Icom IC-PCR1000
THE JW REVIEW

TIMESTEP PROsat FOR WINDOWS - REVIEWED
JOE CARR ON CLASSIC ANTENNAS
CW FILTER PROJECT - CONCLUDED
UNDERSTANDING WXFAX

SAVE £100 WITH OUR PROsat OFFER
ALINCO DJ-X10E SCANNER

JUST LOOK AT THESE FEATURES!

- RECEIVES 100kHz - 2000MHz
- MULTI MODE RECEPTION
  - AM, WFM, NFM, SSB, CW
- 1200 MEMORY CHANNELS
- CHANNEL SCOPE SPECTRUM ANALYSER
  - that allows monitoring of 40 channels at a glance
- CHANNEL SCOPE PEAK SEARCH
  - During searches you can tune in the strongest signal displayed on the channel scope
- ADVANCED SCANNING FEATURES
  - that allow selection of these types of scanning:
    - Programmed Scan
      - (up to 10 groups)
    - Programmed Memory Scan
    - Any Memory Scan
    - Mode Scan
      - (not found on many scanners)
- USER FRIENDLY FEATURES
  - Help messages - Personalised Channel names -
    Memory cloning - Auto memory write scan -
    Beginner/Expert Mode - Memory Tune Mode
- LARGE CLEAR ILLUMINATED DISPLAY
  - with switchable backlight for easier use at night
- TIMER FUNCTIONS
  - With auto ON/OFF facility
- BATTERY SAVE FACILITY
  - For extended use
- SQUELCH CONTROL
  - Fully adjustable and switchable squelch control
- STYLISH CABINET WITH LARGE SPEAKER
  - For clear sound quality
- A SUPER SENSITIVE RECEIVER
- DUAL VFOs
- FACILITIES FOR CLONING ANOTHER SET
- BUILT IN 24 HOUR CLOCK
- DISPLAY - CONTRAST - CONTROL
- LOW BATTERY ALARM
- SWITCHABLE ATTENUATOR
- SELECTABLE CONTROL BEEP TONE
- KEYPAD LOCK CONTROL

DJ includes X10E FREE

- MAINS DROP IN CHARGER
  - For easy and convenient use
- NICAD BATTERY PACK
  - 4.8V DC 700mA NiCad battery pack
- BELT CLIP
- CARRYING STRAP
- FLEXIBLE LOW PROFILE ANTENNA

SPECIFICATIONS

- Frequency: 100kHz - 2000MHz
- Memories: 1200
- Scan Speed: 25 ch/sec
- Scan Steps: Selectable (50Hz - 500kHz)
  - in 20 fixed steps
- Receiver: Triple Superheterodyne
- Dimensions: 57(H) x 150(W) x 25.5(D)
- Weight: 320g
  - (with EBP-37N Battery pack)

OPTIONAL EXTRAS

- EBP-33N - Small size 650mA NiCad: £39.95
- EBP-34N - Long life 1200mA NiCad: £49.95
- ESC-29 - Standard Soft Case: £7.95
- EBC-6 - Mobile Mounting Bracket: £12.95
- EME-6 - Earphone: £10.95

YAESU FRG-100

- This receiver provides solid coverage from 50kHz to 30MHz with all mode reception of AM, SSB and CW.
- 30 fully tunable memory channels store frequency, mode and filter selections.
- The FRG-100 has twin 12 hour and 24 hour programmable clocks with on timer and sleep timer. The set requires 12V DC.
- New low price: £49
- FM option available - add £49

£349.00

£8.00 post & packing

new!

STANDARD AX700 mkII

SCANNING RECEIVER WITH PANORAMIC DISPLAY

A beautifully engineered radio perfect for home or mobile use.

