CU cable with professional right angle BNC plug and BNC bulkhead socket. Ideal for RX and TX up to 4GHz (no SO239 socket). **PRICE £13.95.**

5. **JIM CH-A4.** Car mounting holder for handheld scanners-transceivers with BELT CLIP support. Safe and convenient use of scanner etc. in car, truck, boat etc. **PRICE £7.95.**

6. **JIM BC-4H.** Unique FAST Universal 4 hour + 14 hour Ni-cad charger. "auto-switch-off" timer (no more guessing). Ideal Fairmate, AOR, Yupiter etc. Leads + 4 sizes of AA holders supplied. **PRICE £19.50.**

7. **JIM SM-A1** High quality S meter for scanners CB. **SPECIAL OFFER £20.** Payment by postal order or cheque, prices include postage. Further information on SSE products, send A4 SAE to:

SOLID STATE ELECTRONICS (UK)

6 The Orchard, Bassett Green Village,
Southampton SO2 3NA
Tel: (0703) 769598

Special Offer
Buy a PSU101 Mk 4
and have a
DHA3 Base Holder
absolutely FREE
(Value £10.95)
Limited stock



NEW
PSU-101 MkIVC

Scanning

John Griffiths, 9 Rhos-y-Gaer Avenue, Holyhead, Gwynedd LL65 2BE

This month we can look at a variety of topics - my thanks to Alan Gardner for sending on the mail!

F. B. Henley sends me an interesting article from his local

paper concerning scanning and the

legal implications thereof. Once

more, it is time to issue a warning

and using this example illustrates the

consequences apply. This time it

concerns a scanner owner, mobile,

who made a habit of following West

Midlands Fire Brigade around and

videing the results of their call-outs.

When tackled by the Police, the

scanner owner freely showed off his

two scanners and even scanned the

mobile phone band to show the

officers how good the set was...

The result was that, at Cannonk

Crown Court, West Midlands, the

Police succeeded in gaining an

order to seize the individuals

equipment, books and logs.

WARNING! The only persons

authorised by law to scan

do so by the Secretary of

State. People like HM Customs, the

Police, M15 and so on, do and

Josephine public? **No!**

Whilst it would appear unlikely

that you'd get your front door re-

furnished by a sledgehammer

welding member of the law for

listening into things you are not

supposed to, more examples like the

one above may well see scanning

outlawed. Let me re-cap, briefly, on

the legal side. *The Wireless*

Interception of Communications Act

1985, Stationary Instrument Si

1989/123 The Wireless Telegraphy

Apparatus (Exemption) Regulations - these **all** apply to us.

What do they mean in real terms?

Simply this: There is a fine not

convicted of intercepting

communications not meant for them,

exceeding **two years**. For

maximum read what the Court would

decide on the day and on hearing

the offence.

Simple answer: **BE CAREFUL!**

That's all I'll say on it.

Logging Program

Moving swiftly onto other matters. Computer buffs who hook up their sets to their machines will be interested in knowing that **Dave Shirley G4NVQ** has another logging program out which supersees his original SCANBASE. Called, logical really, SCANBASE 2, it

is designed to run on machines having at least 2 x 720Kb disk drives, preferably hard disk, and is only available for the IBM PC at the moment. It can be supplied on 3.5in and 5.25in disk. Price is £10 and further details can be had from: Dave Shirley G4NVQ, 93 Alfred Road, Hastings, East Sussex TN35 5HZ. The program is a log, and does not control the scanner and so needs no interface between computer and radio. Dave also informs me that there is an AMIGA version to come soon!

Mystery

Paul Clark asks if anyone can help him with a mystery? While listening on 9600 from a single discorne? The answer is yes! You will need to ensure that both antenna ends match the set fittings - in this case PL259 and BNC - but apart from that you should have no real problems. I would direct you to one of the main dealers that advertise in SWM and ask for one of the sales staff. certainly make a difference to signals on a given frequency. I do not have a beacon chart so I can't accurately tell you what I suspect, but I'll guess any way! GB3TE may be nearer in terms of line of sight reception than GB3NL - the result being that the stronger, i.e. closer, station will come through v.h.f. works on a line of sight principle, Paul. The maxim we used to use at sea was 'if you see'em, you can work'em' - and that goes for things like having a v.h.f. set on the moon! You would be able to talk to the set on the moon... well, that's the theory, anyway! If anyone knows any different...

Motorway Bar Codes

The 'bar code' mystery motorway question was posed by Bert Smith in the May issue brought in answers from **Mike Harris**, who is good enough to share the answer with us in full. The codes are used in conjunction with a high speed monitor vehicle fitted with a laser that checks the quality of the road surface, skid resistance, rutting, cracks and so on. The codes are also located at intervals of 3 and 7km apart, if you would want to walk between them at a breakdown! Seriously, it would seem that they do perform a useful job. **Ian Davis** and **Steve Wilson** also came up with answers regarding the grey boxes and antennas seen on motorway embankments. Ian tells me they are

Computer Control

Can anyone help **A. Hill**, who asks about computer mods to enable him to control his PRQ-2005? Some interfacing must exist as Tandy possibly carry out automated factory testing and fault diagnosis. I have no details of such a mod, do you? Still with computers, **R. Owens** asks if there are programs for the Yaesu FRG-9600. I believe there are, and would firstly direct you to look at *Magazine*. Then, as you have an Amiga, I would suggest you contact Dave Shirley - address given earlier in Amiga format later on. There are many UK companies offering programs for many computer-radio applications and I suggest that you apply around, or write, to those who advertise in this magazine and also *Practical Wireless*. Further, get hold of road temperature monitoring, census and used for traffic counting, census and

N. Alford poses the question - can he run his PRQ-2005 and FRG-9600 from a single discorne? The answer is yes! You will need to ensure that both antenna ends match the set fittings - in this case PL259 and BNC - but apart from that you should have no real problems. I would direct you to one of the main dealers that advertise in SWM and ask for one of the sales staff. certainly make a difference to signals on a given frequency. I do not have a beacon chart so I can't accurately tell you what I suspect, but I'll guess any way! GB3TE may be nearer in terms of line of sight reception than GB3NL - the result being that the stronger, i.e. closer, station will come through v.h.f. works on a line of sight principle, Paul. The maxim we used to use at sea was 'if you see'em, you can work'em' - and that goes for things like having a v.h.f. set on the moon! You would be able to talk to the set on the moon... well, that's the theory, anyway! If anyone knows any different...

Antenna Changes

Can anyone help **A. Hill**, who asks about computer mods to enable him to control his PRQ-2005? Some interfacing must exist as Tandy possibly carry out automated factory testing and fault diagnosis. I have no details of such a mod, do you? Still with computers, **R. Owens** asks if there are programs for the Yaesu FRG-9600. I believe there are, and would firstly direct you to look at *Magazine*. Then, as you have an Amiga, I would suggest you contact Dave Shirley - address given earlier in Amiga format later on. There are many UK companies offering programs for many computer-radio applications and I suggest that you apply around, or write, to those who advertise in this magazine and also *Practical Wireless*. Further, get hold of road temperature monitoring, census and used for traffic counting, census and

used for traffic counting, census and used for road temperature monitoring. Steve says what may have been seen were PAKNEX 25 network systems. This was a packet radio system aimed at the commercial market, being a telemetry system operating in the v.h.f. band around 169/174MHz. Incidental to this, Steve also mentions the v.h.f. antennas overlooking the inside lanes of motorways. They are used to monitor delays and congestion - not to trap speeding drivers! Those who may wish to study PAKNET in more detail are directed towards the June '94 issue of *Electronics* - *The Maplin Magazine*. **N. Alford** poses the question - can he run his PRQ-2005 and FRG-9600 from a single discorne? The answer is yes! You will need to ensure that both antenna ends match the set fittings - in this case PL259 and BNC - but apart from that you should have no real problems. I would direct you to one of the main dealers that advertise in SWM and ask for one of the sales staff. certainly make a difference to signals on a given frequency. I do not have a beacon chart so I can't accurately tell you what I suspect, but I'll guess any way! GB3TE may be nearer in terms of line of sight reception than GB3NL - the result being that the stronger, i.e. closer, station will come through v.h.f. works on a line of sight principle, Paul. The maxim we used to use at sea was 'if you see'em, you can work'em' - and that goes for things like having a v.h.f. set on the moon! You would be able to talk to the set on the moon... well, that's the theory, anyway! If anyone knows any different...

J. Brearley of Eliand, asks about antenna construction. I've got two left hands so I'm not the best to ask about this! Again, I would direct you to a back issue, this time March and September 1992 issues that give you details of scanner antennas. Falling that, C. M. Howes make excellent kits for the constructor and I have no hesitation in recommending their AA4 Active Antenna whose range will certainly suit your AOR AR-2000. Further details can be had from some of the books advertised in the Book Service - where there are enough to keep you building for years! I have a preference for ready-made antennas at my QTH offer good use of space, are able to be easily erected and tend to last out a winter or two of never-develop-cate-Force-9 based on experience, and in no way reflects on any antenna or manufacturer. **Mr. R. A. Connolly** of Killeel, Co. Down, asks for help from UK listeners. He has monitored what appears to be p.m.r. signals in the 470-580MHz portion of the spectrum, and in particular between 470 and 490MHz. UK allocations show that, apart from TV and video/sound here there are also spots for local radio talkback and theatrical microphones up to 10mW max. There are some government users here as well, at least in the UK, but I do not have any Eire allocations myself. Can anyone enlighten us as to what these signals can be? I suspect listeners in the Isle of Man and on the UK West Coast may be able to help on this one - as well as any Irish readers, of course!

Wales, asks whether replacement antenna for his hand-held scanner could offer an improvement in signal and reception. The short answer is - yes! The antenna supplied with any wideband scanner is a compromise, having to cover a very wide range indeed. If, however, you get one that is 'cut' for the band - say, for example, a dedicated marine v.h.f. antenna - then you will get optimum

Many Radio Amateurs and SWLs are puzzled. Just what are all those strange signals you can hear but not identify on the Short Wave Bands? A few of them such as CW, RTTY, Packet and Amtor you'll know - but what about the many other signals?

HOKA ELECTRONICS HAVE THE ANSWER! There are some well-known CW/RTTY decoders with limited facilities and high prices, complete with expensive PROMS for upgrading etc., but then there is CODE3 from Hoka Electronics. It's up to you to make the choice - but it will be easy once you know more about Code3. Code3 works on any IBM-compatible computer with MS-DOS 2.0 or later and having at least 640K of RAM. The Code3 hardware includes a digital FSK Converter unit with built-in 230V AC power supply and RS232 cable, ready to use. You'll also get the best software ever made to decode all kinds of data transmissions. Code3 is the most sophisticated decoder available and the best news of all is that it only costs £329!

- Morse - Manual/auto speed follow. On screen WPM indicator
- RTTY/Baudot/Murray/TM2/CCTT2 plus all bit inversions
- Stör - CCR 625/476-4, ARQ, SBR/S/BRN FEC, NARTEX etc
- AX25 packet with selective callign monitoring, 300 baud
- Facsimile, all RPM/OC (up to 16 shades at 1024 x 768 pixels)
- Autospel - Msk I and II with all known interleaves
- DUF-ARQ Artec - 125 Baud Simplex ARQ
- Tmplex - 100 Baud F7BC Simplex ARQ
- ASCII - CCTT 5, variable character lengths/party
- ARQ-90/98 - 200 Baud Simplex ARQ
- SI-ARQ/RS - ARQ1000 simplex
- SWD-ARQ/ARQ-SWE - CCR 518 variant
- ARQ-E/ARQ1000 Duplex
- ARQ-N - ARQ1000 Duplex variant
- ARQ-E3 - CCR 519 variant
- PCL-ARQ - 100 Baud Duplex ARQ
- TM242/ARQ-M2/4-CIR 242 with 1/2/4 channels
- TM342/ARQ-M2/4-CIR 342 with 1/2/4 channels
- FEC-A - FEC100A/FEC10
- FEC-S - FEC1000 Simplex
- Sports Int. - 300 Baud ASCII F7BC
- Helix/ser - Synchron/Asynch.
- Stör RAW - (Normal Stör but without synchronisation)
- AAO6-70
- Baudot F7BBN
- Piccolo Mk6 12 tone/ASCII mode - coming soon!
- GMDSS 100 Baud system - coming soon!

All the above modes are pre-set with the most commonly seen baudrate setting and number of channels which can be easily changed at will whilst decoding. Multi-channel systems display ALL channels on screen **at the same time**. Split screen with one window continually displaying channel control signal status e.g. idle Alphabets/Beta/RQS etc, along with all system parameter settings e.g. unshift on space, **Shift on Space**, multiple carriage returns inhibit, auto to receiver drift compensation, printer on, system sub-mode. Any transmitted error correction information is used to minimise received errors. Baudot and Stör both react correctly to third shift signals (e.g. Crylic) to generate ungarbled text unlike some other decoders which get stuck in figures mode!

Eight options are currently available extra to the above specification as follows: 1) Oscilloscope. Displays frequency against time. Split screen storage/real time. Great for tuning and analysis. £35. 2) Piccolo Mk 6. British multi-tone system that only we can decode with a PC! £65. 3) Ascii Storage - Save to disc any decoded ascii text for later processing. £35. 4) Coquiel - French multi-tone system, again only on offer from Hoka! £65. 5) 4 Special ARQ and FEC systems i.e. TORG-10/11, ROU-FEC/RUM-FEC, HC-ARQ (ICRC) and HNG-FEC. £75. 6) Auto-classification - Why not let the PC tell YOU what the keying system is? £65. 7) SYNOP Decoder for AAXX & BBXX formats. FULL WMO station list. £35. 8) PACTOR (both Amateur and ICRG!). £25.

Please add £5 to the above prices for carriage by fully insured First Class Postal delivery (default method).

Call or write for our comprehensive information leaflet - there is just not enough room here to tell you everything about Code3!

Professional users - please ask about our new CODE30 DSP unit available now! (Piccolo down to -12dB S/N!!) Prices start from £1715 (includes all options).



HOKA ELECTRONICS (UK)



Sales Office: Ntech Communications, 36 Dallington Road, Eastbourne, East Sussex BN22 9EG. Tel/Fax: (0323) 507249 • Mobile: (0850) 545871

GIANT SURPLUS SALE

Lowe Electronics Ltd have purchased a large quantity of ex Home Office communications equipment. Some is used, but most is BRAND NEW.

Amongst the "goodies" are:-

- UHF Transceivers
- VHF Transceivers
- Handhelds
- Carry Straps
- Cooling Fans
- RX Amplifiers
- Base Station Transmitters
- Base Station Receivers
- Antenna Multipliers
- High Power RF Amplifiers
- High Power Beam Antennas
- 19" Rack Units
- Control Units
- Combiners
- Cavities
- Duplexers
- Collinear
- Microphones
- Components
- Valves
- Mobile Antennas
- Test Equipment
- Dish Antennas
- Diecast boxes

AND MUCH, MUCH MORE

We will be holding a one day sale on SUNDAY, AUGUST 21st 1994

Do not miss this once in a lifetime opportunity to pick up a bargain. Repeater Groups and Radio Clubs should come by van !!

The Location is :

Ashbourne Airfield Ind. Est., Ashbourne, Derbyshire
 Sale opens 9.00 AM to 4.00 PM
 All enquiries to Lowe Electronics on 0629 580800

Ashbourne is located about 10 miles from Alton
 Towers on the A52. The Industrial Estate is on the
 A52 on the Derby side of the town. Just turn onto the
 Estate and follow the signs for the sale

Info in Orbit

During recent weeks more mail for this column came from newsmen reading 'Info' for the first time. Readers' WXSAT pictures are impressive and they have written to ask for basic details on reception. I am pleased to be able to offer more software this month - read on!

WXSAT monitoring can be a totally absorbing hobby that brings new friends. Like astronomy and other scientific fields, you can do interesting projects and, if your spouse is not looking (!), you can spend hundreds or even thousands of pounds! Thanks to a lot of work done by enthusiasts, highly proficient software authors, you can even do some projects at minimal expenditure. Low cost (or even free) software is available to track satellites and decode their data.

Recent WXSATS

The CIS WXSATS (METEORS) have all gone for long periods with few being used. During late May, only METEOR 2-21 was operating - transmitting on 137.40MHz. On May 25 it changed frequency to 137.85MHz. METEOR 3-5 was still off. It resumed operations a few weeks later on June 14, again using 137.85MHz. By late June METEOR 2-21 could be heard in the evening, switching back on as it entered sunlight near the North Pole. Using a satellite tracking program one can estimate when switch-on will occur - by noting when the WXSAT crosses the night-to-day terminator. I should point out that CIS operators are published in advance via FANAS bulletins (mentioned a few months ago), but I usually receive these a little late.

As at late June, METEOR 3-5 has remained operational. I left a tape recorder connected to my WXSAT receiver overnight, the latter tuned to 137.85MHz. No infra-red signals were received from either WXSAT. Meanwhile the NOAA WXSATS have continued routine operations. NOAA 9 is the backup for NOAA 11 so every few weeks it is switched off when their passes clash. This is increasingly rare owing to the orbital drift of NOAA 9. If you have recorded the times of NOAA 9 passes going back a few years, you can see how much these have changed! We now receive well illuminated images because NOAA 9 reaches a high elevation around 1000UTC.

Future Launches

I received a listing of future launches from **Geoffrey Falworth** of Preston. As well as including the more predictable launches of the Shuttle

Readers' Pictures

For UK readers it is data as usual - see Kepler elements paragraph near the end of this column.

Laurence Patton of Luncarty in Perth sent **Fig. 3** a large format image from METEOR 3-5, passing over the Kola Peninsula and White Sea. It shows the Gulf of Bothnia

Readers' Pictures

For UK readers it is data as usual - see Kepler elements paragraph near the end of this column.

Laurence Patton of Luncarty in Perth sent **Fig. 3** a large format image from METEOR 3-5, passing over the Kola Peninsula and White Sea. It shows the Gulf of Bothnia

Future Launches

I received a listing of future launches from **Geoffrey Falworth** of Preston. As well as including the more predictable launches of the Shuttle

and CIS COSMOS satellites. I was surprised to see a new OKEAN is planned! It was scheduled for launch in early May.

The OKEAN series was (is?) an oceanographic research series of imaging satellites. Until a few years ago they transmitted sporadic (non-continuous) a.p.t. telemetry on 137.40MHz. I have a large collection of OKEAN data in the form of audio signals, recorded on standard audio tape, that I don't want to erase! The data decodes well using today's modern software.