- See up to 1MHz of Bandwidth at a glance on the large panoramic display plus full information on the channel being monitored.
- 50 - 904.995MHz
- 100 memories
- 12V or 240V operation with power supply supplied
- Sensitive receiver
- 2W audio output
- 10/12.5/20/25kHz scanning steps
- Price includes power supply

£449.00

£449.95

£49

£49.95

£7.95

£12.95

£10.95
DRAKE SW2
A new low cost receiver from this famous American manufacturer with exceptional sensitivity, selectivity and dynamic range. A ruggedly built radio that is easily transported with optional carrying handle or vehicle mounted for mobile use.

- 100kHz - 30MHz
- AM/SSB
- 100 memories
- Easy tuning
- Selectable Sideband
- Synchronous detection
- Dual antenna inputs
- Long wire short wave antenna
- 12V DC operation

JRC NRD 345G
A cracking new receiver aimed at the Broadcast and Shortwave listener. JRC build some of the World's finest receivers and this is no exception. Designed to give clarity and interference free reception.

- AM synchronous detector
- Low noise PLL chip
- Wide dynamic range
- Sensitive receiver
- Noise blanker
- RS232 computer I/F
- 100 memories
- Clock/Timer functions
- Supplied complete with AC mains adaptor

YUPITERU MVT 9000 EU
With a range exceeding 2000MHz, a real time bandscope, twin VFO receiver, and a host of other features, this will be Yupiteru's flagship model in 1997.

Note the EU version is specially designated by Yupiteru for the UK and Europe to meet full EMC specifications and is supplied with Yupiteru's own original English handbook.

- 100kHz - 30MHz
- AM/SSB
- 100 memories
- Easy tuning
- Selectable Sideband
- Synchronous detection
- Dual antenna inputs
- Long wire short wave antenna
- 12V DC operation

YUPITERU MVT 7100 EU
Yupiteru's own EMC version of this popular radio.

- 300kHz-1650MHz
- AM/FM/WFM/SSB/CW
- 1000 Memories
- C/w NiCads & charger

AOR AR8000
Still the No.1 seller

- All mode
- FM, WFM, SSB, CW, AM
- 50kHz-1900MHz
- Computer control
- Data clone
- 1000 Memories
- C/w NiCads & charger

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shipping world wide - fast - for 27 years!
Built for Speed

The new R11 Test Receiver...

...If there’s RF, you’ll catch it!

The NEW R11 is a Nearfield FM Test Receiver capable of sweeping 30MHz - 2GHz in less than one second. The R11 can lock onto a 5 watt UHF signal as far away as 500 feet and demodulate the signal through its built-in speaker. A unique feature of the R11 is its ability to determine what band the frequency is transmitting in and display it on its LED indicator. When speed is an issue, reach for the R11 Test Receiver, You won’t find a faster nearfield FM test receiver anywhere.

FEATURES
- Frequency Range: Analog FM, 30MHz - 2GHz (Cellular frequencies blocked)
- Locks onto 5 watt UHF signals as far away as 500 feet
- Easy to use keypad functions: Frequency Hold, Frequency Skip, Frequency Lockout, and the Shift key feature for Audio Mute, Enable/Disable Lockouts, and Lockout Clear
- Squelch and Volume control knobs
- LED frequency range indication display
- Built-in speaker for instant frequency demodulation and headphone jack for earphone audio
- Interface with the Scout for Reaction Tune
- TA100S Telescoping whip antenna included
- Built-in NiCad batteries (4 hour discharge) and power supply included
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O c t o b e r 1 9 9 7
Check Out The Check Book

Recently landed on the SWM Newsdesk is the latest International Short Wave League publication, The Radio Amateurs’ Check-book, which is now available. The publication is a useful addition to any shack and allows the user to keep track of all major worked/heard records in one convenient book. Each check list has been designed, where necessary, to enable cross referencing between items worked or heard and related bands.

The Radio Amateurs’ Check-Book is printed on good quality A4-sized paper with colour coded pages for quick reference. It is spiral bound so that it can be folded back on itself to fit easily on the shack desk. The book has stiff card front and back covers and contains 42 pages of detailed, pre-printed check lists for DXCC countries, prefixes, continents, CQ zones, ITU zones, UK countries, US states and much more.

Available exclusively from the ISWL, it costs £4 Sterling, including P&P in the UK and Europe or £4.50 Sterling outside Europe, (postage stamps to the appropriate value of ten IRCs are also acceptable).

The Check-Book will be available from the ISWL Rally Stands, but if you can’t wait that long to the next rally you’ll be attending, order yours now from: ISWL HQ, 3 Bromyard Drive, Chellaston, Derby DE73 1PF.

RAE Classes

Gordon L. Adams G3LEQ, Senior Lecturer & Course Organiser, has written with details of Novice and Full Radio Amateurs’ Examination Classes for Winter 1997/98. Here goes:

The North Cheshire Radio Club will be holding RAE and NRAE classes starting at the end of September and thereafter weekly at their HQ in the Morley Club, Morley Green, Wilmslow, Cheshire. Candidates may join any Sunday evening from then until the end of November. Details can be obtained from Gordon Adams G3LEQ on (01565) 692652 or FAX on (01562) 634560.

The Warrington Collegiate Institute will also be running an RAE course starting at the end of September and thereafter weekly at the North Campus, Winwick Road, Warrington, Cheshire. Details available from Gordon Adams G3LEQ (see above). The prospectus is also available by telephoning (01925) 494494. Candidates may join on any Thursday evening until the end of November.

Leicester’s Last!

As most of you will probably be aware, the Leicester Rally held this year on 17-18 October is the last one to be held at Granby Halls. Waters & Stanton Electronics have news of various products which they will be showing.

First seen at Dayton in the Spring of 1997 was the Kachina 505 DSP computer controlled h.f. transceiver, which caused a lot of interest both there and later at Friedrichshafen and will be shown for the first time at Leicester. The provisional price is £19.95 and a full range of optional accessories will be available.

Next, from another progressive American company, comes the new SG 2020 QRP h.f. transceiver based on the very successful Index Laboratories rig. With a provisional price in the region of £700, it is hoped that the first sample will be on display. Also from the USA, Cushcraft Antenna Corporation will supply W&S with first production models of two new super strong multi-band h.f. beams, model X6 and X8, offering excellent performance and rugged design.

From Optoelectronics, three new products including the shirt pocket-sized miniature frequency counter priced at £99.95, which will cover frequencies between 10MHz and 1.2GHz. Second is the compact micro d.t.m.f. decoder priced at £89.95 and finally, the all new R 1 test receiver, covering frequencies between 30MHz and 2GHz and able to interface with the Scout frequency recorder. Price will be in the region of £369.

In addition to all this, Waters & Stanton will also be displaying new products from ADI, AKD, Ameritron, AOR, Diamond, MFJ, Microset and Watson. So, readers, you can see why it is worth visiting what is claimed to be the largest stand in the main selling hall at Leicester.

Racal Avionics Ltd

In Godfrey’s ‘Airband’ column back in August was a mention that Aerad had come to the end of an era as they had been taken over by Racal Avionics. However, Leith Whittington, General Manager of Racal Avionics Limited, would like to point out that Racal Avionics have undertaken a programme of investment in the Aerad product that will bring it to the development that British Airways would never have brought - they have a different agenda to Racal and differing financial objectives.

Racal’s purchase of Aerad was part of a long term development strategy which is to provide integrated services and service packages to the various segments of the aviation community. A navigation data service has been provided for many years, supporting military and civil flight and navigation management systems. This operation has many synergies with the Aerad operation and has similar development and market needs. So, the acquisition of Aerad, therefore, was a natural development.
Racal will be adding more service business either through acquisition or through the development of strategic alliances and have created the Aeronautical Services Group to act as the focal point for these operations.