If the new OKEAN does transmit a.p.t. it will almost certainly do so as unexpectedly as its previous siblings. If you want to try your luck, leave a WXSAT receiver tuned to 137.40MHz, feeding a tape recorder via a squelch control. If (after launch) it comes on near the UK, you may collect a few minutes of data that software should decode without problems.

NASA Kepler Elements

NASA issued a formal notification on May 13 to all those receiving Kepler elements by mail. This much appreciated service will be discontinued on August 16 this year. Personally, I feel that this is sad but understandable and inevitable. The cost of running the service must be high, and the technology has moved ahead so much that it is virtually redundant. For many years now NASA have sent, without charge, weekly sets of elements for satellites that a user could specify.

The advent of computer networks has brought the world of high speed data right into our homes. One must admire the ability to log into remote BBS (Bulletin Board Systems) and to download the latest elements for the own BBS - RAID (Reports and Information Dissemination) for which it has issued a Users Guide. For those (particularly American readers) who want a copy, write to NASA at Goddard Space Flight Center, Greenbelt, Maryland, MD 20771 USA. The request should be addressed to Vicki Oxenham of the Mission Operations and Data Systems Directorate.

For UK readers it is data as usual - see Kepler elements paragraph near the end of this column.

Laurence Patton of Luncarty in Perth sent **Fig. 3** a large format image from METEOR 3-5, passing over the Kola Peninsula and White Sea. It shows the Gulf of Bothnia

Future Launches

I received a listing of future launches from **Geoffrey Falworth** of Preston. As well as including the more predictable launches of the Shuttle

Readers' Pictures

For UK readers it is data as usual - see Kepler elements paragraph near the end of this column.

Laurence Patton of Luncarty in Perth sent **Fig. 3** a large format image from METEOR 3-5, passing over the Kola Peninsula and White Sea. It shows the Gulf of Bothnia

Future Launches

I received a listing of future launches from **Geoffrey Falworth** of Preston. As well as including the more predictable launches of the Shuttle

completely frozen over, and sheets of ice elsewhere. Laurence uses a Rig crossed dipole feeding a Dartcom receiver, with PPS02a running on his 386 computer. The image resolution of METEOR passes permits large pictures to be obtained without degrading quality.

Peter Law of Derby obtained tracking program. His author is has not yet obtained a modern tracking program. It is associated with the Space Technology Education Program and the Environmental Research Institute of Michigan in Ann Arbor, USA. NASA provided a grant.

The software includes interactive files which are separately edited. One file, NEST.DAT can be edited to include your QTH, i.e., your longitude, latitude and time difference from UTC. For UK users this should be set to zero.

Software

Satellite Tracking

I often wish that developments in this field had happened some years ago! In my early days using a scanner to tune into satellites, I was surprised at the number of transmissions that were identified as of satellite origin. It is not easy to make unambiguous identifications without having some form of satellite program available to monitor several satellites simultaneously. During the eighties it had to be done on the BBC computer because that was used in schools

often wish that developments in this field had happened some years ago! In my early days using a scanner to tune into satellites, I was surprised at the number of transmissions that were identified as of satellite origin. It is not easy to make unambiguous identifications without having some form of satellite program available to monitor several satellites simultaneously. During the eighties it had to be done on the BBC computer because that was used in schools

often wish that developments in this field had happened some years ago! In my early days using a scanner to tune into satellites, I was surprised at the number of transmissions that were identified as of satellite origin. It is not easy to make unambiguous identifications without having some form of satellite program available to monitor several satellites simultaneously. During the eighties it had to be done on the BBC computer because that was used in schools

often wish that developments in this field had happened some years ago! In my early days using a scanner to tune into satellites, I was surprised at the number of transmissions that were identified as of satellite origin. It is not easy to make unambiguous identifications without having some form of satellite program available to monitor several satellites simultaneously. During the eighties it had to be done on the BBC computer because that was used in schools

often wish that developments in this field had happened some years ago! In my early days using a scanner to tune into satellites, I was surprised at the number of transmissions that were identified as of satellite origin. It is not easy to make unambiguous identifications without having some form of satellite program available to monitor several satellites simultaneously. During the eighties it had to be done on the BBC computer because that was used in schools

often wish that developments in this field had happened some years ago! In my early days using a scanner to tune into satellites, I was surprised at the number of transmissions that were identified as of satellite origin. It is not easy to make unambiguous identifications without having some form of satellite program available to monitor several satellites simultaneously. During the eighties it had to be done on the BBC computer because that was used in schools

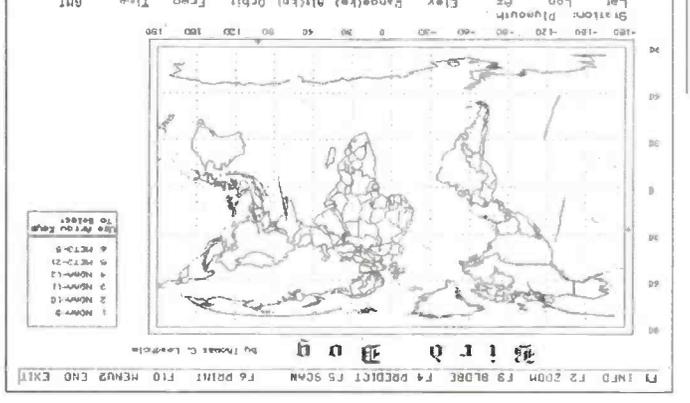


Fig. 1: Screen dump from BIRDDOG.

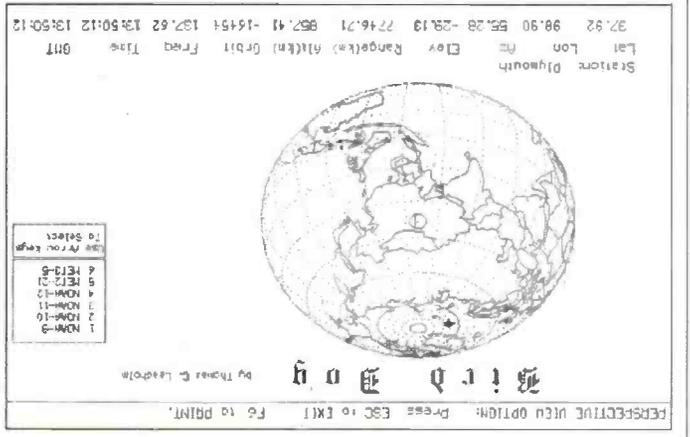


Fig. 2: Screen dump from BIRDDOG.

Computer Requirements

A standard IBM clone fitted with a minimum 250K RAM cannot be described as excessive! The processor should be at least a 286 running at over 10MHz. A hard disk and VGA graphics are also required. I have had it happily running on my 286 for hours. The computer's clock must be set accurately (say to within a few seconds) in order to obtain accurate positioning. Kepler elements used within the program must be recent.

Presentation

When the program is run, the introductory screen identifies the author and associates. The main display is the conventional flat earth (Mercator) projection. On this, small, numbered and coloured circles, one for each chosen satellite (see satellite selection) are displayed. On the right is a table listing each satellite and its frequency, obtained from the appropriate file.

Land outlines are clear and other options provide impressive extra details - see later. Although each satellite position is regularly updated on the display, only the one highlighted has full information displayed on the bottom line. Satellite selection can be changed by moving the cursor. A total of 16 satellites can be simultaneously tracked - more than enough!

Leaving this display running (in real-time) produces a set of ground tracks - each satellite leaves an individual trail behind the circle - see **Fig. 1**. Given a hour or two the orbital characteristics become clear. You can periodically 'clear' the display if you feel that it has become too cluttered with tracks. Choices are made using the function keys. For my own use I set up the four NOAAs, two METEORs and MIR.

Zooming and 3D

Options are selected using the function keys shown on the top line of the display. Selecting F10 provides a new menu with further options. F1 (INFO) produces a complete list of all function key commands. F2 is the ZOOM key that zooms in on the ground track of the selected satellite. This shows the approximate field of view seen by the satellite so can enable a positive identification. If you have sufficient RAM, it might be possible to use the DOSSHELL program to run both this and your decoding program simultaneously on one computer; I sometimes use DOSSHELL to run up to three programs. WINDOWS can perform similarly. Zoom is a very useful facility.

F3 (GLOBE) produces a 3-dimensional globe of the earth with the selected satellite's ground track super-imposed. As time passes, the rotation is simulated by small movements of the detail - impressive! This option works best with faster processors but was adequate on my 286.

F4 (PREDICTIONS) starts the process of calculating predictions for the selected satellite. It runs quickly, leaving a trail and simultaneously creating a text file containing position tables. The process is halted by pressing a key, followed by 'Escape'. A scrollable window then opens above the graphic. This shows the table of UTC with positions in various formats. The text file can also be accessed by a word processor, or simply printed. Remember to delete it when you have finished, or such files will soon swamp your disk! The filenames are tagged appropriately.

F5 is SCAN, perhaps the most useful option. It causes the program to

test each satellite's position for elevation above the QTH and will sound a beep when any rise above your horizon. The alarm can be disabled. Details for each satellite are sequentially printed in the lower line.

F6 dumps the screen - including graphics - to an attached printer. I used this option to produce two screen dumps - **Figs. 1 and 2**. The remaining two options shown are F10 to switch to the second menu, and END that terminates the program.

QTH and Keplers

On the second menu, F8 lets you edit your station parameters, so find your latitude, etc., first! If you don't know your height above sea level, try 100m - its not that critical.

F9 (ELEMENTS) is used to manage the Kepler and satellite selection files. Before using it you must set up these files - one containing recent Kepler elements - called KEP.LOG, the other containing your display requirements - called BIRD_LST.DAT. These satellites are the ones that you want actually shown on screen. You can have 80 or so in the first file, but you would never want so many displayed simultaneously!

The format for this latter file includes three lines per satellite - the name (e.g. METEOR 2-21) as given in your large Kepler file, the name (e.g. MET2-21) to be displayed on the screen (keep this extremely short), and finally the transmission frequency (e.g. 137.85).

When this is set up (using your word processor to produce ASCII files), run the program and select F9. It will detect that the final file already exists (unless you renamed it for safety). Opting for an overwrite lets the program continue and, all being well, a new set of data is produced. If your editing was OK then the process finishes and the neat listing is displayed on the right. One small error and failure results - but with useful error messages. This editing process is critical and fiddly but easily mastered. Future updates to your Kepler file are easy to prepare from data obtained directly from BBSs.

Other Function Key Options

A screen full of tracks and rectangles (produced by some of the facilities) can be cleared using shift-F2. Time-lapse mode can be entered via control-F4, calculating, either forwards or backwards, when satellites will come over your horizon. A variation is obtained using shift-F4 when the predicted paths are not drawn on screen. In each case a text file listing is produced, allowing printing or study at leisure.

Predictions Accuracy

There are two factors that affect the overall accuracy of this and similar programs. The first is the accurate position of your QTH - stored in the NEST.DAT file. Ensure that you have entered this properly. The second factor is the age of your Kepler data. I



Fig. 3: Kola Peninsula from Laurence Patton.



Fig. 4: NOAA visible image 27 June 1993 from Peter Law.

would suggest using new data every four to six weeks. Longer than that and errors of a few minutes may accumulate. Using current elements and an accurate QTH I had no problems.

Documentation

This is comprehensive, but note the supplementary file which points out the change (upgrade) for Kepler element manipulation! This has been improved (it says). Careful study of this large text file is well worth while and should cover all queries.

Bugs

I found little to complain about! The program halted on a few occasions after I had been changing the element files, but in general I used it for hours without problems. Occasionally a character on the screen was not cleared correctly.

Conclusion

Super program, especially for the beginner or those who have not purchased commercial software. I needed this eight years ago! It is described as shareware but I was unable to find an address for possible registration included in the documentation.

Availability

BIRDDOG can be obtained from certain specialist suppliers such as RIG (Remote Imaging Group) or from a number of BBS (see my listing of two months ago). Alternatively I can supply a copy together with the latest Kepler elements for the program. Please enclose a pre-paid return package with a formatted (IBM) disk, together with 50p towards my own acquisition costs!

Kepler Elements

Different options are available.

I will send a print-out of the latest WXSAT elements and transmission frequencies (including MIR) upon receiving an s.a.e. and separate, extra stamp. This data originates from NASA.

I already send monthly Kepler print-outs to many people. To join the list please send a 'subscription' of £1 (plus four self-addressed, stamped envelopes) for four editions. I can also provide files containing recent elements for the WXSATs, and a 0.6Mb ASCII file holding recent elements for thousands of satellites. This option includes a print-out identifying NASA catalogue numbers (for the WXSATs, amateur radio satellites, and others of general interest), in both launch and object format. Notes are provided. Please enclose cash, a cheque, or PO for £3 (covers transmission costs) with your PC-formatted disk (preferably 1.4Mb) and s.a.e. Further suggestions for improvement will be welcomed.

Finally

Regular readers of 'Info' will be pleased to know that I resumed semi-'normal' employment during June. I am working as a computer consultant for a few weeks before re-entering full-time computing work in early September.

Frequencies

NOAAs 9, 11 a.p.t. on 137.62MHz; NOAAs 10, 12 on 137.50MHz; NOAA beacons on 136.77 and 137.77MHz; METEORs use 137.30, 137.40 and 137.85MHz and OKEAN a.p.t. may reappear on 137.40MHz.

Timestep

PROsat II is used by most leading Weather Satellite enthusiasts. Lawrence Harris, Roger Ray and Brian Dudman are just a few who have come to rely on the vastly superior features of **PROsat II**. Features such as 1,000 frame full screen full colour animate, 3D, direct temperature readout and Windows export make Timestep products preferred by most users. All satellites are catered for including the awkward Japanese GMS and the very infrequent Soviet Okean series. All current SVGA cards are supported. NOAA images contain full resolution visible and infrared data in a stunning 2.4Mb file!

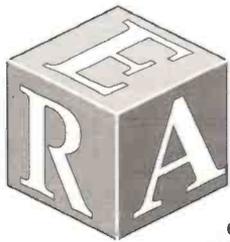
If you really are serious about Weather Satellites, phone or write us now for a colour catalogue and find out why the world's experts including Arthur C. Clarke use and recommend our equipment.



Advanced Weather Satellite users will by now have read about our new **TRACK II** prediction software. Full screen colour graphics and 6 simultaneous satellites are just some of the amazing features. For the ultimate in detail we offer **HRPT** digital systems with five 1.1km ground sensors, towns and rivers are clearly visible. For everyday use we also have the **PDUS** digital Meteosat system that takes 2.5km data every 30 minutes. Timestep **PDUS** colour animate is used several times a day by Anglia Television because of its very high resolution combined with spectacular colour. Forecasters will appreciate temperature calibrated 30 minute interval images.

A full range of separate Antennas, Preamplifiers, Cables, Receivers and accessories are held in stock.

Timestep PO Box 2001 Newmarket CB8 8QA England
Tel: 0440 820040 Fax: 0440 820281



26 Clarendon Court • Winwick Quay Warrington • WA2-8QP
Tel (0925) 573118

For years the Microreader has been one of the most successful and widely used decoders in Britain and has opened up the world of utility decoding for thousands of listeners and hams. With the Microreader you don't need computers, monitors or any special equipment simply plug into your speaker socket and turn on. What could be simpler? But don't be fooled by its small size and low price, the

Microreader is powerful and can match the performance of other big box units. The built in tutor has helped hundreds to learn to read and send CW perfectly. The latest version 4.2 firmware is the result of listening to what people want and expect from a decoder and combines ease of use with the highest ever level of performance.

When you buy a Microreader not only do you get a full two years guarantee you get access to help assistance from a company committed to 100 percent customer satisfaction. The Microreader comes complete with leads, easy to read instructions, frequency list should you want to display the decoded messages on a computer screen. Please call or write for more information as space limits a full description.



MKII (V4.2)
MICROREADER
£199.50



£99.50

SYNOPTIC DECODER

This is the easy way to translate the five figure code groups from the many meteo weather stations around the world into plain and readable English. No more books and tables, reports from aircraft, ships and land station are translated instantly and in full detail. How thick is the fog on the Tyne? What is the cloud type in New York? Transmissions from Bracknell are intended for the M.O.D. but you can decode them together with similar data from around the world. Works in conjunction with the Microreader or with any other decoder equipped with a serial RS232 output. Decoded messages can be displayed on home PC, dumb terminal or printed using a serial printer. Write or ring today for more information together with example print-outs.

MkII Microreader	£199.50	Computer Terminal Program	£10.00
Synoptic Decoder	£99.50	Upgrade old MkII Microreader	£20.00

ALL PRODUCTS GUARANTEED FOR 2 YEARS & PRICE INCLUDES VAT & DELIVERY UPGRADES £20.00 | TERMINAL PROG £10.00

Decode

All the Data Modes

Brian Dawson of Stafford started his radio interest back in the 40s and 50s when he used to build basic t.r.f. (tuned I radio frequency) and short wave receivers. This initial interest was followed by a long period of inactivity until his retirement back in 1989. Although he still had plans to build his own receivers, he was soon put off by the complexity and miniaturisation associated with modern designs. The solution was to set himself up with a Lowe HF-225, PR-150 preselector and a Datong FL-2 external audio filter. Having spent some time monitoring amateur transmissions, his interest was captured by the other strange noises on the bands and he soon turned to utility listening. After a brief run with the popular Microreader, he now uses the Momentum MCL-1100 decoder that I reviewed in a recent *SWM*. Brian is very pleased with this unit and finds the display clear and the unit very easy to operate.

Day Watson of Clevedon provides lots of support for the column and has supplied some updated callsigns for the Serbian news agency TANJUG as follows:

- 5.24MHz YZI-213
- 7.658MHz YZI-223
- 7.806MHz YZI-225
- 11.604MHz YZI-233
- 12.2125MHz YZI-234
- 13.44MHz YZI-235

Day also reports some interesting DX FAX from Taipei Met on 13.9MHz. Pictures received as follows:

- 1320 Satellite pic of Far East
- 1500 Forecast in Chinese print
- 1600 Surface analysis India/Pacific

He reports some other weak FAX signals from Bangkok (7.3945MHz), Seoul (7.4335MHz) and Pretoria (7.5082MHz)

New Utility Books

Two new editions of popular books have been released for sale this month. *Ferrel's Confidential Frequency List* compiled by Geoff Halligey is now in its 9th edition. This excellent publication has retained its metal spiral bound format and clear text style. I particularly like the spiral binding as it lets you fold the book back on itself without causing any damage.

The frequency list is very comprehensive and stretches from 1.6 through to 30MHz and includes all except broadcast stations. Each station is listed with its frequency, mode callsign, location, transmission type and a remarks column. This final column contains useful notes such as the paired frequency or known

transmission times.