New Look Kits & Modules

Maplin has introduced new packaging for its range of electronic project kits and modules. The new packaging has been designed to reflect the quality and diversity of the projects and ‘ready to integrate’ modules in the Maplin range. It has been developed to make the products more eye-catching and easier to find in the 40 Maplin and three Mondo stores throughout the country.

Current best sellers in the Maplin projects range include those associated with home automation, computing and communications. ‘Ready to integrate’ modules, which provide innovative solutions for specialist applications, are enormously popular with trade users. Maplin stock modules exclusive to the company, special function modules not readily available elsewhere and industry standard parts such as radio telemetry and display modules.

Simply Digital!

Everyone has difficulty at some time or another in remembering a telephone number.

Buyers Beware!

We have been informed of the following by the Eddystone User Group.

Around 1983, Eddystone Radio introduced their first microprocessor-controlled i.f.-h.f. communications receiver, the Model 1650. It was built to the highest professional standards and sold in many different versions, including the 1650/6, a special classified version for the British Government. The series went out of production a couple of years ago.

A considerable quantity of 1650/6s has recently found its way onto the surplus market and they are being offered for a fraction of their original cost. This would appear to be an attractive proposition until one discovers that this model is so specialised as to be useless to the amateur. Most of the facilities, i.e. mode selection, bandwidth selection, scanning facility, variable tuning, etc., are missing.

The Eddystone company has been receiving requests for information on converting the set into a standard model. For many reasons, they are unable to do so!

Purchasers of the Model 1650/6 must appreciate that they are buying a collectors’ item rather than a general purpose receiver. Conversion is not a possibility for anyone other than a microprocessor expert, and even then it would not be an economic proposition, too many parts are missing!

The asking price for the set is around £300, which is a lot of money for someone to pay for what they think is a bargain and turns out not to be. The 1650 Series costs from around £3500 upwards, plus VAT, only two years ago, and this version is the only ‘non-starter’. So, take note, this warning could save people a lot of disappointment.

The Eddystone User Group can be contacted at Eddystone User Group, c/o Graeme Wormald G3GGL, 15 Sabrina Drive, Bewdley, Worcs DY12 2RJ. Tel: (01299) 403372. They provide an excellent forum for owners of all Eddystone products.

Haydon Communications feel that way too, in that customers often have difficulty in remembering their number, so now they have introduced a new number that readers won’t be able to forget!

Any reader with a telephone that has alpha numerics on it (letters under the numbers 2-9), can now make use of a new, easy-to-remember number. Simply dial 07000 then type in HAYDON (this number is 429366) on your telephone keypad and you will get straight through to Haydon themselves. It couldn’t be easier!

New Scanner From Yupiteru

Yupiteru have just announced a new hand-held scanning receiver due for delivery in the UK during November of this year.

The scanner, designated MVJ-3300 EU, covers 108 - 170, 300 - 470 and 806 - 1000MHz with selectable a.m./f.m. modes, 200 memory channels and selectable scan steps of 6.25, 10, 12.5 and 25kHz.

Inside reports leaked from Yupiteru claim that the receiver has “breathtakingly” good performance. Tentative price for the CE approved EU version is around £189.

Nevada, 189 London Road, North End, Portsmouth, Hants PO2 9AE. Tel: (01705) 662145.

Send your news to Zoe Crabb at the Editorial Offices
WorldDAB Multiplex

Anyone with a DAB digital radio receiver in London, Birmingham and Berlin can now tune to one of the foremost news and information radio network in the world. WRN I has been broadcast as part of the UK’s Independent Radio DAB Multiplex run by a consortium led by the UK’s GWR Group and Classic FM since 1996. It has proved popular in focus groups run in the UK to discover the likely consumer take-up of DAB Digital Radio.

During the recent Internationale Funkausstellung (IFA ‘97) in Berlin, WRN I brought together 21 of the world’s leading international radio stations in a 24-hours-a-day English language radio network carried on satellite across Europe. Broadcasters as diverse as America’s National Public Radio, ABC Radio Australia, Channel Africa, Polish Radio Warsaw and BBC World Service were all to heard on the unique radio network.

“We are delighted to be part of the WorldDAB Multiplex here in Berlin,” commented Simon Spanswick, Director of Corporate Affairs at WRN. “With the public launch of DAB Digital Radio here at this important and exciting exhibition, World Radio Network is making sure that international radio broadcasting has a strong foothold in the new digital marketplace. Here, for the first time, international radio stations from every corner of the world are available in CD quality on a range of first generation consumer digital receivers. As the first genuinely new service on UK independent digital radio, we are really giving consumers something out of the ordinary, both here and back in Berlin.”

World Radio Network, PO Box 1212, London SW8 2TG. Tel: 0171-896 9007.

Variable Response Console

For those of you who have a communications receiver and want to improve the audio, Alpha Delta have introduced their VRC - Variable Response Console.

This is a heavy diecast metal unit measuring 209 x 207 x 155mm and weighing in at 3.6kg. The unit contains a low distortion push-pull amplifier, a ducted port bass reflex enclosure for the 10mm wide-range Pioneer speaker. Other built-in features include an adjustable 12dB bass boost/cut circuit, sampled data switched capacitor audio filter, peak/notch filters and an i.e.d. bargraph reading in dB.

The VRC has been designed to get the best out of communications receivers, whether on a.m., f.m., s.s.b., c.w. or data. The retail price is £229.95 and should be available through your local dealer.

Waters & Stanton Electronics, Spa House, 22 Main Road, Hockley, Essex SS5 4QS. Tel: (01702) 206835.

Progression Award

An agreement has been signed by The Electronics Examination Board (EEB) and The City & Guilds of London Institute to establish an Awarding Body partnership for the award of National Vocational Qualifications (NVQs) and Scottish Vocational Qualifications (SVQs) in Electrical and Electronics Servicing.

The formal signing of the agreement by the EEB Chairman, Michael Buck and the Director General of City & Guilds, Dr. Nicholas Carey, took place at a special ceremony held at the London office of City & Guilds back in July.

The two organisations have been associated in the assessment and certification of engineers in the field of electrical and electronics servicing since the early 1950s and currently jointly operate the popular Course 2240, Electronics Servicing. Building on this successful relationship, EEB and City & Guilds are collaborating on the development and implementation of a Progression Award in electrical and electronics servicing.

This award will cover the underpinning knowledge and skill requirements of the new NVQs and SCQs and is designed to update and supersede Course 2240. It is planned to have the Progression Award ready for a September 1998 start date in colleges and training centres.

Silent Key - Frank Elliott G4PDZ

The sad news that ‘Mr Leicester Show’ Frank Elliott G4PDZ had died came to me during my holiday in Wales in the first week of September. It came as quite a shock because I’d been talking to him the day before I started my holiday about the final (final final!) Granby Halls event.

Frank G4PDZ was 68 when he suffered an immediately fatal heart attack on September 3rd. He had known much family tragedy in recent years with the loss of his wife, followed by the death of a daughter. Despite this, he kept a smile and a quiet warmth for everyone he came into contact with. He was also ‘unflappable’ and scrupulously fair. I often joked that he was so cool, calm and collected that he’d inherited some of ‘ice’ from the middle of Leicester!

Many people in the East Midlands will remember Frank from his shop ‘Elliott Electronics’ and this is how I first met him many years ago. And of course he became famous amongst radio enthusiasts as one of the ‘Gentlemen In Maroon’, wearing the trademark of the Leicester show organiser’s distinctive maroon jackets.

The radio hobby has lost a good friend, but at least Frank knew that the Leicester show will take place at Granby Halls in 1997 and continue at the new venue at Donnington in 1998. My condolences go to Frank’s family and especially to his partner and friend Sylvia Grassby for the loss of ‘Mr Leicester’.