The main frequency list is supplemented by a wealth of useful reference data that will prove invaluable to the utility listener. There's even a useful introduction to help the newcomer understand just what utility listening is all about.

The book is available from the *SWM* Book Service and costs **£17.95**. My thanks to **Geoff Halligey** for the supply of the review copy.

Next book for this month is the fourteenth edition of the *Klingenfuss Guide to FAX Radio Stations*. This book has established itself as the standard reference for FAX enthusiasts and contains essential of information that cannot be found in any other single publication. In addition to the simple frequency list and station schedule, there are a wide range of sample FAX charts. These range from original masters through to copies of distant stations. The provision of the charts helps to give a clear indication of what can be achieved and illustrates the various types of interference problem.

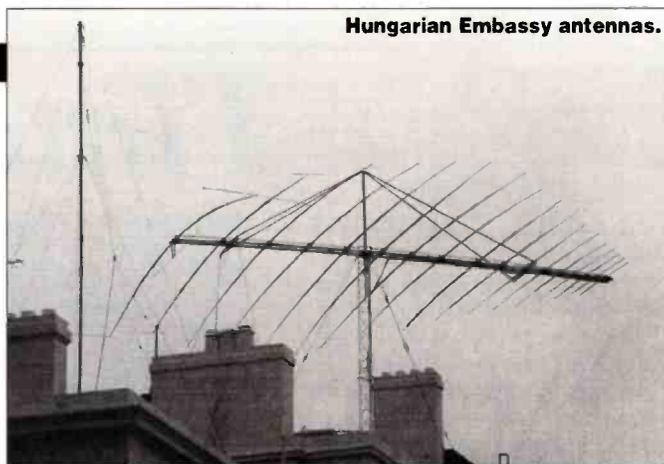
The guide also includes vital technical information on l.f., h.f. and satellite FAX systems. This includes full details of the APT systems and control tones.

The *Guide to Fax Radio Stations* is also available from the *SWM* Book Service and costs **£18.00**. My thanks to **Joerg Klingenfuss** for the supply of the review copy.

Decoder Configuration

With so many newcomers starting utility listening, I thought it might be helpful to look at an area of decoding that's rarely discussed. Most decoding systems include a configuration option where the operator can adjust the default settings to suit his or her personal preference. It is this area that I'll take a look at this month and I'll use the HAMCOMM configuration file to illustrate the practicalities.

Those of you with computer based decoding systems will most likely find the default or configuration details held in a special file, probably with the extension .CFG. In the case of HAMCOMM, the start-up configuration is held in a file called HC.CFG. This is a simple ASCII text file so it can be edited with a text editor and printed-out on a standard printer. The standard config, file supplied with HAMCOMM is particularly helpful as the author has included a full commentary with each of the settings. With this program you can either store your favourite settings in the default



Hungarian Embassy antennas.

configuration file or create a number of your own configuration files. The latter solution has the advantage of flexibility, but you do have to specially load it after the program has been started.

Those of you with stand alone decoding systems will find that the default configuration data is usually stored in a battery backed memory system. Whilst this means your favourite settings are always available, it does not generally allow multiple settings to be stored and retrieved.

Let's now move onto the nitty gritty and see how life can be made easier by careful adjustment of the configuration settings.

The HAMCOMM configuration file starts with the serial port settings. These are very versatile and enable the operator to choose the preset COM1 or COM2 or set-up a completely new COM port. This is particularly flexible as you can set both the base address of the port and the IRQ it is to use. This should enable the configuration to be set for just about any configuration.

Next on the list comes the setting of times zones and differences. If you haven't already twigged, it is standard international practice to use UTC for all log keeping. Because of this it's as well to set your decoder so that it displays UTC rather than local time. This can either be done by setting the computer's clock to UTC or by setting the appropriate time difference in the configuration. Of course, in the UK this only really applies during the summer months. Hamcomm users can use set timezone UTC and set timediff -3600 to handle this.

One of the most important time savers can come from optimising the start-up decoding mode and its settings. It can be so frustrating to have to reset the mode every time you switch on and with many decoders this is so easy to correct. In HAMCOMM this is done using the set mode line in the CONFIG file. For example set mode baudot makes Baudot or RTTY the start-up mode. In addition to setting the mode, it's useful to be able to set the other parameters such as baud rate, shift and centre frequency. The setting of the centre frequency is particularly valuable as you can set this for optimum results with your receiver. Although there are 'standard' tones used by many systems, it's as well to take advantage of the facility to adjust the centre point. So where should we set it? To decide this we need to think about the sort of signals we're likely to be receiving and

in particular the shift being used. If you have a general interest in utilities and receive commercial and amateur RTTY and FAX the widest shift you're likely to encounter is 800Hz. Now the s.s.b. frequency response of the receiver usually extends from around 300Hz up to a maximum of 3kHz. However, the response towards the ends of this range is often rather unpredictable and needs to be avoided. My personal favourite is to centre on 1200Hz so that the received frequencies span from 800Hz to 1600Hz. In most receivers, this is about the flattest part of the response. There is the added advantage that any built-in filters have maximum versatility when operating on this middle range of frequencies.

Other important decoding settings are the keying (normal/reverse) and auto unshift-on-space. The HAMCOMM system has another particularly useful feature in its ability to suppress the reception of blank lines. This is great for saving memory when using unattended monitoring.

Let's just finish off this section with a sample CONFIG file for HAMCOMM.

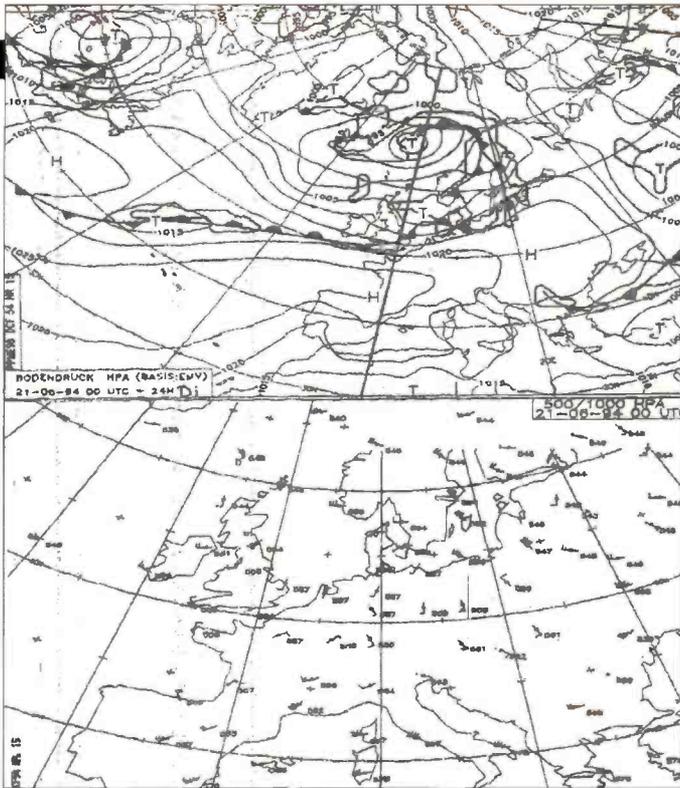
```
HAMCOMM Utility configuration
file
select port com2
set timezone UTC
set mode baudot
set baud 50
set wpm 20
set afcenter 1200
set afshift 400
set afc off
set autounshift off
set rxblanklines on
set keying normal
set wxdecode on
set rxbuffersize 512
set rxwindowlines 75
```

Atari Software

Dave Miller of Stockport has written with some interesting information for Atari ST owners. Dave has been writing software for the past few years and has come up with a brand new decoder for the Atari ST. Don't get too excited yet because it's not completely finished, but I can give you a preview to whet your appetite.

The interface to the radio uses the same principles as most computer based decoders with a comparator mounted in the serial port plug. The only difference is that he uses the CTS lead instead of the more common DSR lead.

Although full automatic picture



transmission (APT) is not yet supported, it is able to receive all the standard FAX formats, e.g. IOC 288 and 576 plus drum speeds of 60, 90, 120 and 240 r.p.m. Despite the lack of full APT, Dave's program can detect and synchronise to the start of a FAX transmission. If you start the decoding manually you have the option to nudge the picture to the left or right to regain synchronisation.

Once your picture has been received you have the option to print to an Epson 24 pin or compatible printer or save to disk using GEM IMG or Degas P13 formats. Just to complete the line-up there's a built-in tuning indicator.

The next stage is for Dave to iron out a few minor bugs, finish the APT option and then the program will be distributed as shareware. To give you some idea of the type of results to expect, I've included a print or two with the column. As you can see from these, the quality is very good and well up to the standard produced by many commercial packages.

As soon as I have more details on where to get your copy I'll report it via the column. My thanks to Dave for all his hard work.

Foreign Embassy Communications

Those of you with an interest in the more complex modes such as ARQ E, Twinplex, ARTRAC, POL-ARQ and HNG-FEC will have inevitably listened to many embassy transmissions. You may also have wondered why these odd codes are necessary. The prime reason is reliability. Each of these complex codes have some form of error correction to help preserve the message when operating under difficult conditions. Typically an embassy station will be based in a city centre and need to communicate over several thousands of miles to its home country. It's the city centre location that imposes the greatest limitations, as

there's hardly room for a full size antenna farm so compromises have to be made.

Recently, I had a photo of the Hungarian embassy antenna system that is typical of that used in city centres sent to me, see photo. The main beam is a steerable log periodic design that gives a good compromise between performance and size. The other major problem is that of locally generated noise, as any listeners living in a city centre will be only too well aware. Despite the rapid progress with satellite communications many of the smaller countries still use the traditional h.f. communications systems. I suspect this is related to a need to maintain their independence.

Offenbach Meteo

The long wave transmissions on 134.2kHz have been a favourite with utility listeners for many years because of their excellent re-transmitted Meteosat pictures. **Phil Perkins** (of Pervisall fame) has sent me a copy of a recent transmission that gives a few clues as to the future of these transmissions. I'll reproduce the text in full here:

"To all recipients of Offenbach DCF37/54 facsimile broadcast.

As response to numerous inquiries the DWD informs that the long wave facsimile broadcasts DCF37 and DCF54 will not - repeat: not be terminated at the 1st of April 1994

Note: However, the DWD is preparing the replacement of the facsimile broadcasts DCF37 and DCF54 by a digital satellite broadcast in the second quarter of the year 1995, DWD will provide technical information on that matter to all known recipients of DCF37/54 within the next two months."

So it's good news and bad news! At least we can continue to enjoy until the middle of next year. If anyone has any further information on the changes, especially it's satellite format, please drop me a line.

German Software

Knowing the high interest in new decoding software, I was very pleased to hear from **Martin Sinnaeve** of Sint-Andries, Belgium. He uses a Commodore A-1200 computer running the German decoding system, BONITO Radiocom II. I remember being sent an early PC version of the program some years ago, but the importer's went bust so that was the end of that!

The Amiga system comprises a small interface unit that connects to the serial port and a software package to handle the decoding and display requirements. In addition to being able to print out the received images, they can be stored in the standard IFF file structure and processed by a wide range of standard Amiga paint packages.

Martin reports that Radiocom II currently costs around 400DM (about £160) and is readily available with an English manual and screen text.

I'm not aware of any UK agents for the software so, if you're interested in a copy here's the address of the German company: BONITO, Peter Walker, Gerichtsweg 3, D 29320 Hermannsburg, Germany. My thanks to Martin for taking the trouble to write.

Special Offers

The following special offers are available to Decode readers. Although I try to turn the orders around within a day or two you should allow up to two weeks for delivery.

JVFAX: Provides FAX and SSTV reception, transmission and image viewing facilities for PC users.

HAMCOMM: Provides RTTY and

CW transceive facilities for PC users. This program is supplied with PKTMON12 which enables reception of h.f. and v.h.f. packet signals.

Day Watson Beginners List:

This comprises a chronological listing of reliable utility signals designed to ensure that the new listener can easily find some signals to decode. These are also some good listening tips and explanations.

Decode List: This is a straightforward frequency list of around 3 to 4 pages of reports sent in over recent months by Decode listeners.

FactPack 1 - Interference Problems: This provide practical help in solving those difficult to cure interference problems with a special accent on computer noise.

Ordering Detail:

JVFAX or HAMCOMM: For each program send a blank formatted 3.5in disk (720K or 1.44M) plus 50p and a self-addressed sticky label.

FactPack 1 or Beginners or Decode List: 50p and a self addressed sticky label

Both lists plus JVFX or HAMCOMM: blank formatted 3.5in disk (720K or 1.44M) plus £1.50 and a self-addressed sticky label.

All five offers, send £2.50 plus a self-addressed sticky label.

Frequency List

Finally it's time for this month's selection of reader's logs. This month the main contributors are: **Geoff Crowley, P. Hardy, Robert Hall, Chris Durkin, Steve Workman, Steve Walker, Day Watson** and Brian Dawson. My thanks to everyone else who has sent in logs, these have all gone into compiling the latest Decode listing.

Freq (MHz)	Mode	Speed	Shift	Call	Time	Notes
0.1342	FAX	120	576	DCF54	1330	Offenbach Met
3.6073	ARQ	100	170	GKZ1	2043	Humber Radio
4.292	CW	-	-	IAR	1952	Rome radio
4.5828	RTTY	100	850	-	1918	Hamburg Met
5.818	RTTY	50	400	9HA	1800	Malta air
6.369	CW	-	-	D3E41	2239	Luanda
6.972	RTTY	50	400	-	1539	Rompress
7.4029	RTTY	50	850	JMG3	1856	Tokyo met
7.4646	FAX	120	576	5YE	1900	Nairobi met
7.801	RTTY	50	400	9BC22	1720	IRNA press
7.959	RTTY	50	400	9BC23	1715	IRNA Press
8.4657	FAX	60	576	JJC	1743	Tokyo R Newspaper
9.0408	RTTY	100	850	5YE	2007	Nairobi
9.395	RTTY	50	400	KCNA	2307	Pyongyang
10.162	RTTY	50	400	YIL70	1028	INA Baghdad
10.28	POL-ARQ	200	255	SNN-299	-	MFA Warsaw
12.75	CW	-	-	IRM	1550	Rome medical
13.565	RTTY	50	400	3MAZZ	0759	Taipei currency gen
14.452	RTTY	50	400	KCNA	0800	Pyongyang press
14.762	ARQ	100	170	NNNGKF	-	USN MARS
14.879	RTTY	50	400	JMG4	1543	Tokyo Met
16.102	ARQ	100	170	HBD36	0925	UNHCR Berne
16.829	ARQ	100	170	SVUG	0812	Athens t/c list
18.04	RTTY	50	850	TCY4	1340	AA Press Ankara
18.173	RTTY	40	400	STK	1325	Khartoum Air
18.5521	RUM-FEC	164	375	-	1058	MFA Bucharest
18.552	ROU-FEC	164	200	-	-	MFA Bucharest
18.911	FEC-A	144	800	TAD	-	MFA Ankara
19.101	RTTY	50	400	-	1420	Indonesian Deplu news
19.747	FAX	120	576	-	1736	Dakar met
19.8078	SWE-ARQ	-	-	SAM	-	MFA Stockholm

Let Your Computer Control Your Radio! . . . with SCANCAT

Once you use the SCANCAT computer program with your radio, you will never operate your radio again without it! SCANCAT Version 5.0 controls the following radios:

- * AOR 2500, 3000
- * KENWOOD R-5000, TS-440, TS-450, TS-711, TS-950
- * DRAKE R-8
- * YAESU FT-757GX, FRG-9600 - FRG-100 New
- * ICOM R-71, R-7000, R-9000, R-7100
- * JRC, NRD-525, NRD-535

For other ICOM and Kenwood radios please write.

SCANCAT 5.0 UNIVERSAL FEATURES

- * Create Frequency Databases
- * Scan between ANY Frequencies
- * Up to 400 Frequencies/File
- * Scan by ANY increment and delay
- * Built in TNC comm program
- * Share ANY radio's file
- * Import text files



EXTRA SCANCAT-PRO FEATURES

- * DBase support
- * UNLIMITED file sizes
- * Multiple Scanning banks (up to 15)
- * Dual simultaneous scanning of TWO Icom radios

AOR-3000, ICOM, NRD-535 FRG-9600 & FRG-100 FEATURES

- * Auto logging to disk files
- * Spectrum analysis with spectacular graphics
- * Auto signal detection/scan stop
- * Save/Load radio's memories to disk
- Optional squelch detect cable - Specify Icom or Yaesu \$24.95
- Scancat-Pro \$79.95
- Scancat 5.0 \$49.95
- Upgrade \$24.95

Charge Cards welcome

* Please call

J & J Enterprises

P.O. Box 18292, Shreveport, LA 71138

Please add \$7.50 P&P per order

Phone. 318-636 1234 (8-5 CST) or FAX 318-686 0449(24 hours)

THE REALISTIC SPECIALIST

PRO 2006

25-520 & 760-1300MHz AM/FM

PHONE FOR BEST PRICES

PRO 39	66-88	108-174	380-512	806-960 200ch H/H	£?
PRO 43	66-88	108-174	220-512	806-999 AM/FM 200ch	£?
PRO 44	66-88	108-174	380-512	50ch H/H	£?
PRO 46	66-88	108-174	406-512	806-956 100ch H/H	£?
PRO 50	66-88	136-174	406-512	NEW! 20ch H/H	£?
PRO 2032	66-88	108-174	380-512	806-960 200ch BASE	£?

We also stock Realistic Scanner Workshop Manuals

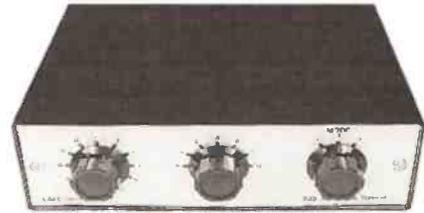
GOCVZ All scanners Include FREE p&p in the U.K. 12 months warranty G6YTI

LINK ELECTRONICS

216 Lincoln Road, Peterborough PE1 2NE Tel: (0733) 345731

Send large S.A.E. for details

NEW! TU3 Antenna Tuner



- * Ideal for receivers with a long wire Antenna on the H.F. bands, 1-30MHz.
- * Versatile! The touch of a switch gives any one of 3 different arrangements.
- * Quality case - black with printed aluminium front & back facias. Measuring only 170-140-50mm.
- * Kit complete with ALL components and hardware including pre-punched case and panels.

Price **£44** Plus £4.00 P & P

Ready made **£54** Plus £4.00 P & P

Send SAE for Brochure on our full range of kits or call

Alan, G4DVW on 0602 382509

LAKE ELECTRONICS



7 MIDDLETON CLOSE, NUTHALL,

NOTTINGHAM NG16 1BX

(Callers by appointment only)



JV FAX - HAMCOMM - PC HF FAX and PKTMON12

Read Mike Richard's review in SWM DECODE March '94 Demodulator for these popular programmes - connect to audio output and plug the 25 way connector into you PC then monitor

Fax RTTY Morse and Packet at an AFFORDABLE price.

UK/Eire price £16.99 inc VAT and P&P - Overseas £19.99.

Clubs and Groups save or make money by bulk purchase!

5 off £73.00 inc. 10 off £144.00 inc.

25 way to 9 way adaptor UK/Eire £3.00 inc. Overseas £5.00.

All products carry full money back guarantee.

Pervisell Ltd, 8 Temple End,

High Wycombe, Bucks HP13 5DR.

Tel (0494) 443033 Fax (0494) 448236

RAMS IV

MULTIMODE Rx PROGRAM FOR YOUR SPECTRUM

RTTY

5 Baud rates

AMTOR

(SITOR)

MORSE

To 250 wpm or more

SSTV

Large picture and multi speed

All this with generous

QSO Review and picture store £25.00

RMS III users upgrade for £12.50

Please add £1.50 post & packing

Send large SAE (33p stamp) for details of all our products.

J. & P. ELECTRONICS LTD.

Unit 45, Meadowmill Estate, Dixon Street, Kidderminster DY10 1HH Tel: (0562) 753893

GAREX ELECTRONICS

GAREX VHF PREAMPLIFIERS

Miniature (only 34x9x15mm), any frequency in the range 40-200MHz, up to 25dB gain. Stock versions: 6m, 4m, 2m, 137MHz (W-Sat) £12.50. Airband (118-136MHz) (reduced gain due to frequency spread) £12.50. Other frequencies in the range 40-200MHz to order: £14.95.

GAREX HPA-2 HIGH PERFORMANCE 144-146MHz PREAMPLIFIER

RF switched (35 watt max power) 3 band pass stages for improved selectivity 16dB gain, fitted in die-cast box with BNC sockets £49.95.

DC/DC INVERTERS

A popular line for many years. Economy package; chassis section cut from commercial R/T gear, rewired and tidied up to make free-standing unit, no expensive cabinet, just basic value for money. 12v DC input, 250v 150mA DC output £11.95. 12v DC input, 400v 200mA DC output £12.95. (24v versions to order).

4 METRE Rx CONVERTER

High quality PMR front end by famous manufacturer, modified to make a 4m converter, 10-11MHz output. Full data. Ready to go, with xtal £17.90.

4 METRE 0.5 WATT FM Tx

Tx low power driver unit matching above Rx, with modulator, ready aligned, with data £16.80. Xtal for 70.45MHz £6.50.

PYE AERIAL RELAYS

12v operation, handles 50 watts up to 200MHz £2.00 5+ £1.60 each.

50MHz or 70MHz 10 WATT FM PA

Solid state assembly. 0.25watt drive, 10-15 watts output (state 50 or 70MHz) £16.95. Also available: matching driver & modulator assemblies for complete 50MHz or 70MHz Tx.

FULL RANGE OF REVCO MOBILE AERIALS AVAILABLE for 27 to 950MHz ask for catalogue.

GAREX VHF FM MONITOR RECEIVERS

Single channel NBFM monitor receiver, any spot frequency in the range 27-200MHz in neat cabinet 180x140x50mm. Built-in speaker. Requires 12v DC supply, includes crystal for your choice of frequency (allow 4 weeks delivery). Ideal for Packet, RAYNET and other emergency frequencies. Special price £59.95. Many options available, including multi-channel, ask for details.

FLEXIBLE ¼ WAVE AERIALS

Discover a whole new world of signals: full-length ¼ waves are several dB better than "rubber ducks". BNC plug. Available for VHF Airband, UHF Airband, 2m, 70cms also other VHF & UHF bands to order. VHF models: £10.90, UHF: £8.80.

Write, phone or fax for lists. Regular lines, components and bargains for callers.

Open 10am-5pm Mon-Fri (occasional Sats)

ALL PRICES INCLUDE UK CARRIAGE AND VAT AT 17.5%



GAREX ELECTRONICS
STATION YARD, SOUTH BRENT,
SOUTH DEVON TQ10 9AL

Phone (0364) 72770 Fax: (0364) 72007



Watching Brief

The Creative Side - 2

I promised to name products and suppliers this time and so I shall. There are dozens of products on the market, at all kinds of price levels, so I cannot mention them all. And those that I do should not be seen as having some particular commendation, although I must say I have heard nothing bad about these companies!

Software

When it comes to software, the best stuff is commercial and not all that cheap but there are also some good folk who have written some public domain video programs. You can use these programs for nothing, although the authors will send you more fully featured versions for a small registration fee. I have collected together a disk with VTR countdown clock, colour bars, three test patterns and a simple title generator, and I'll be happy to supply readers with a copy (see below). But don't be tempted to use ripped off copies of commercial titling and graphics software even if you don't use it yourself for commercial purposes. If it's worth having, it's worth paying for. That's my motto anyway.

Video Titling

When it comes to video titling and captioning, one of the joys of the PC over earlier home computers, is the sophistication of its effects (assuming you are using professional software). I'm not saying all the titling fonts look like the ones on 'real' television - often far from it - but it's a good starting point. The snag is, or rather was, that you could not record the video output of VGA graphics because the computer produces different line and field rates to our PAL standard television. Converter boards were available but expensive. Now Rombo has brought out a low-cost adapter called the VGA Buster Pro and although I haven't used it, another magazine rated it as the best they had seen. It produces RGB, Y/C (S-Video) and composite PAL outputs.

A more elaborate product of this kind comes from Vine Micros and they

also make frame grabbers, genlock overlays and chromakey devices of a high calibre. For video titling programs and programs to control your VCR for editing the best selection is with Maze Technology, although another program, *VideoDirector* from Gold Disk has had excellent reviews. There are some even better video titling programs on the North American market but you have to order these direct and they are not in the budget software category either.

Amiga

I know somebody will scream about the Amiga being more suited to video titling, and it probably is. The shame is that whilst the basic computer is cheap, all the hard disks and other add-ons are not. In addition, now that part of the Amiga empire is in receivership, the long-term future of the machine is unclear. No doubt by the time you read this, something will have been sorted out but this doesn't alter the unfavourable cost of the peripherals. MSX3 is another nice machine with PAL output but it is not distributed officially in this country and has close to zero user support. So this leaves the PC-compatible machines as the most versatile, the most economic and in my view the most viable machine for home video production.

Beginners Start Here

Ian Hughes wrote in from Walsall asking for basic information on 24cm reception and where the nearest repeater was. In his case the proposed Birmingham repeater would be a good place to look for information like that, also the address of the nearest amateur radio club, is in the *RSGB Call Book*. No enthusiast can afford to be without this reference work.

The next question was, are there any kits or ready-made 24cm receive converters? Yes, try Camtech Electronics Tel: (0440) 62779, Fax: (0440) 714147. They supply them and I rather recall that *Elektron* magazine had an article on one last year. There

have also been other makes (e.g. Fortop and Wood & Douglas) that are now out of production but these still turn up second-hand (e.g. on the bring & buy stalls at rallies, small ads in magazines). Also *CQ-TV*, the magazine of the British Amateur Television Club, has had constructional articles and you can buy back numbers from the club. The magazine also publishes an index to articles in back numbers and you can buy all these from BATC Publications. Alternatively you could use virtually any satellite receiver but it will either need modification or a powerful pre-amp.

Antennas. Do it yourself is possible but perhaps too demanding for a newcomer. Metalworking skills and accurate dimensioning are called for. In any case ready-made antennas are not expensive (£14 upwards) and are advertised in *CQ-TV* (from Severn side Television Group, Tel: (0225) 873098 after 19.00 or at weekends). Constructional details can be found in a book called the *UHF Compendium*, available from KM Publications on Tel: (0788) 890365 after 18.30 or at weekends).

Computer Products Info

Gold Disk. Tel: (0753) 832383.
VideoDirector editing software.

Maze Technology, Tel: 081-556 5620.
Video Workshop for Windows, VCR Control SDK and PC-Titler Professional.

Rombo, Tel: (0506) 414631. VGA Buster Pro VGA to PAL converter. Vine Micros, Tel: (0843) 225714. MultiVideo system of plug-in cards for PCs.

Video utilities disk. Seven DOS (not Windows) programs and user notes. For PCs with VGA graphics. Available only on high density disks, 3.5in 1.4Mb or 5.25in 1.2Mb, not on lower density formats. To obtain your copy, send a formatted disk, a sticky label with your name and address and £1 to cover costs to Andrew Emmerson, 71 Falcutt Way, Northampton NN2 8PH. Allow 14 days for handling. Un-formatted and faulty disks will be returned unprocessed.

How To Shoot Super Videos, Volume 5 Basic Editing With Consumer Gear, Volume 6 Intermediate Editing With Prosumer Gear and Volume 7 Advanced Editing With Professional Gear. 14.99 each plus £1.50 carriage per tape. Available from BVG, Units 6 & 18, Industrial Estate, Brecon, Powys LD3 8LA. Tel: (0874) 611633, Fax: (0874) 622994.

Air Supply,
83b High Street,
Yeadon, Leeds LS19 7TA

Amateur Electronics Holdings,
45 Johnston Street,
Blackburn BB2 1EF

Amateur Radio Communications Ltd,
38 Bridge Street,
Newton-le-Willows,
Merseyside WA12 9BA

AMDAT,
4 Northville Road,
Northville,
Bristol BS7 0RG

BBC World Service Bookshop,
Bush House,
Strand,
London WC2 4PH

Bredhurst Electronics Ltd,
High Street,
Handcross,
Haywards Heath,
West Sussex RH17 6BW

Cirkit Distribution Ltd,
Park Lane,
Broxbourne,
Herts EN10 7NQ

Electronics Equipment Bank,
323 Mill Street NE,
Vienna,
VA 22180, USA

Flightdeck,
192 Wilmslow Road,
Heald Green,
Cheadle, Cheshire SK8 3BH

Haydon Communications,
132 High Street,
Edgware,
London HA8 7EL

Lowe Electronics Ltd,
Chesterfield Road,
Matlock,
Derbyshire DE4 5LE

Lowe Electronics,
Retail Branches:
79/81 Gloucester Road,
Patchway,
Bristol BS12 5JW

152 High Street,
Cherston,
Cambridge CB4 1NL

Cumbernauld Airport,
Cumbernauld,
Strathclyde G68 0HH

34 New Briggate,
Leeds LS1 6NU

Communications House,
Chatham Road,
Sandling, Maidstone ME14 3AY

Mitford House,
Newcastle International Airport,
Woolsington,
Newcastle-upon-Tyne NE20 9DF

117 Beaumont Road,
St Judes, Plymouth PL4 9EF

3 Weavers Walk,
Northbrook Street,
Newbury,
Berkshire

Martin Lynch,
140-142 Northfield Avenue,
Ealing, London W13 9SB

QFL Communications,
Unit 6,
Worle Industrial Centre,
Corker Road,
Worle, Western-Super-Mare BS22 0BX

Securicor PMR Systems,
Industrial Estate,
Gwaelod-y-Garth,
Cardiff CF4 8JN

The Radio Place,
5675-A Power Inn Road,
Sacramento, CA95824, USA

Tucker Electronics,
1801 Reserve Street,
Gasland, TX 75042,
USA

Ward Electronics,
422 Bromford Lane,
Ward End,
Birmingham B8 2RX

Waters & Stanton,
22 Main Road,
Hockley,
Essex,
SS5 4QS

12 North Street,
Hornchurch,
Essex

If you're on the hunt for rally goodies,
keep a look out for portable VCRs.



QUANTEK FC2000

ULTRA HIGH SENSITIVITY FREQUENCY COUNTER/FINDER

- ★ 1MHz – 2.4GHz
- ★ Sensitivity less than 1mV from 10MHz to 800MHz
- ★ 2 Gate/measurement periods
- ★ Display hold switch
- ★ Bright 8 digit LED display
- ★ Charge & Gate LEDs
- ★ Aluminium case – 100 x 87 x 28mm
- ★ 700mAh Ni-cad batteries
- ★ Maximised sensitivity for measuring transmitted radio signals at a distance
- ★ Supplied with mains adaptor/charger & telescopic antenna



ONLY **£119**
+ £5 P&P
MADE IN UK
12 Months Guarantee

TO ORDER CALL

021 457 7994

FAX ORDERS **021 457 9745**

QUANTEK ELECTRONICS

1678 BRISTOL ROAD SOUTH, BIRMINGHAM B45 9TZ



PC Software

PC HF FAX Ver. 7.0 **£116.33**

The original and still the best HF FAX receive program. Simple to operate and install with new improved resolution.

PC GOES/WEFAX Ver. 3.3 **£199.00**

Receive both HF FAX images together with NOAA and Meteosat weather satellite pictures with this complete program.

PC SWL Ver. 3.1 **£99.00**

This simple and basic program allows the beginner to start decoding the numerous data transmissions around the HF bands.

PC SSTV Ver. 5.1 **£99.00**

Receive and view the numerous SlowScan TV images now sent on the Amateur frequencies.

PC Weatherspot Ver. 1.0 **£93.00**

A NEW program allowing any previously captured file of Meteo Code from Bracknell to be displayed on various maps with all relevant data. Optional Transmit Modulator available for HF FAX and SSTV.

Call for full details and brochures.

PRICES INCLUDE VAT. PLEASE ADD £3.50 P&P

COMAR ELECTRONICS

Unit 3, Medina Court, Arctic Road,
Coves, Isle of Wight PO31 7XD

Tel: 0983 200308 Fax: 0983 282400



ALAN HOOKER

RADIO COMMUNICATIONS

OPEN 10-5 MON TO SAT

CLOSED THURS

FAX-0302 325690

42 Nether Hall Road
Doncaster
DN1 2PZ

AOR

	OUR PRICE
AR-8000	449.00
AR-3000A	850.00
AR-2000	260.00
AR-1500EX	315.00

YUPITERU

MVT-7100	365.00
MVT-7000	289.00
MVT-8000	349.00

ICOM

IC-R9000	4 350.00
IC-R7100	1 250.00
IC-R100	550.00
IC-R72E	775.00
IC-R71E	950.00
IC-R1	350.00

YAESU

FRG-100	479.00
FRG-9600	530.00

KENWOOD

R-5000	899.00
--------	--------

ALINCO

DJ-X1	315.00
-------	--------

LOWE

HF-225	479.00
HF-150	389.00

UK SCANNING DIRECTORY 15.50
HANDY HANDHELD HOLDERS 12.95
BASE & MOBILE SCANNING ANTENNAS PHONE!!

YUNGHANS MEGA



YUNGHANS MEGA
RADIO CONTROLLED
CLOCKS & WATCHES FOR
THE LOWEST PRICES ON
ALL AVAILABLE MODELS.

RING ALAN OR JASON NOW! TEL: (0302) 325690

Propagation

During April, **Ron Livesey** (Edinburgh), using a 2.5in refractor telescope and a 4.0in projection screen, identified one active area on the sun's disc on days 17, 19, 20 and 26 and two on the 24th and 25th. In May, Ron observed one of these areas on days 12, 16, 17, 22 and 23 and two on the 13th, 14th, 18th, 19th and 20th.

At his observatory in Bristol, Ted Waring, located two sunspots on on his screen on May 9 and six on the 18th.

Auroral

In his capacity as auroral co-ordinator for the British Astronomical Association, Ron Livesey received reports of auroral displays described as 'glow' for the overnight period on April 3/4 and 7/8; 'homogeneous arcs and/or bands' on 2/3, 10/11, 16/17, 29/30 and 30/01; 'rayed arcs and/or bands' on 4/5; 'ray structures' on 2/3, 10/11 and 12/13; 'active, moving forms, flickering, flaring, etc.' on 2/3, 3/4, 4/5, 5/6, 6/7, 8/9, 9/10, 10/11, 11/12, 16/17 and 18/19 and 'corona or half filled sky' on 2/3, 14/15 and 15/16, from observers ranging from Scotland to Canada and the USA.

Tone-A signals from radio transmissions reflected by an auroral event were heard on days 2, 3, 5, 6, 8, 11, 16, 17 and May 1. At the end of his monthly report to the BAA, Ron added that the big storm of April 16/17 was due to a coronal mass ejection and was well seen in New Zealand on 17/18 by many observers after the earth rotated under the auroral oval.

One of Ron's regular observers, **Jay Brausch** (North Dakota), reported seeing auroral 'glow' on May 29/30; 'quiet arc or band' on 4/5; 'ray bundles' on 3/4, 9/10, 11/12, 13/14, 14/15 and 23/24 and 'active pulsating' on 1/2, 2/3, 6/7, 7/8, 8/9, 28/29, 30/31 and 31/01. 'Rayed arc or band' was reported from Detroit on 2/3, a 'quiet arc or band' on 11/12 and observers on the Ocean Weather Ship *Cumulus*, at 5731 N, 2011 W, reported auroral glow on 6/7.

Magnetic

The various magnetometers used by **John Fletcher** (Mt. Tuffley), **Andy Hollis**

(Winsford), **Tony Hopwood** (Upton-On-Severn), Ron Livesey, **Karl Lewis** (Saltash), **Ted Owen** (Maldon), **David Pettitt** (Carlisle) and **Tom Rackham** (Goostrey), between them, recorded strong disturbances to the earth's magnetic field on April 2, 3, 4, 6, 7, 9, 16, 17 and 21-23. Some members of this team also reported similar events on May 1-3, 11, 16, 24 and 28-31

Propagation Beacons

As usual, my thanks are due to **Gordon Foote** (Bristol), **Cmdr. Henry Hatfield** (Sevenoaks), **Ian McDermid** (Comrie), Ted Owen, Ted Waring and **Ern Warwick** (Plymouth) for their 28MHz beacon logs and comments about the prevailing conditions on the band. From these reports I compiled this, the last of our monthly beacon charts, **Fig. 1**.

Henry Hatfield told me that EA3JA was 'very loud' at 0800 on May 22. Gordon Foote and Ted Owen added OH9TEN to the chart on the days indicated and Ern Warwick caught the two South American beacons PI7BQC and

PI7ETE. Our chart shows a lot of 'local' activity between May 16 and 22 and my DXTV column, elsewhere in this issue, has reports of Sporadic E openings on the 17th, 22nd and 26th. Although this identifies the cause of the extra activity I wonder if those sunspots that Ted Waring reported around that time had anything to do with it?