Rob Mannion G3XFD
Weekend On The Air

The Bury St. Edmunds Amateur Radio Society are once again indebted to The National Trust at Ickworth House, just outside Bury St. Edmunds, for providing the Society with an excellent venue for their annual Special Event Station, held over the weekend of 9/10th August 1997.

Back in 1995, the Society helped celebrate the National Trust Centenary with GB100NT. In 1996, they operated as GX2TO (the club callsign). This year, Derek Spender G4DHU, applied for the callsign GB2NTI and acted as Station Manager.

Chris Brown GOJRM kindly agreed to exhibit some of his collection of vintage wireless receivers and other radio nostalgia in the display cabinets, which lined one side of the Lecture Theatre, which was put at the Society's disposal. Liaison with the National Trust was in the hands of David Riches G0XEG, who happens to be a Volunteer Room Warden at Ickworth House.

Peter Brindley GOHEV, Secretary of Bury St. Edmunds ARS, handled all the publicity, and the National Trust kindly agreed to provide the Society with picture postcards of Ickworth House, which were able to have overprinted with the callsign G0XEG, who happens to be a Volunteer Room Warden at Ickworth House.

On the Friday evening, a working party of members assembled to start putting Chris Brown's exhibits in place, unpacking the club transceivers, putting a rope from the top floor of the Rotunda and another over a large oak tree for the G5RV antenna, which they intended to use. All tasks were completed by the time it was getting dark, having started before 5.30pm.

Saturday dawned bright and sunny (fortunately!) with temperatures in the eighties, but the Lecture Theatre was cool, and members were soon calling CQ on the FT-100 through the club-built a.t.u., but did not reach anywhere near the 100W that the FT-100 can produce. First thought was that they had too much feeder and really needed to move the antenna nearer the transmitter, but they would have to wait until the end of the day when there were no visitors.

The Society also have an FT-102 with matching a.t.u. and other accessories, but the a.t.u. will only cope with unbalanced antennas, so they decided that it might be worth trying to use the G5RV as a centre-fed dipole with one side tuned against the earth as they were using 300Ω twin right through. This in fact loaded well and members were able to work on 80, 40 and 20m, but, regrettably, only around Europe.

In the end, after investigating the home-brew a.t.u., the main cause of trouble was found - a faulty contact strip on the moving vanes of the first variable capacitor! As it was not the sort of thing that could be replaced quickly, (they had to find one first!), it was not used again over the weekend. The antenna was moved on the Saturday evening, which gave more success on the Sunday. In spite of these setbacks, over 100 stations were worked in the end! Darren G7SDC and Martin 2E1FZH helped the number of contacts by running a packet station on v.h.f. from a couple of laptop computers and a most impressive home-brew TNC and p.s.u. They even managed to enlist the help of the GB7TDG Sysop - John G4VEL - in getting an 'ad' into the system telling people of the special event! They worked quite a few stations direct, as well as through the BBS. This evoked quite a bit of interest from the visitors, in spite of I.c.d. screens being difficult to read.

With hindsight, the Bury Society felt that the visitors were more interested in the exhibition of old radios and packet than trying to understand the audio from s.s.b. signals, so when the Society put on another station, they may now consider putting on some SSTV or even FSTV for the public benefit, whilst maintaining the Amateur Radio interest on air with a special event callsign and QSL card.

In all, it was a good weekend, in spite of a smaller number of contacts. Everyone went home happy, even if hot and tired! The Bury Society would like to say thanks to Property Manager Kate Carver, the House Manager Maria Moffatt, the House Steward Eilidh Taylor and Paul Dickson, the Regional Public Affairs Manager from the National Trust, without whose help and cooperation, the event could not have taken place again this year.

Lastly, thanks to the members who helped plan and set up, pack up and operate. Most members who attended have already asked about next year - but that's another story!