Tropospheric Band II

Arthur Grainger (Carstairs Junction) found tropospheric conditions improved in April. He began receiving signals almost daily from Hallam FM and Manx FM. Also on the 22nd he logged Lincs FM and, during the morning of the 25th, he heard quite a few French and Dutch stations. This fits nicely with the warmer weather that arrived toward the end of the month.

On most days in May, Arthur received good signals from Lincs FM, Minster FM and Radio Leicester and on some nights he listened to good stereo from Manx FM. On the 8th he noted BBC Essex breaking through on 103.5MHz for the first time and, around 1035 on the 24th, he was

surprised to hear Wear FM on 103.4MHz, in stereo, from Sunderland. During the 24th, "the best day in the month for DXing," said Arthur, he added TFM from Cleveland on 96.5MHz. Although this area of the dial is very crowded he listened to TFM despite some interference from CFM, Q96, Radio Borders and West Sound.

While in East Jersey between May 29 and June 3, **Tim Bucknall** (Congleton) had a good tune through Band II and logged Radios 1, 2, 3 and 4 from Les Platens, North Hessory Tor and Rowridge. He added Classic FM from North Hessory Tor and Radio Jersey and a number of French stations including France Culture from Caen and Rennes.

Barometer

Arthur's barometer was reading high at 30.3in on May 24 compared with 29.8in here in Sussex.

More precise details of the changes in the atmospheric pressure, for the period April 26 to May 25, can be seen in **Fig. 2**.

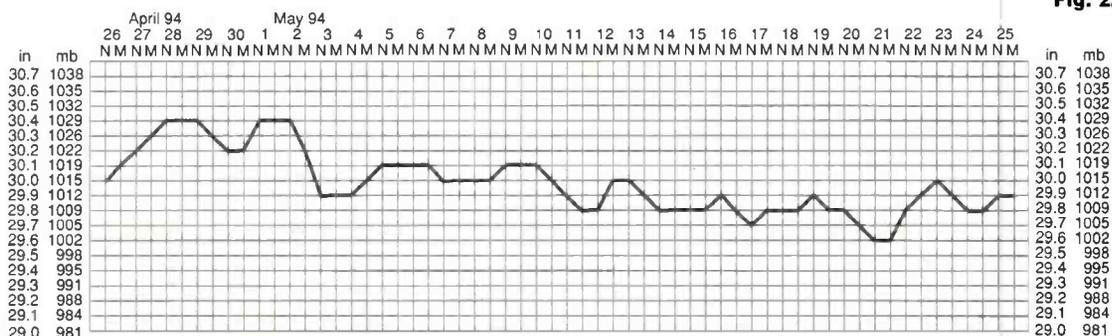


Fig. 2.

Beacon	April					May															Fig. 1.									
	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
DF0AAB																														
DF0THD																														
DK0TEN																														
DL0IGI																														
EA3JA																														
HG6GEW																														
IK1PCB																														
IY4M																														
LA5TEN																														
OK0EG																														
OH2TEN																														
OH9TEN																														
PI7BQC																														
PI7ETE																														
SK5TEN																														
SV3AQR																														
S55ZRS																														
ZS1J																														
ZS1LA																														
ZS6PW																														
Z21ANB																														
5B4CY																														

LM&S

Long, Medium and Short Waves

owing to the daily propagation variations in the higher frequency s.w. bands it may not be possible to hear the signals from a particular station on a regular basis, even though they are intended for your area.

In an attempt to combat this problem, many broadcasters provide simultaneous transmissions on one or more lower frequencies, so that listeners can select whichever offers the best reception. Such frequencies will be detailed in their broadcast schedule, but it may become necessary to change them at short notice, so listen to their opening announcements.

Long Wave Reports

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

Sometimes the l.w. propagation conditions were quite good at night in May. The sky waves from Alma-Ata, Kazakhstan on 234kHz were heard for the first time by **Stephen Jones** in Oswestry. He logged their 500kW signal as SINPO 22222 at 2215UTC. He also heard very weak signals from Erzurum, Turkey (200kW) on 243 at 2203.

Some nights, the sky waves from Tipaza, Algeria on 252 reached the UK remarkably well. On May 2 unusually good reception was obtained by **Harry Richards** in Barton-on-Humber. At 2230 their signal was about equal in strength to that from co-channel Atlantic 252 in Clarkestown.

Good reception from Tipaza was noted around 2256 by **Martin Dale** in Stockport. By carefully turning his set he was able almost completely to 'null-out' Atlantic 252. The signal ratings in the report from **Sheila Hughes** in Morden made interesting reading. At 2225 on June 2 Tipaza was 43443, whereas Atlantic 252 was 33333.

Provided the ferrite rod in his portable was facing towards Algeria, **Andrew Stokes** (Leicester) was able to receive Tipaza around midnight most nights with very little trace of Atlantic 252. He logged their signal as a potent SIO444 at 0016. As Andrew has pointed out, the power of Atlantic 252 is reduced from 500kW to 100kW between dusk and dawn in an attempt to prevent the sky waves from causing co-channel interference within the service area of Tipaza.

In the daytime, **Clive Boutell** (Dovercourt, Essex) has noticed an improvement in the strength of the

ground waves from Atlantic 252. Reports from other areas would be welcome.

Medium Wave Reports

The long hours of daylight discouraged most from waiting for the sky waves from distant stations to arrive after dark. However, checking the band during daylight, when only the ground waves are able to reach a point of reception, proved to be quite rewarding for some.

There was only one report of m.w. transatlantic signals reaching our shores. It came from **Sid Morris** in Rowley Regis. He spent a few days in Gwynedd, N.Wales and while at Cwm Nantcol on May 14 he searched the band throughout the night! He says, "I was very lucky to hear a total of 36 stations. I have never known the conditions so good". Most of the broadcasts he heard came from stations in New Foundland, Nova Scotia and New York state.

Since the closure of the Westdeutscher Rundfunk outlet at Langenburg some weak transmissions from other areas have been heard on 1593 - see LM&S May'94. On the evening of May 16 **George Millmore** (Wootton, IoW) picked up a fairly weak foreign language broadcast on 1593. The position of his loop suggested that the received signal was coming from Romania, where four low power transmitters are known to share 1593. They are located at Baneasa (14kW), Miercurea Ciuc (14kW), Oradea (2kW) and Sibiu (7kW).

The BBC will close down all of their Radio-1 m.w. outlets on July 1, to comply with a Government decision to use the frequencies for other radio services. Nevertheless, Radio-1 fans will still be able to receive the broadcasts in the v.h.f. band on frequencies between 97 and 99MHz.

Test transmissions were picked up on 1458kHz by **Roy Patrick** in Derby. They proved to be from Fortune 1458, a new station in Manchester. He found that he could receive them quite well during daylight by using a directional loop with his portable to 'null-out' co-channel BBC Radio WM. They were using a 5kW transmitter at Ashton Moss, so it seems likely that their broadcasts will cover quite a wide area.

Roy also informed me that Sunrise Radio (E.Midlands) on 1260 will be replaced by a new Asian station called Sabras Sound in September 1995. So many changes are being made to the m.w. broadcast services that it is quite difficult to keep up with

Long Wave Chart

Freq (kHz)	Station	Country	Power (kW)	Listener
153	Bechar	Algeria	1000	L*,M*,P*
153	Donebach	Germany	500	A,B,C,D,F*,G*,H*,J,K,L,M*,N*,O,P,Q
153	Brasov	Romania	1200	B*,D,M*
162	Allouis	Fance	2000	A,B,C,D,E*,G*,H*,J,K,L,M*,N*,O,P,Q
171	Nador Medi-1	Morocco	2000	A*,E*,L*,N*
171	Kaliningrad	Russia	1000	B,C,D,G*,J*,K,L*,M*,N*,Q
177	Oranienburg	Germany	750	B,C,O,G*,H*,J*,K,L*,M*,N*,Q
183	SaarLouis	Germany	2000	A,B,C,D,G*,H*,J,K,L,N*,O,P,Q
189	Caltanissetta	Italy	10	B*,D*,L*
198	Droitwich BBC	UK	500	A,B,C,G,H*,J,K,M*,N*,O,P,Q
207	Munich	Germany	500	A,B*,C*,D,F*,J*,K,L,N*,O*,P,Q
207	Azilal	Morocco	800	L*
216	Roumoules RMC	S.France	1400	A*,B,D,E*,G*,J,K,L,M*,N*,O*,P,Q
216	Oslo	Norway	200	G*
225	Raszyn Resv	Poland	?	A,B,D,E*,G*,J*,K,L*,M*,N*,P,Q
234	Beidweiler	Luxembourg	2000	A,B,C,D,E*,G*,H*,J,K,L,M*,N*,O*,P,Q
234	St.Petersburg	Russia	1000	B*,L*,N*
243	Kalundborg	Denmark	300	A,B,D,E*,F*,G*,J,K,L,N*,P,Q
243	Alma-Ata	Kazakhstan	500	H*
243	Erzurum	Turkey	200	H*
252	Tipaza	Algeria	1500	A*,C*,D*,G*,K,L*,N*,P*
252	Atlantic 252	Ireland	500	A,B,C,O,E*,G*,H*,I,J,K,L,M*,N*,O*,P,Q
261	Burg	Germany	200	A*,B,O,K,N,P,Q
261	Taldom Moscow	Russia	2000	L*,M*,N*
270	Topolna	Slovak Rep	1500	D,K,N*,P,Q
270	Orenburg	Russia	40	B
279	Minsk	Belarus	500	A*,B*,D,E*,K*,L*,N*,P,Q

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

Listeners:

A: Clive Boutell, Dovercourt.
B: Geoff Crowley, Aberdeen.
C: Martin Dale, Stockport.
D: John Eaton, Woking.
E: Alec Griffiths, Inverness.
F: Simon Hockenhill, E.Bristol.
G: Sheila Hughes, Morden.
H: Stephen Jones, Oswestry.
I: Ronald Kilgore, C.Londonderry.

J: Mary McPhillips, Co.Monaghan.
K: George Millmore, Wootton, IoW.
L: Fred Pallant, Storrington.
M: Aleksandar Radulovic, Southampton.
N: Harry Richards, Barton-on-Humber.
O: Tom Smyth, Co.Fermanagh.
P: Andrew Stokes, Leicester.
Q: Phil Townsend, E.London.

them! If you are aware of any please let me have the details for LM&S.

Short Wave Reports

Conditions in the h.f. bands were far from good during much of May. Some broadcasters moved to lower frequencies in an attempt to provide a more reliable service and that resulted in a higher level of co-channel interference.

The **25MHz (11m)** band appears to have been vacated by all international broadcasters.

Daily variations were evident in the **21MHz (13m)** band and it often closed early in the evening. In the morning R.Australia's Darwin broadcast to Asia on 21.725 (Eng 0630-1100) often reached our shores. At best it was 33433 at 1040 by **Simon Hockenhill** in E.Bristol.

Also logged here in the morning were UAER, Abu Dhabi 21.735 (Ar to Eu 0800-1358) 35434 at 0800 by **Fred Pallant** in Storrington; also 21.630 (Ar to N.Africa 0800-1000) SIO222 at 0805 by **Bill Clark** in Rotherham; R.Pakistan, Islamabad 21.520 (Eng to Eu 0800-0845) 32222 at 0815 by **Bernard Curtis** in Stalbridge and (Eng to Eu 1100-1120) 44544 at 1108 by **Michael Griffin** in Ross-on-Wye; R.Portugal Int via Sines 21.655 (Port to Brazil 0700-? Sat/Sun) 24221 at 0824 by **Rhoderick Illman** in Oxted; Slovak R.Int via Rimavska Sobota 21.705 (Eng to Aust 0830-0857) 24312 at 0839 by **Leo Barr** in Sunderland; R.Japan via Moyabi 21.640 (Jap to Eu, M.East 0800-0900) 35443 at 0840 by **John Eaton** in Woking; BBC via Kranji 21.715 (Eng to SE.Asia 0900-1030) 25232 at 1028 in Barton-on-

Humber; BBC via Ascension Is 21.660 (Eng to Africa 0730-1745) 35333 at 1145 by **Geoff Crowley** in Aberdeen.

After mid-day HCJB Quito 21.455 (Eng, u.s.b.+ p.c.) 34333 at 1311 by **Gerry Haynes** in Bushey Heath; RCI via Sines, Portugal 21.455 (Eng to Eu, M.East, Africa 1330-1400) SIO444 at 1330 by **Phil Townsend** in E.London; R.Moscow Int 21.785 (Eng WS 0600-1500) 55444 at 1433 by **Ronald Kilgore** in Co.Londonderry; RFI via Allouis 21.685 (Fr to W.Africa 1200-2000?) 24433 at 1435 by **Eric Shaw** in Chester; UAER, Dubai 21.605 (Eng to Eu 1600-1640) 55555 at 1615 by **Chris Shorten** in Norwich; R.Japan via Moyabi 21.700 (Jap to Eu, M.East, Africa 1600-1700) 44444 at 1630 by **Robert Connolly** in Kilkree; WYFR via Okeechobee 21.500 (Eng to Eu, Africa 1700-1900), heard at 1700 by **Julian Wood** in Elgin.

Later, R.Nederlands via Bonaire 21.590 (Eng to Africa 1730-1925) was 44444 by **Laurence Mason** in Hassocks and 32322 at 1852 by **Aleksandar Radulovic** in Southampton; WYFR via Okeechobee 21.615 (Eng to Eu 1900-1945) 44223 at 1903 by **Eddie McKeown** in Newry.

Slightly more reliable reception of R.Australia was noted here in the **17MHz (16m)** band. Their Darwin transmission on 17.695 (Eng to S.Asia 0700-0900) was rated 33543 at 0815 by **David Edvardson** in Wallsend. In contrast, 17.750 from Carnarvon (Eng to Asia 0000-0530, 0700-0900) was 44444 at 0719 in Woking.

In the morning the BBC via Mayhe 17.885 (Eng to E.Africa 0500-1400) was 54444 at 0638 in Bushey Heath; R.Pakistan, Islamabad 17.900 (Eng to

BOOK SERVICE

The books listed have been selected as being of special interest to our readers. They are supplied direct to your door. Some titles are overseas in origin.

TO ORDER:
PLEASE USE THE ORDER FORM AT THE END OF THIS SECTION OR
TELEPHONE THE CREDIT CARD HOTLINE ON (0202) 659930.

LISTENING GUIDES

AIR BAND RADIO HANDBOOK

4th Edition
David J. Smith
Extensively revised & updated (October 1992). Air band radio listening enables you to listen-in on the conversations between aircraft and those on the ground who control them, and is an increasingly popular and fascinating hobby. A new chapter on military air band has been added. The author, an air traffic controller, explains more about this listening hobby. *190 pages. £7.99*

THE COMPLETE SHORT WAVE LISTENER'S HANDBOOK 3RD EDITION

Hank Bennett, Harry Helms & David Hardy
This book is a comprehensive guide to the basics of short wave listening. Everything you need to get started as an s.w.l. is explained in a clear and easily understood manner. Receivers, antennas, frequencies, propagation, Q-codes, etc. are all covered. *294 pages. £17.95.*

DIAL SEARCH 1992/94

George Wilcox
The listener's check list and guide to European radio broadcasting. Covers m.w., l.w., v.h.f. & s.w., including two special fold-out maps. Also includes a full list of British stations, a select list of European stations, broadcasts in English and 'Making the Most of Your Portable'. *46 pages. £4.25*

FLIGHT ROUTINGS 1994

Compiled by T.T. & S.J. Williams
This guide was produced with the sole aim of assisting airband listeners to quickly find details of a flight, once they have identified an aircraft's callsign. Identifies the flights of airlines, schedule, charter, cargo and mail, to and from the UK and Eire and overflights between Europe and America. *122 pages. £6.00*



FERRELL'S CONFIDENTIAL FREQUENCY LIST

9th Edition
Compiled by Geoff Halligey
Spirally bound, this easy-to-use reference book covers 1.6 - 28MHz in great depth, all modes and utility services, with new reverse frequency

listing showing every known frequency against each callsign, who's using what frequency and mode, what's that callsign? These are some of the answers this book will help you find. *544 pages. £17.95*

GUIDE TO FACSIMILE STATIONS

13th Edition
Joerg Klengenfuss
The new edition of this super reference book covers the world's facsimile stations, their frequencies and methods of working. There is a section covering the equipment needed to receive FAX over the radio. To give you an idea of what is available there are many pages of off-air received FAX pictures. *392 pages. £18.00*

GUIDE TO UTILITY STATIONS

12th Edition
Joerg Klengenfuss
This book covers the complete short wave range from 3 to 30MHz together with the adjacent frequency bands from 0 to 150kHz and from 1.6 to 3MHz. It includes details on all types of utility stations including FAX and RTTY. There are 19549 entries in the frequency list and 3590 in the alphabetical callsign list plus press services and meteorological stations. Included are RTTY & FAX press and meteor schedules. There are 11800 changes since the 10th edition. *534 pages. £24.00*

HF OCEANIC AIRBAND COMMUNICATIONS

4th Edition
Bill Laver
HF aircraft channels by frequency and band, main ground radio stations, European R/T networks and North Atlantic control frequencies. *31 pages. £3.95*

INTERNATIONAL RADIO STATIONS GUIDE

BP255
Peter Shore
As in 'Broadcast Round-up', his column in PW, Peter Shore has laid this book out in world areas, providing the listener with a reference work designed to guide around the ever-more complex radio bands. There are sections covering English language transmissions, programmes for DXers and s.w.l.s. Along with sections on European medium wave and UK f.m. stations. *266 pages. £5.95*

INTERNATIONAL VHF FM GUIDE

7th Edition.
Julian Baldwin G3UHK & Kris Partridge G8AUU
This book gives concise details of repeaters & beacons world-wide plus coverage maps & further information on UK repeaters. *70 pages. £2.85*

MONITORING THE YUGOSLAV CONFLICT

Langley Pierce
A guide to monitoring the Yugoslav radio transmissions of the UN, aircraft and shipping engaged in the civil war in the former Yugoslavia. *28 pages. £4.95*

NEWNES SHORT WAVE LISTENING HANDBOOK

Joe Pritchard G1UQW
A technical guide for all short wave

listeners. Covers construction and use of sets for the s.w.l. who wants to explore the bands up to 30MHz. Also covers the technical side of the hobby from simple electrical principles all the way to simple receivers. *276 pages. £15.95*

POCKET GUIDE TO RTTY AND FAX STATIONS

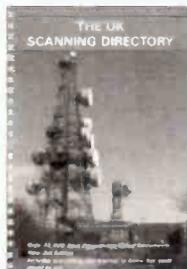
Bill Laver
A handy reference book listing RTTY and FAX stations, together with modes and other essential information. The listing is in ascending frequency order, from 1.6 to 26.8MHz. *57 pages. £3.95*

RADIO LISTENERS GUIDE 1994

Clive Woodyear
This is the third edition of this radio listener's guide. Simple-to-use maps and charts show the frequencies for radio stations in the UK. Organised so that the various station types are listed separately, the maps are useful for the travelling listener. Articles included in the guide discuss v.h.f. aerials, RDS, the Radio Authority and developments from Blaupunkt. *68 pages. £3.45*

SHORT WAVE INTERNATIONAL FREQUENCY HANDBOOK

Formerly the Confidential Frequency List and re-published in April 93, this book covers 500kHz-30MHz. It contains duplex and channel lists, callsigns, times and modes, broadcast listing and times. *192 pages. 0/P*



UK SCANNING DIRECTORY

3rd Edition
This spiral bound book lists over 12000 UK spot frequencies from 25MHz to 1.213GHz. Articles on scanning in the UK. *250 pages. £16.95*

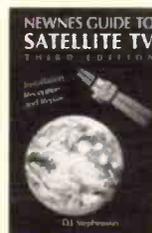
VHF/UHF SCANNING FREQUENCY GUIDE

This book gives details of frequencies from 26MHz to 12GHz with no gaps and who uses what. Completely revised and enlarged (February 1993), there are chapters on equipment requirements as well as antennas, the aeronautical bands, as well as the legal aspect of listening using a scanner. *156 pages. £9.95*

WORLD RADIO TV HANDBOOK 1994

Country-by-country listing of l.w., m.w. & s.w. broadcast and TV stations. Receiver test reports, English language broadcasts. The s.w.l.'s 'bible'. *£15.95.*

SATELLITES



NEWNES GUIDE TO SATELLITE TV

Derek Stephenson
This book, the 3rd edition, is a hard bound volume, printed on high quality paper. The author is a satellite repair and installation engineer and the book covers all information needed by the installation

engineer, the hobbyist and the service engineer to understand the theoretical and practical aspects of satellite reception with dish installation and to how to trouble-shoot when picture quality is not up to anticipated reception. Mathematics has been kept to a minimum. *371 pages. £18.95*

SATELLITE BOOK - A Complete Guide to Satellite TV Theory and Practice

John Breeds
This book deals almost exclusively with television broadcast satellites and is a comprehensive collection of chapters on topics, each written by an expert in that field. It appears to be aimed at the professional satellite system installer, for whom it is invaluable, but it will be appreciated by a much wider audience - anyone interested in satellite technology. *280 pages. £30.00*

SATELLITE EXPERIMENTER'S HANDBOOK

2nd Edition
Martin Davidoff K2UBC
The book is divided into four main sections - History, Getting Started, Technical Topics and Appendices. It provides information on spacecraft built by, and for, radio amateurs. In addition, it discusses weather, TV-broadcast and other satellites of interest to amateurs. *313 pages. £14.50*

SATELLITE TELEVISION

A layman's guide
Peter Pearson
Pictures from space, that's what satellite television is all about. Orbiting satellites, 35000km high, receive TV signals from stations on the earth and re-transmit them back again. This book explains all you need to know to set up your own satellite TV terminal at home, dish and accessories, cable and tuner. *73 pages. £1.00*

SATELLITE TELEVISION INSTALLATION GUIDE

2nd Edition
John Breeds
A practical guide to satellite television. Detailed guide-lines on installing and aligning dishes based on practical experience. *56 pages. £13.00*

WEATHER SATELLITE HANDBOOK

4th edition
Dr Ralph E. Taggart WB80QT
This book explains all about weather satellites, how they work and how you can receive and decode their signals to provide the fascinating pictures of the world's weather. Plenty of circuit diagrams and satellite predicting programs. *192 pages. £14.50*

WRTH SATELLITE BROADCASTING GUIDE

1994 edition
Bart Kuperus
This brand new publication, written by one of the experts from the respected World Radio TV Handbook, will be a great help to everyone interested in the world of satellite radio and television. Featuring over 300 pictures and graphics. All the information you need to know about installing your own satellite system. *366 pages. £15.95*

NEW SERVICE

Next day delivery service for orders received am, providing the required books are in stock. To take advantage of this be sure to enclose £3.75 P&P per order (no limit to number of books ordered). Service applies to UK mainland customers only.

AMATEUR RADIO

ALL ABOUT VHF AMATEUR RADIO

W. I. Orr W6SAI

Written in non-technical language, this book provides information covering important aspects of v.h.f. radio and tells you where you can find additional data. If you have a scanner, you'll find a lot of interesting signals in the huge span of frequencies covered, 100-300MHz & 50, 420, 902 & 1250MHz bands. 163 pages. £9.50.

AMATEUR RADIO CALL BOOK (RSGB)

Latest Edition

Over 60000 callsigns are listed including EI stations. Now incorporates a 122-page section of useful information for amateur radio enthusiasts and a new novice callsign section. 444 pages. £9.50

AMATEUR RADIO FOR BEGINNERS RSGB

Victor Brand G3JNB

An ideal book for the absolute beginner to the amateur radio hobby. Well illustrated and an interesting read. 65 Pages. £3.50

NOVICE STUDENTS NOTEBOOK

Book 3 RSGB

John Case GW4HWR

This student's notebook is intended to be used in conjunction with the Novice Licence training scheme. It covers making a simple radio receiver, the examination, the Morse test, applying for your licence, how to use the worksheets. 88 pages. £5.99

AMATEUR RADIO LOGBOOK

Published by RSGB

This standard spirally bound amateur radio log book has 100 pages and is marked out with the format required in the UK. There are columns for date, time (UTC), frequency, power (in dBW), station worked/called, reports, QSL information and remarks. £2.99

AMATEUR RADIO TECHNIQUES RSGB

Pat Hawker G3VA

Anyone who enjoys Pat Hawker's 'Technical Topics' in *Radio Communications* will enjoy this book. An amateur radio manual itself, this paperback book, the 7th edition, can only be bettered by a new edition. A truly excellent reference source with a practical bias. 368 pages. £9.50

ARRL HANDBOOK FOR RADIO AMATEURS 1994

This is the 70th edition of this handbook and contains the best information from previous issues. New for this edition is some information on feedback-loop design for power supplies, a new gel-cell charger project, updates on antenna systems and new coverage of baluns, propagation programs are compared and colour SSTV and telephone FAX machines are also covered. Finally there's a new section on 'for the workbench' with new projects for the reader to build. 1214 pages. £18.95

ARRL OPERATING MANUAL

Another very useful ARRL book. Although written for the American amateur, this book will also be of use and interest to the UK amateur. Topics covered range from short wave listening through operating awards to repeaters, operating and satellites. 684 pages. £12.95

ARRL SATELLITE ANTHOLOGY

The best from the Amateur Satellite News column and articles out of 31 issues of *QST* have been gathered together in this book. The latest information on OSCARS 9 through 13 as well as the RS satellites is included. Operation on Phase 3 satellites (OSCAR 10 and 13) is covered in detail. 97 pages. £5.95

ARRL UHF/MICROWAVE EXPERIMENTER'S MANUAL

Various Authors

A truly excellent manual for the keen microwave enthusiast and for the budding 'microwaver'. With contributions from over 20 specialist authors. Chapters covering techniques, theory, projects, methods and mathematics. 446 pages. £14.50

THE BRIGHT SPARKS OF WIRELESS RSGB

G. R. Jessop G6JP

This hardback book is well illustrated with some excellent photographs. It pays tribute to and takes a good look at the personalities behind the early days of amateur radio and the equipment they used. A good read. 30 pages. £12.50

COMPLETE DX'ER

Bob Locher

This book covers equipment and operating techniques for the DX chaser, from beginner to advanced. Every significant aspect of DXing is covered, from learning how to really listen, how to snatch the rare ones out of the pile-ups and how to secure that elusive QSL card. 204 pages. £7.95

HINTS AND KINKS FOR THE RADIO AMATEUR

Edited by Charles L. Hutchinson and David Newkirk

A collection of practical ideas gleaned from the pages of *QST* magazine. Plenty of projects to build, hints and tips on interference, c.w. and

operating and snippets of information from amateurs who've tried and tested the idea. 129 pages. £4.95

HOW TO PASS THE RADIO AMATEUR'S EXAMINATION (RSGB)

Clive Smith G4FZH and George Benbow G3HB

The background to multiple choice exams and how to study for them with sample RAE paper for practice plus maths revision and how to study for the exam. The majority of this book is given to sample examination papers so that candidates can familiarise themselves with the examination and assess their ability. 88 pages. £7.99

INTRODUCTION TO AMATEUR COMMUNICATIONS SATELLITES

BP290. A. Pickard

This book describes several currently available systems, their connection to an appropriate computer and how they can be operated with suitable software. The results of decoding signals containing such information as telemetry data and weather pictures are demonstrated. 102 pages. £3.95

INTRODUCTION TO AMATEUR RADIO BP257

I. D. Poole

This book gives the newcomer a comprehensive and easy to understand guide through amateur radio. Topics include operating procedures, jargon, propagation and setting up a station. 150 pages. £3.50

INTRODUCTION TO RADIO WAVE PROPAGATION BP293

J.G. Lee

How does the sun and sunspots affect the propagation of the radio waves which are the basis of our hobby? They affect the ionosphere, but differing frequencies are treated differently. Find out how to use charts to predict frequencies that will be the most profitable. What effect will noise have on the signal? Find out with this book. 116 pages. £3.95

INTRODUCTION TO VHF/UHF RADIO AMATEURS BP281

I.D. Poole

An excellent book to go with the new Novice or full callsign. Nine chapters and an appendix deal with all aspects and frequencies from 50 to 1300MHz. Topics include propagation, descriptions of the bands, antennas, receivers, transmitters and a special chapter on scanners. 102 pages. £3.50

LOW PROFILE AMATEUR RADIO - OPERATING A HAM STATION FROM ALMOST ANYWHERE

Jim Keenan KR1S

This book delves into to the techniques of being a 'hidden Ham'. There are chapters on specialised equipment, operating techniques and antennas to name but a few. If you have a fascination for spy type radio equipment or like the idea of having a complete h.f. or v.h.f. rig built in a suitcase, then this little American book is for you. 124 pages. £5.95

MICROWAVE HANDBOOK RSGB

Volumes 1, 2 and 3

Edited By M. W. Dixon G3PFR

This excellent series covers all aspects of amateur radio operation on microwave. Volume 1 looks at components and operating techniques, Volume 2 covers construction and testing, while Volume 3 deals with bands and equipment. Extremely well illustrated throughout, this paperback series provides the growing number of microwave band enthusiasts with an excellent reference source along with a large number of practical projects, hints and tips. Approximately 350 pages (each volume). Vol. 1 costs £9.99, Vol. 2 and 3 cost £14.99 each.

PASSPORT TO AMATEUR RADIO

Reprinted from *PW* 1981-1982

The famous series by GW3JGA, used by thousands of successful RAE candidates in their studies. Plus other useful articles for RAE students including emission codes, explanations of diodes, s.s.b. and decibels. 87 pages. £1.50

PRACTICAL GUIDE TO PACKET OPERATION IN THE UK

Mike Mansfield G6AWD

Introduces the concept of packet radio to the beginner. Problem areas are discussed and suggestions made for solutions to minimise them. Deals with the technical aspects of packet taking the reader through setting up and provides a comprehensive guide to essential reference material. 220 pages. £9.95

QRP CLASSICS

Edited by Bob Schotgen

Operating QRP is fun. The equipment is generally simple and easy to build, but often performs like more sophisticated commercial equipment. Some QRP Field Day stations operate a full 27 hours on a car battery - it's the perfect equipment for emergency communication when the power fails. Extracts from *QST* and the *ARRL Handbook*. 274 pages. £9.95

RADIO AMATEUR CALLBOOK INTERNATIONAL LISTINGS 1994

72nd Edition

The only publication listing licensed radio amateurs throughout the world. Also includes

DXCC Countries list, standard time chart, beacon lists and much more.

Over 1400 pages. £19.50

RADIO AMATEUR CALLBOOK NORTH AMERICAN LISTINGS 1994

72nd Edition

Listings of US amateurs (including Hawaii). Also contains standard time chart, census of amateur licences of the world, world-wide QSL bureau, etc. Over 1400 pages. £19.50

THE RADIO AMATEUR'S GUIDE TO EMC RSGB

Robin Page-Jones G3JWI

This paperback book provides essential information and reading for anyone who has an EMC (interference) problem. With the help of the well-illustrated text and techniques, much of the mystery from the troublesome world of electromagnetic compatibility is removed. 117 pages. £7.99

RADIO AMATEUR'S QUESTIONS & ANSWER REFERENCE MANUAL

4th Edition.

R. E. G. Petri G8CCJ

This book has been compiled especially for students of the City and Guilds of London Institute RAE. It is structured with carefully selected multiple choice questions, to progress with any recognised course of instruction, although it is not intended as a text book. 280 pages. £7.99

RAE MANUAL RSGB

G.L. Benbow G3HB

The latest edition of the standard aid to studying for the Radio Amateurs' Examination. Updated to cover the latest revisions to the syllabus. Takes the candidate step-by-step through the course. 127 pages. £7.99

RAE REVISION NOTES

George Benbow G3HB

If you're studying for the Radio Amateurs' Examination, this book could be useful. It's a summary of the salient points of the *Radio Amateurs' Examination Manual*, the standard textbook for the exam. It's A5 size and therefore can be carried with you wherever you go. Easy-to-read, it's divided into 13 chapters with topics like receivers, power supplies, measurements, operating procedures, licence conditions and a summary of the formulae all dealt with. 92 pages. £4.99

REVISION QUESTIONS FOR THE NOVICE RAE RSGB

Esde Tyler G0AEC

In effect Esde Tyler's book could be considered as being a training manual for the NRAE. Answers are supplied and the book provides a useful reference source. 60 pages. £5.00

RECEIVING STATION LOG BOOK

Published by RSGB

This log book is aimed at the short wave listener and includes columns for date, time (GMT), callsign, RST, mode, station calling/working, given/received RST reports, remarks and QSL in and out information. £3.50.

SPACE RADIO HANDBOOK RSGB

John Branegan GM4IHJ

This paperback book provides a good introduction to the theory, technology and techniques needed for 'amateur radio in orbit'. A good reference source. 236 pages. £12.50

TRAINING FOR THE NOVICE LICENCE RSGB

John Case GW4HWR

Aimed at the Novice licence instructor this manual provides the syllabus and an excellent framework textbook to help novice, instructor and beginner alike. An excellent basic reference work. 101 pages. £6.50

VHF/UHF DX BOOK

Edited Ian White G3SEK

An all round source of inspiration for the v.h.f./u.h.f. enthusiast. Written by acknowledged experts this book covers just about everything you need to know about the technicalities of v.h.f./u.h.f. operating. 270 pages. £18.00

VHF UHF MANUAL RSGB

G. R. Jessop G6JP

The 4th edition of this well known book is in paperback form. Packed with information for the world of radio above 30MHz. It covers everything from v.h.f./u.h.f. radio history and theory and propagation to projects and techniques. An excellent reference source. Approximately 1000 pages. £10.50

W1FB'S DESIGN NOTEBOOK

Doug DeMAW W1FB

This book is aimed at the non-technical amateur who wants to build simple projects and obtain a basic understanding of amateur electronics. Your workshop does not need to be equipped like an engineering lab to be successful as an experimenter. Don't let a lack of test equipment keep you from enjoying the thrills of experimentation. 195 pages. £8.50

W1FB'S HELP FOR NEW HAMS

Doug DeMaw W1FB

This book covers everything from getting acquainted with new equipment to constructing antennas, station layout, interference and operating problems to on-the-air conduct and procedures. 155 pages. £6.95

W1FB'S QRP NOTEBOOK

2nd Edition. Doug De Maw W1FB

The new improved and updated 2nd edition of this book, covers the introduction to QRP, construction methods, receivers and transmitters for QRP. This workshop-notebook style publication, which is packed with new designs for the keen QRP operator, also covers techniques, accessories and has a small technical reference section. 175 pages. £7.95

WORLD AT THEIR FINGERTIPS RSGB

John Claricoats G6CL

This book is a paperback reprint of the classic history of amateur radio written by the late John Claricoats G6CL. A fascinating read for any radio enthusiast. 307 pages. £6.00

YOUR GATEWAY TO PACKET RADIO

Stan Horzepa WA1LOU

What is packet radio good for and what uses does it have for the 'average' amateur? What are protocols? where, why, when? Lots of the most asked questions are answered in this useful book. It included details of networking and space communications using packet. 278 pages. £8.95



YOUR PACKET COMPANION

Steve Ford W8BIMY

This American book goes to considerable lengths to explain in simple terms how the radio amateur can get going on packet, how it works and what the various systems are. There are chapters dealing with assembling a packet station, sending and receiving packet mail and exploring advanced networking systems. *Your Packet Companion* goes a long way to explain some of the mysteries of packet radio. 170 pages. £5.95.

DATA REFERENCE

NEWNES AUDIO & HI-FI ENGINEER'S POCKET BOOK

Vivian Capel

This is a concise collection of practical and relevant data for anyone working on sound systems. The topics covered include microphones, gramophones, CDs to name a few. 190 pages. Hardback. £10.95

NEWNES COMPUTER ENGINEER'S POCKET BOOK

This is an invaluable compendium of facts, figures, circuits and data and is indispensable to the designer, student, service engineer and all those interested in computer and microprocessor systems. 255 pages. Hardback. £12.95

POWER SELECTOR GUIDE BP235

J. C. J. Van de Ven

This guide has the information on all kinds of power devices in useful categories (other than the usual alpha numeric sort) such as voltage and power properties making selection of replacements easier. 160 pages. £4.95

NEWNES ELECTRONICS ENGINEER'S POCKET BOOK

1st Edition

Keith Brindley

This fact-filled pocket book will prove useful for any electronics engineer. Its comprehensive coverage includes literally everything from electronic physics to abbreviations, information on integrated circuits, applications, component data, circuits and systems. In effect this book provides a very useful portable electronics reference source. 305 pages. £12.95

A REFERENCE GUIDE TO BASIC ELECTRONICS TERMS BP226

F. A. Wilson

Covering everything from Amplitude Modulation to Zener Diodes, this excellent guide is a manual, dictionary and revision book all rolled into one. With concise explanations, clear diagrams and easy to follow examples, this is an essential addition to the library of anyone contemplating taking the RAE. 474 pages. £5.95

A REFERENCE GUIDE TO PRACTICAL ELECTRONICS TERMS BP287

F. A. Wilson

This is a well written clearly illustrated reference guide which, when used on its own, is perhaps of more use to those interested in the constructional side of amateur radio. However, it is of particular benefit to those taking the RAE especially if used in conjunction with *A Reference Guide to Basic Electronics Terms*. 442 pages. £5.95

THEORY

ARRL ELECTRONICS DATA BOOK

Doug DeMaw W1FB

Back by popular demand, completely revised and expanded, this is a handy reference book for the r.f. designer, technician, amateur and experimenter. Topics include components and materials, inductors and transformers, networks & filters, digital basics and antennas and transmission lines. 260 pages. £8.95

AUDIO

Elements of Electronics - Book 6 BP111

F. A. Wilson

This book studies sound and hearing, and examines the operation of microphones, loudspeakers, amplifiers, oscillators, and both disk and magnetic recording. Intended to give the reader a good understanding of the subject without getting involved in the more complicated theory and mathematics. 308 pages. £3.95

BEGINNERS GUIDE TO MODERN ELECTRONIC COMPONENTS BP285

R. A. Penfold

This book covers a wide range of modern components. The basic functions of the components are described, but this is not a book on electronic theory and does not assume the reader has an in-depth knowledge of electronics. It is concerned with practicalities such as colour codes, deciphering code numbers and suitability. 166 pages. £3.95

EVERYDAY ELECTRONICS DATA BOOK

Mike Tooley BA

This book is an invaluable source of information of everyday relevance in the world of electronics. It contains not only sections which deal with the essential theory of electronic circuits, but it also deals with a wide range of practical electronic applications. 250 pages. £8.95

FILTER HANDBOOK

A Practical Design Guide

Stefan Niewiadomski

A practical book, describing the design process as applied to filters of all types. Includes practical examples and BASIC programs. Topics include passive and active filters, worked examples of filter design, switched capacitor and switched resistor filters and includes a comprehensive catalogue of pre-calculated tables. 195 pages. £30.00

AN INTRODUCTION TO THE ELECTROMAGNETIC WAVE BP315

F. A. Wilson

This little book deals effectively with a difficult abstract subject - the invisible electromagnetic

wave. Aimed at the beginner, the book with its basic approach to electromagnetics, antennas, waves, propagation and constraints is a good starting point, complete very simple but clear diagrams and the minimum of mathematics. 122 pages. £4.95.

THE ARRL SPREAD SPECTRUM SOURCEBOOK

Many readers thought an article about spread spectrum communications in the April 1993 PW a spoof, but this book shows the reality of the technique. The ten chapters contain descriptions of the basic theory, the designs, and the techniques involved, and there are basic transceiver building blocks for your experimentation. 360+ pages. £14.50.

NEWNES PRACTICAL RF HANDBOOK

Ian Hickman

This book provides an easy-to-read introduction to modern r.f. circuit design. It's aimed at those learning to design r.f. circuitry and users of r.f. equipment such as signal generators and sweepers, spectrum and network analysers. 320 pages. £16.95

PRACTICAL ELECTRONICS CALCULATIONS AND FORMULAE

BP53

F. A. Wilson

Written as a workshop manual for the electronics enthusiast, there is a strong practical bias and higher mathematics have been avoided where possible. 249 pages. £3.95

REFLECTIONS

Transmission Lines & Antennas

M. Walter Maxwell W2OU

This will help dispel the half-truths and outright myths that many people believe are true about transmission lines, standing waves, antenna matching, reflected power and antenna tuners. 323 pages. £14.50

SOLID STATE DESIGN FOR THE RADIO AMATEUR

Les Hayward W7Z01 & Doug DeMaw W1FB

Back in print by popular demand! A revised and corrected edition of this useful reference book covering all aspects of solid-state design. Topics include transmitter design, power amplifiers and matching networks, receiver design, test equipment and portable gear. 256 pages. £10.95

TRANSMISSION LINE TRANSFORMERS

Jerry Sevick W2FMI

This is the second edition of this book, which covers a most intriguing and confusing area of the hobby. It should enable anyone with a modicum of skill to make a balun, etc. Topics include analysis, characterisation, transformer parameters, baluns, multimatch transformers and simple test equipment. 270 pages. £13.50

COMPUTING

INTRODUCTION TO COMPUTER COMMUNICATIONS (AN) BP177

R. A. Penfold

Details of various types of modem and their applications, plus how to interconnect computers, modems and the telephone system. Also networking systems and RTTY. 72 pages. £2.95

NEWNES AMATEUR RADIO COMPUTING HANDBOOK

Joe Pritchard G1UQW

Shows how radio amateurs and listeners can 'listen' to signals by reading text on a computer screen. This book also covers the application of computers to radio 'housekeeping' such as log-keeping, QSL cards, satellite predictions and antenna design as well as showing how to control a radio with a computer. 363 pages. £15.95

PCs MADE EASY. Second Edition

James L. Turley

A friendly, comprehensive introduction to every personal computer - including Macs! This book is packed with valuable tips on every aspect of computer technology available today and will help you to get comfortable with your computer - fast. 438 pages. £14.95

UPGRADE YOUR IBM COMPATIBLE AND SAVE A BUNDLE

Second Edition

Aubrey Pilgrim

Aimed at the owners of the IBM compatible computer, this book provides a very straightforward and easy to read guide on upgrading. The author has adopted a friendly and informative style and there are many excellent illustrations. Typically American in approach and style, the book provides much information and an excellent read. 245 pages. £17.95

MORSE

INTRODUCING MORSE.

Collected Articles from PW 1982-1985

Ways of learning the Morse Code, followed by constructional details of a variety of keys including Iambic, Triambic and an Electronic Bug with a 528-bit memory as well as a practice oscillator and Morse tutor. 48 pages. £1.25

SECRET OF LEARNING MORSE CODE.

Mark Francis

Updates for the Novice Licence. 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. 84 pages. £4.95

BEGINNERS

ELECTRONICS SIMPLIFIED - CRYSTAL SET CONSTRUCTION

BP92

F. A. Wilson

Especially written for those who wish to take part in basic radio building. All the sets in the book are old designs updated with modern components. It is designed for all ages upwards from the day when one can read intelligently and handle simple tools. 72 pages. £1.75

TELEVISION

ATV COMPENDIUM

Mike Wooding G6IQM

This book is for those interested in amateur television, particularly the home construction aspect. There isn't a 70cm section as the author felt this was covered in other books. Other fields such as 3cm TV, are covered in depth. A must for the practical ATV enthusiast. 104 pages. £3.00

GUIDE TO WORLD-WIDE TELEVISION TEST CARDS. Edition 3

Keith Hamer & Garry Smith

Completely revised and expanded, this is a very handy and useful reference book for the DXTV enthusiast. Over 200 photographs of Test Cards, logos, etc., world wide. 60 pages. £4.95

RADIO

AIR & METEO CODE MANUAL

13th Edition.

Joerg Klingenfuss

Detailed descriptions of the World Meteorological Organisation Global Telecommunication System operating FAX and RTTY meteo stations, and its message format with decoding examples. Also detailed description of the Aeronautical Fixed Telecommunication Network amongst others. 358 pages. £18.00

MARINE SSB OPERATION

J. Michael Gale

How do you stay in touch when you sail off over the horizon and into the blue? What you need is a single sideband radio, a marine s.s.b. This book explains how the system works, how to choose and install your set and how to get the best out of it. There is also a chapter on amateur radio with the emphasis on the increasingly important maritime mobile nets. 96 pages. £10.95

MARINE VHF OPERATION

J. Michael Gale

A v.h.f. radiotelephone is essential equipment for any sea-going boat, but what can you do with it? Who can you call, and how do you make contact? Which channel do you use, and why? What is the procedure for calling another boat, calling the family through the telephone system, or making a distress call? This book will tell you. 47 pages. £7.95

PASSPORT TO WORLD BAND RADIO 1994

This book gives you the information to explore and enjoy the world of broadcast band listening. It includes features on different international radio stations, receiver reviews and advice as well as the hours and language of broadcast stations by frequency. The 'blue pages' provide a channel-to-channel guide to world band schedules. 416 pages. £14.50.

RADIOTELETYPE CODE MANUAL 12th Edition

Joerg Klingenfuss

This book gives detailed descriptions of the characteristics of telegraph transmission on short waves, with all commercial modulation types including voice frequency telegraphy and comprehensive information on all RTTY systems and c.w. alphabets. 96 pages. £11.00

SCANNERS 2

Peter Rouse G1DKD

The companion to *Scanners*, this provides even more information on the use of the v.h.f. and u.h.f. communications band and gives constructional details for accessories to improve the performance of scanning equipment. 261 pages. £10.95

INTERFERENCE

INTERFERENCE HANDBOOK (USA)

William R. Nelson WA6FGD

How to locate & cure r.f.i. for radio amateurs, CBers, TV & stereo owners. Types of interference covered are spark discharge, electrostatic, power line - many 'cures' are suggested. 250 pages. £9.50

CONSTRUCTION

CIRCUIT SOURCE BOOK 2 BP322

R. A. Penfold

This book, as its name implies, is a source book of circuits. The circuits provided are mostly of interest to the electronics enthusiast and are almost all based on integrated circuits. Topics covered include various oscillators, monostables, timers, digital and power supply circuits. 214 pages. £4.95.

COIL DESIGN AND CONSTRUCTION MANUAL

BP160

B. B. Babani

Covering audio to r.f. frequencies, this book has designs for almost everything. Sections cover such topics as mains and audio output transformers, chokes and r.f. coils. What is the required turns ratio? This book will show you how to find out. Text and tables. 706 pages. £2.50

G-QRP CLUB CIRCUIT HANDBOOK

Edited by Rev. G. Dobbs G3RJV

This paperback book has been compiled from circuits published in the G-QRP Club journal *Spratt* from the years 1974 to 1982. Essentially it's a collection of circuits and projects covering everything from receivers, transmitters, antennas and accessories together with sed QRP test equipment. This book is aimed at the keen constructor and provides all the information required to build the host of projects described. 96 pages. £5.00

HOW TO DESIGN AND MAKE YOUR OWN PCBs BP121

R. A. Penfold

The purpose of this book is to familiarise the reader with both simple and more sophisticated methods of producing p.c.b.s. The emphasis of the book is very much on the practical aspects of p.c.b. design and construction. 66 pages. £2.50

MORE ADVANCED POWER SUPPLY PROJECTS

BP192

R. A. Penfold

The practical and theoretical aspects of the circuits are covered in some detail. Topics include switched mode power supplies, precision regulators, dual tracking regulators and computer controlled power supplies, etc. 92 pages. £2.95

PROJECTS FOR RADIO AMATEURS AND SWLS

BP304

R. A. Penfold

This small book covers the construction and use of radio frequency and intermediate frequency projects, and audio frequency projects. Under the first heading ideas include a crystal calibrator, an antenna tuning unit, a wave trap, a b.f.o. and other useful projects. On the audio side projects include a bandpass filter, a by-pass switch, a c.w./RTTY decoder and many other practical ideas and suggestions for the home constructor. 92 pages. £3.95.

POWER SUPPLY PROJECTS BP76

R. A. Penfold

This book gives a number of power supply designs including simple unregulated types, fixed voltage regulated types and variable voltage stabilised designs. 89 pages. £2.50

SHORT WAVE SUPERHET RECEIVER

CONSTRUCTION BP276

R. A. Penfold

A general purpose receiver to build, from antenna to audio, described in understandable English. 80 pages. £2.95

TEST EQUIPMENT CONSTRUCTION

BP248

R. A. Penfold

Describes, in detail, how to construct some simple and inexpensive, but extremely useful, pieces of test equipment. Stripboard layouts are provided for all designs, together with wiring diagrams where appropriate, plus notes on their construction and use. 104 pages. £2.95

50 (FET) FIELD EFFECT TRANSISTOR PROJECTS BP39

F. G. Rayer

50 circuits for the s.w.l., radio amateur, experimenter or audio enthusiast using f.e.t.s. Projects include r.f. amplifiers and converters, test equipment and receiver aids, tuners, receivers, mixers and tone controls. 104 pages. £2.95

ANTENNAS (AERIALS)



PRACTICAL ANTENNAS FOR NOVICES
John Heys G3BDQ
 The antenna is not only one of the most important parts of an amateur radio station, it is also the one likely to require some

practical 'know-how' on the part of the beginner if disappointing results are to be avoided.

In this guide, written especially for newly qualified holders of the UK novice licence, John Heys describes in detail how to build simple but efficient antennas for each of the Novice bands up to 434MHz, as well as useful ancillary equipment to ensure that they are working correctly. A complete chapter is devoted to the safety and common-sense aspects of installing and using a transmitting antenna.

This book will be invaluable not only to Novices, but also to any beginning amateur looking for easy-to-build antenna systems that really work. *52 pages, £5.99*

AERIAL PROJECTS BP105

Practical designs including active, loop and ferrite antennas plus accessory units. *96 pages, £2.50*

ALL ABOUT VERTICAL ANTENNAS

W. I. Orr W6SAI & S. D. Cowan W2LX
 Covers the theory, design and construction operation of vertical antennas. How to use your tower as a vertical antenna and compact vertical designs for restricted locations. All about loading coils and a.t.u.s. *192 pages, £7.50*

ANTENNA EXPERIMENTER'S GUIDE

Peter Dodd G3LDD
 Although written for radio amateurs, this book will be of interest to anyone who enjoys experimenting with antennas. You only need a very basic knowledge of radio & electronics to get the most from this book. Chapters include details on measuring resonance, impedance, field strength and performance, mats and materials and experimental antennas. *200 pages, £8.90*

ANTENNA IMPEDANCE MATCHING

Wilfred N. Caron
 Proper impedance matching of an antenna to a transmission line is of concern to antenna engineers and to every radio amateur. A properly matched antenna as the termination for a line minimises feed-line losses. Power can be fed to such a line without the need for a matching network at the line input. There is no mystique involved in designing even the most complex multi-element networks for broadband coverage. *195 pages, £11.95*

ANTENNAS FOR VHF AND UHF BP301

I. D. Poole
 Antennas are a very important part of any receiver or transmitter and in this book the author gives a general background to antenna operation as well as describing antennas that are suitable for v.h.f. and u.h.f. operation. Chapters include Basic Concepts, Feeders, The Dipole, Aerial Measurements and Practical Aspects. There is something of use for everyone with an interest in antennas in this book. *104 pages, £4.95.*

ARRL ANTENNA BOOK

16th Edition
 A station is only as effective as its antenna system. This book covers propagation, practical constructional details of almost every type of antenna, test equipment and formulas and programs for beam heading calculations. *789 pages, £14.50*

ARRL ANTENNA COMPENDIUM

Volume One
 Fascinating and hitherto unpublished material. Among the topics discussed are quads and loops, log periodic arrays, beam and multi-band antennas, verticals and reduced size antennas. *175 pages, £9.50*

ARRL ANTENNA COMPENDIUM

Volume Two
 Because antennas are a topic of great interest among radio amateurs, ARRL HQ continues to receive many more papers on the subject than can possibly be published in *QST*. Those papers are collected in this volume. *208 pages, £9.50*

ARRL ANTENNA COMPENDIUM

Volume Three
Edited by Jerry Hall K1TD
 As the title suggests, this book is the third in the continuing series on practical antennas, theory and accessories produced by the ARRL. The book reflects the tremendous interest and activity in antenna work, and provides a further selection of antennas and related projects you can build. *236 pages, £9.50*

BEAM ANTENNA HANDBOOK

W. I. Orr W6SAI & S. D. Cowan W2LX
 Design, construction, adjustment and installation of h.f. beam antennas. The information this book contains has been compiled from the data obtained in experiments conducted by the authors, and from information provided by scientists and engineers working on commercial and military antenna ranges. *268 pages, £7.50*



G-QRP CLUB ANTENNA HANDBOOK
Compiled and edited by P. Linsley G3POL & T. Nicholson KA9WRI/GWOLNQ.
 This book is a collection of antenna and related circuits taken from *Sprat*,

the G-QRP Club's journal. Although most of the circuits are aimed at the low-power fraternity, many of the interesting projects are also useful for general use. Not intended as a text book, but offers practical and proven circuits. *155 pages, £5.00*

HF ANTENNA COLLECTION

(RSGB)
Edited by Erwin David G4LQI
 This book contains a collection of useful, and interesting h.f. antenna articles, first published in the RSGB's *Radio Communication* magazine, between 1968 and 1989, along with other useful information on ancillary topics such as feeders, tuners, baluns, testing and mechanics for the antenna builder. *233 pages, £10.99.*

INTRODUCTION TO ANTENNA THEORY

BP198
H. C. Wright
 This book deals with the basic concepts relevant to receiving and transmitting antennas, with emphasis on the mechanics and minimal use of mathematics. Lots of diagrams help with the understanding of the subjects dealt with. Chapters include information on efficiency, impedance, parasitic elements and a variety of different antennas. *86 pages, £2.95*

PRACTICAL ANTENNA HANDBOOK

Joseph J. Carr
 As the name suggests, this book offers a practical guide at everything to do with antennas, from h.f. to microwaves. It also has sections on propagation, transmission lines, antenna fundamentals and a helpful introduction to radio broadcasting and communication. The book neatly balances a practical approach with the minimum of mathematics, good diagrams and a lively text. *437 pages, £21.95*

RADIO AMATEUR ANTENNA HANDBOOK

W. I. Orr W6SAI & S. D. Cowan W2LX
 Yagi, Quad, Quagi and LPY beam antennas as well as vertical, horizontal and sloper antennas are covered in this useful book. How to judge the best location, DX antenna height, ground loss and radials. *188 pages, £7.50*

SIMPLE, LOW-COST WIRE ANTENNAS FOR RADIO AMATEURS

W. I. Orr W6SAI & S. D. Cowan W2LX
 Efficient antennas for Top Band to 2m, including 'invisible' antennas for difficult station locations. Clear explanations of resonance, radiation resistance, impedance, s.w.r., balanced and unbalanced antennas are also included. *188 pages, £7.50*

W1FB'S ANTENNA NOTEBOOK

Doug DeMaw W1FB
 This book provides lots of designs, in simple and easy to read terms, for simple wire and tubing antennas. All drawings are large and clear making construction much easier. There is no high-level mathematics in this book, just simple equations only when necessary to calculate the length of an antenna element or its matching section. *123 pages, £6.95*

WIRES & WAVES

Collected Antenna Articles from PW 1980-1984
 Antenna and propagation theory, including NBS Yagi design data. Practical designs for antennas from medium waves to microwaves, plus accessories such as a.t.u.s, s.w.r. and power meters and a noise bridge. Dealing with TVI is also covered. *160 pages, £3.00*

YAGI ANTENNA DESIGN

Dr James. L. Lawson W2PV
 This book is a polished and expanded version of a series of articles first published in *Ham Radio* following on from a series of lectures by the author, who was well-known as the expert on Yagi design. Chapters include simple Yagi antennas, loop antennas, effect of ground, stacking and practical antenna design. *210 pages, £10.95*

25 SIMPLE AMATEUR BAND AERIALS

BP125
E. M. Noll
 How to build 25 simple and inexpensive amateur band aerials, from a simple dipole through beam and triangle designs to a mini-rhombic. Dimensions for specific spot frequencies including the WARC bands are also given. *63 pages, £1.95*

25 SIMPLE INDOOR AND WINDOW

AERIALS BP136E
M. Noll
 Designs for people who live in flats or have no gardens, etc., giving surprisingly good results considering their limited dimensions. Information is also given on short wave bands, aerial directivity, time zones and dimensions. *50 pages, £1.75*

25 SIMPLE SHORT WAVE BROADCAST BAND AERIALS BP132

E. M. Noll
 Designs for 25 different short wave broadcast band aerials, from a simple dipole through helical designs to a multi-band umbrella. Information is also given on short wave bands, aerial directivity, time zones and dimension tables that will help spot an aerial on a particular frequency. *63 pages, £1.95*

25 SIMPLE TROPICAL AND MW BAND AERIALS BP145

E. M. Noll
 Simple and inexpensive aerials for the broadcast bands from medium wave to 49m. Information is also given on band details, directivity, time zones and dimensions. *54 pages, £1.75*

PRACTICAL WIRE ANTENNAS RSGB

John Heys G3BDQ
 Many radio enthusiasts have to be content with wire antennas. John Heys' practical approach to wire antennas provides plenty of ideas and projects to help get the best out of a simple system. A helpful book, and good reference source. *100 pages, £8.50*

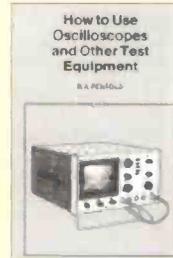
HF ANTENNAS FOR ALL LOCATIONS RSGB

Les Moxon G6XN
 This book provides a reference source for all h.f. antenna work, whether it be for fixed, mobile or using test equipment. In effect it is a manual on antenna work, with useful tips, projects and ideas. *322 pages, £13.99*

FAULT FINDING

GETTING THE MOST FROM YOUR MULTIMETER BP239

R. A. Penfold
 This book is primarily aimed at beginners. It covers both analogue and digital multi-meters and their respective limitations. All kinds of testing is explained too. No previous knowledge is required or assumed. *102 pages, £2.95*



HOW TO USE OSCILLOSCOPES & OTHER TEST EQUIPMENT BP267

R.A. Penfold
 Hints and ideas on how to use the test equipment you have, to check out, or fault find on electronic circuits. Many diagrams of typical waveforms and circuits,

including descriptions of what waveform to expect with particular faults, or distortion in audio amplifiers. *104 pages, £3.50*

MORE ADVANCED TEST EQUIPMENT CONSTRUCTION BP249

R.A. Penfold
 A follow on from *Test Equipment Construction (BP248)* this book looks at digital methods of measuring resistance, voltage, current, capacitance and frequency. Also covered is testing semi-conductors, along with test gear for general radio related topics. *102 pages, £3.50*

TROUBLESHOOTING WITH YOUR TRIGGERED-SWEEP OSCILLOSCOPE

Robert L. Goodman
 This book steers you through the various features - old and new - that scope technology provides and is an invaluable guide to getting the best out of your scope. An overview of available scopes will help you choose the one that best suits your needs. Areas covered include spectrum analysis, test applications, multiple-trace displays, waveform analysis, triggering, magnified sweep displays, analogue and digital scopes, etc. *309 pages, £17.50.*

MORE ADVANCED USES OF THE MULTIMETER BP265

R.A. Penfold
 This book is primarily intended as a follow-up to BP239, *Getting the most from your Multi-meter*. By using the techniques described in this book you can test and analyse the performance of a range of components with just a multi-meter (plus a very few inexpensive components in some cases). The simple add-ons described extend the capabilities of a multi-meter to make it even more useful. *96 pages, £2.95.*

OSCILLOSCOPES, HOW TO USE THEM, HOW THEY WORK

3rd Edition
Ian Hickman
 This book describes oscilloscopes ranging from basic to advanced models and the accessories to go with them. Oscilloscopes are essential tools for checking circuit operation and diagnosing faults, and an enormous range of models is available. *248 pages, £15.95*

MAPS

RADIO AMATEUR'S MAP OF NORTH AMERICA (USA)

Shows radio amateur prefix boundaries, continental boundaries and zone boundaries. *760 x 636mm, £3.50*

QTH LOCATOR MAP OF EUROPE

Traxel DK5PZ
Radio Map Service
 This comprehensive map of the European call sign area has now been updated and enhanced. This well thought out, coloured map covers from N. Africa to Iceland and from Portugal in the west to Iran in the east. Folds to fit into the 145 x 240mm clear envelope. *1080 x 680mm, £5.95*

SATELLITE TV SPECIALISTS

★ Actuators and Horizon-Horizon Mounts ★ Ultra Wide Band and Low Noise LNBs
★ Top Quality Motorised Systems and components ★ Aluminium High quality Dishes up to 1.8m

Below is a list of our Mail Order price offers to readers of *SHORTWAVE* magazine, please call us if you do not see what you want.

Horizon-Horizon 2" mount (up to 1.1m Dish).....	£79.95	60cm Dish Pack (Black Mesh) 1.0dB LNB.....	£42.95
8/10/12" Actuator (Jaeger) super quality.....	£44.95	ALBA positioner (Digital Display).....	£47.50
90cm Aluminium Offset dish + Polarmount.....	£74.99	ALBA East/West driver (Simple and cheap).....	£29.95
110cm Aluminium Offset dish + Polarmount.....	£87.99	Nokia 1700 IRD (2GHz Tuner + Ferrite Pol.).....	£195.00
Precision 90cm P/Focus dish + Az/E1 mount.....	£59.95	Nokia 2202 MAC/Eurocrypt Receiver/Dec.....	£399.00
QUATTROBAND 10.70 - 12.75 GHz LNB 0.8dB (11GHz).....	£159.95	Nokia 5152 Positioner (Matching 1700.2202).....	£127.00
Ultra Low Noise LNB (Cal-Amp 0.7dB max).....	£79.00	Echoshore 7700 IRD/Positioner (Top Quality).....	£549.00
Wide Band Ferrite Polariser (c120-WR75).....	£18.95	RTP Multiswitch (Sat IF + UHF) 4 output.....	£34.95
Ferrite Feed/Polariser (Offset) High quality.....	£15.00	RTP Salseeker Installation Aid.....	£27.95

We always carry a large stock of 2nd hand receivers and dish packs at very low prices, ideal for ATV enthusiasts. Discounts available for complete system purchases. All prices include VAT. Please add £7.50 p&p with your order, and allow 14 days delivery. Most items will reach you within 3 days. Cheque with order. Technical enquiries welcome.

**DRS TRADING LTD Unit A Sprint Ind. Estate,
Chertsey Road, Byfleet, Surrey KT14 7BD
Tel/Fax: 0932 355527/355540**

G2VF LOOP ANTENNAS WITH ATU FOR HF HAM BAND TRANSMISSION (SWR One to One 40, 15 and 10 One Point Five to One 80 and 20) **AND SWLs LONG AND MEDIUM WAVE FOR BCLs.** Loops 21 inches square or triangle. No special skills required. Circuits, Parts Lists sources of supply assembly data. **HIGH FREQUENCY LOOP 80 to 10 Metres £5. LONG AND MEDIUM WAVE LOOP FOR BCLs £3. LONG MEDIUM SHORT WAVE LOOP 1500 to 10 METRES FOR BCL SWL £8. SHORT WAVE ATU LOOP OR LONG WIRE £4. PRE AMP LW MW S WAVE £2. MW LOOP WITH PRE AMP ATU £3. PRE AMP FOR G2VF HF LOOP OR ATU £4. SHORT WAVE ATU BUILT-IN PRE AMP FOR LOOP OR LONG WIRE £7. SAE details. DIY projects. Z Match ATU 80 to 10 metres £3 BFO £2. **F. G. Rylands, 39 Parkside Avenue, Millbrook, Southampton SO16 9AF. Tel: (0703) 775064.****

ENCYCLOPAEDIA of SHAREWARE

Find out what really is available in PD & Shareware - ham radio, graphics, business, scientific, electronics, maths, education, etc.

You'll find them all here. every thing you need in one book. Thousands of the best PD & Shareware programs for DOS & Windows, described in detail with the hardware requirements for each. This is probably the most complete up-to-date shareware reference book available today.

For your copy, send £2.50 by cheque, PO, cash or pay by Access/Visa to:
**PDSL, Winscombe Hse, Beacon Rd, Crowborough, Sussex TN6 1UL.
Tel 0892 663298 Fax 0892 667473**

NEW ENLARGED EDITION.
Now extends to more than 250,000 words

Gotechnic Ltd

COMPLETE HOME COLOUR OFFICE STARTUP

Only £375+VAT

386 CPU 16 MHz (387 compatible)

1 megabyte of RAM (expandable)

1.44Mb 3.5 inch floppy disk drive.

40Mb hard disk (expandable)

A 9 pin mono dot matrix printer and all necessary cables and leads.

A first time users manual and MS-DOS 6.2.

FREE SOFTWARE PACKAGE!

"OFFICE MANAGER"
(includes a Word Processor, Database, Spreadsheet and a spell checker).

Previously owned with 30 day RTB warranty

14" SVGA colour monitor	£180.00
14" VGA mono monitor	£40.00
Laser printers from	£200.00
9 pin dot matrix printers from	£50.00
24 pin dot matrix printers from	£85.00
Printer cable	£5.00
3 button mouse (serial)	£12.00
PS/2 mouse	£12.50
Floppy disks (10x1.44Mb)	£5.50
16 bit sound card (inc software)	£89.00
4 watt speakers	£18.00
Panasonic CD562B CD T/S	£149.00
IDE 340Mb hard disk	£250.00
SCSI-2 1.05Gb hard disk	£749.00
CD titles from	£22.00

Callers welcome! Most major credit cards accepted. All prices exclude VAT and delivery.

☎ 0932-770733

SCANNER OWNERS

TURN YOUR 'SHACK' INTO A MONITORING STATION!

Connect to any receiver with a squelch control and the **AUTO-VOX** will automatically switch your tape recorder on and off as signals are detected. A **must** for all scanner owners. *Return to a neatly compressed tape of all the action*. Supplied as a kit with full instructions or ready built and tested.

Kit £12.50 AUTO-VOX Built £25.00

Send large SAE for details of all our scanner upgrades

Radio Research, SWM7, 3 Pasture Close, Whitmore, Staffs, ST5 5DQ

Please mention

Short Wave Magazine

when replying to advertisements

JAYCEE ELECTRONICS LTD

20 Woodside Way, Glenrothes, Fife, Scotland KY7 5DF

Tel: 0592 756962 (Day or Night) • Fax No. (0592) 610451

Open: Tuesday-Friday 9-5; Saturday 9-4

KENWOOD, YAESU & ICOM APPROVED DEALERS

CLOSED FOR HOLIDAYS 16TH JULY TO 2ND AUGUST

A good stock of new and secondhand equipment always in stock

Got a Scanner? VHF/UHF Airband Frequency Guide Need a frequency?
UK Military & Civil App, Gnd, Ops, PAR, Range, SRE & TWR.
Updated every 3 months. £3.95.

Short Wave Airband Guide. This guide lists Military & Civil, Air to ground, Rescue & many other frequencies. £4.95.

VHF/UHF Frequency Guide 27 to 1,300MHz.

Services covered include air, land, sea & space £3.95

All prices include p&p other guides available. Send SAE for further details.

Please make cheques payable to:

D.G. Antill 1 Church Lane, Mundesley Norwich, Norfolk NR11 8AU

ADVERTISERS INDEX

Aerial Techniques.....	43	Grosvenor Software.....	47	Nevada Comms.....	14, 15, Cover i,
Alan Hooker Radio Communications.....	64	Haydon Communications.....	24		Cover ii
Amateur Radio Communications.....	32	Hoka Electronics.....	56	PDSL.....	76
ASK Electronics.....	21	Icom UK.....	49	Pervisell.....	62
Aviation Hobby Centre.....	53	Interproducts.....	43	PhotAvia.....	47
Chevet Books.....	47	J & J Enterprises.....	62	Quantek Electronics.....	64
Circuit Distribution.....	47	J & P Electronics.....	62	Radio Research.....	76
Comar Electronics.....	64	Javiation.....	49	Rapid Results College.....	43
DG Antill.....	76	Jaycee Electronics.....	76	Roberts Radio.....	18
DRS Trading.....	76	Jaytee Electronics.....	45	Satellite & Sound 2000.....	45
ERA.....	59	Klingenfuss.....	45 & 37	SMC Ltd.....	13
FG Rylands.....	76	Lake Electronics.....	62	Solid State Electronics.....	53
Flightdeck.....	55	Lee Electronics.....	36	SRP Trading.....	10
Flying Shop.....	37	Link Electronics.....	62	Suredata.....	55
Garex Electronics.....	62	Lowe Electronics.....	8, 9, 35, 47, 56,	Timestep Weather Systems.....	59
Gotechnic.....	76		Cover iv	Waters & Stanton.....	30, 31
		Martin Lynch.....	38,39		
		Momentum Communications.....	36		

PUBLISHED on the fourth Thursday of each month by PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Printed in England by Southernprint (Web Offset), Factory Road, Upton Industrial Estate, Poole, Dorset BH16 5SN. Tel: (0202) 622226. Distributed by Seymour, Windsor House, 1270 London Road, Norbury, London SW16 4DH. Tel: 081-679 1899, Fax: 081-679 8907, Telex: 881245. Sole Agents for Australia and New Zealand - Gordon and Gotch (Asia) Ltd., South Africa - Central News Agency Ltd. Subscriptions INLAND £22, EUROPE £25, OVERSEAS (by ASP) £27, payable to SHORT WAVE MAGAZINE, Subscription Department, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. SHORT WAVE MAGAZINE is sold subject to the following conditions, namely that it shall not be lent, re-sold, hired out or otherwise disposed of by way of trade at more than the recommended selling price shown on the cover and that it shall not be lent, re-sold, hired out or otherwise disposed of in a mutilated condition or in any unauthorised cover by way of Trade, or affixed to or as part of any publication or advertising, literary or pictorial matter whatsoever.

SCAN IN ON THE ACTION

with

YUPITERU

VT-225 CIVIL/MILITARY AIRBAND



By covering just Civil and Military Airband, receiver performance is optimised allowing reception of long distance signals. The set is easy to use and has excellent audio quality.

- ★ Civil, Military & Marine Band
- ★ 108-142, 149.5-160, 222-391MHz
- ★ AM & FM Modes
- ★ Fast Search
- ★ 100 Memory Channels
- ★ Signal Strength meter
- ★ Supplied with NiCads, Charger, Earphone, Belt Clip
- ★ Optional Leatherette Case available
- ★ Price: £249

VT-125 CIVIL AIRBAND



Being dedicated to one specialist band has enabled Yupiteru to optimise the performance of this radio - sensitivity is outstanding, enabling reception of long distance aircraft, inaudible on other scanners.

- ★ 108-142MHz
- ★ 30 memory channels
- ★ AM mode reception
- ★ Signal meter
- ★ Supplied with NiCads, Charger, Earphone, Belt Clip
- ★ Optional Leatherette Case available
- ★ Price: £189

MVT-7100 WIDEBAND WITH SSB

The ultimate in Scanning Receivers - with true SSB reception using carrier insertion for effortless reception of both USB, LSB or CW. A rotary tune knob allows normal receiver tuning across the entire wideband frequency range. It's exceptional sensitivity and ease of use has made this the UK's number one scanning receiver.

- ★ 100kHz-1650MHz
- ★ All mode reception
- ★ AM/FM/WFM/USB/LSB/CW
- ★ Supplied with NiCads, Charger, Earphone, Belt Clip
- ★ Optional Leatherette Case available
- ★ Price: £389

MVT-7000 WIDEBAND

The exceptional receiver performance of this handheld has to be heard to be believed. It's ease of use and instant results with only minimum programming make it one of the best in it's class.

- ★ Continuous coverage (100kHz - 1300MHz)
- ★ 200 memory channels
- ★ AM/FM/WFM modes
- ★ Rotary or keypad frequency control
- ★ Signal bar graph meter
- ★ Supplied with all accessories
- ★ Price: £289

MVT-8000 BASE/MOBILE

This base version of the MVT-7000 incorporates all the facilities of the handheld in a stylish metal case. Again, it can be controlled by either direct keypad or rotary tuning knob. Easy read full function LCD display makes this model a dream to use, and produces stunning results on the air.

- ★ 100kHz-1300MHz
- ★ Direct keypad and rotary control
- ★ 200 memory channels
- ★ Supplied with UK Mains Power Supply and Mobile Mount Bracket
- ★ AM/FM/WFM modes
- ★ The best base available! Price: £369



Available from your Local Dealer or Direct:

Order hotline (0705) 662145

or Fax (0705) 690626

YUPITERU FACTORY APPOINTED DISTRIBUTORS:

Nevada Communications

189 London Road North End Portsmouth PO2 9AE

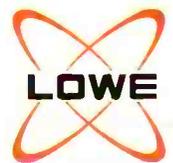
The Award Winners



HF-Europa *"Best DX receiver 1992"*

HF-150 *"Most Innovative Receiver Design"*

HF-225 *"Receiver of the Year"*



All across the world, people are buying and using Lowepro short wave receivers. You can try one out today in any of our branches listed below or at one of our many dealers around the country.

LOWE ELECTRONICS LTD. Chesterfield Road, Matlock, Derbyshire DE4 5LE
Telephone 0629 580800 Fax 0629 580020

Newbury 0635 522122 ★ Newcastle 0661 860418 ★ Cumbernauld 0236 721004 ★ Bristol 0272 315263
Cambridge 0223 311230 ★ Bournemouth 0202 577760 ★ Plymouth 0752 257224 ★ Leeds 0532 452657