Further information from David Riches G0XEG, 92 Barons Road, Bury St. Edmunds, Suffolk IP33 2LY, Tel: (01284) 701034.

Send your news to Zoë Crabb at the Editorial Offices
The one-day amateur radio rally is one of the highlights in a lot of clubs' annual calendar. It offers them a fixed point at which to aim and at the same time, hopefully, produce some much needed income for their coffers. Both Short Wave Magazine and Practical Wireless attend many rallies up and down the country in an attempt to meet as many of our readers as possible and help promote the hobby generally. Obviously, it is impossible to have a stand at all the rallies that take place each week. The ones that we do attend are carefully selected so as to give us a presence in as many geographical areas of the UK as possible, but still be practical as far as the logistics are concerned. Over the fifteen or so years that we have been attending rallies, we have made many friends, not just among the 'putters', but the select few who organise the events. This tends to be the same small team, even just one person, in each club, year in, year out. Some of them are remembered by their little eccentricities - roller skating around the site, for instance. Others, perhaps, for the military precision of their operation. Sadly, none of them are getting any younger and many have passed on or had to give up because of severe illness. If you belong to a club that organises a one-day rally, why not offer your services to help with the organisation of the event rather than waiting to be asked. Perhaps one day you will get to be the one who roller skates around the halls.

As I write this piece I am just about to leave to attend the funeral of the man whose name is synonymous with the Leicester Amateur Radio Show. Frank Elliott GARZ was in the final run-up to the last Leicester Show to be held at the Granby Halls when he died. Frank devoted a lot of time and effort to the organisation of what is probably the premier amateur radio show in the UK. He had negotiated for a new venue for the 1998 show - at Donnington Park - and was very enthusiastic about it and its possibilities. Nobody is indispensable and, of course, someone will go on, but it will not be the same without Frank!

Dick Ganderton

Dear Sir

I am a fifteen year old student, currently studying at Corfe Hills School and enjoying reading your magazine very much.

I constructed my receiver which was built from a Maplin Electronics p.c.b. (now unavailable), in conjunction with a Howes AA2 active antenna, for the express purpose of listening to coastal shipping on s.s.b. between 1.8-2.24MHz. I found the article on this subject, published in June 1997, very interesting and helpful.

The big problem still remains that I am not receiving any shipping at all, not even at the busy period at three minutes past the hour. All I seem to be able to receive is a very annoying Morse beacon and German national radio! Even the occasional amateur I receive sounds so distorted I can't make out what is being said.

I would be extremely grateful if anyone could help me or I have spent lots of money on it! Even if this letter does not find way to the pages of your editorial, I would be indebted to you if you or one of your team could help me. Thank you very much for your time and I look forward to hearing from you soon.

A. J. Marshall
Wimborne, Dorset

Dear Sir

Following the success of our 1997 airband newsletter, it has been decided, due to the tremendous interest in the military field, that a new quarterly, military only, airband magazine will be produced in 1998.

To add to our existing network of UK sources, input from enthusiasts and aviation professionals alike is sought to compile additional data on any aspect of h.f./v.h.f./u.h.f. military airband monitoring, in the air or on the ground.

We are especially keen to extend this coverage to include world-wide airways, particularly in the form of h.f. news, aircraft/base callsigns, exercises and u.h.f. squadron air-to-air operations/AUX/channel pre-set tie-ups. Military aircraft units and serials relating to airband are also of interest to the pre-set tie-ups. Military aircraft units and serials squadron air-to-air operations/AUX/channel pre-set tie-ups. Military aircraft units and serials relating to airband are also of interest to the pre-set tie-ups. Military aircraft units and serials squadron air-to-air operations/AUX/channel pre-set tie-ups. Military aircraft units and serials relating to airband are also of interest to the pre-set tie-ups. Military aircraft units and serials squadron air-to-air operations/AUX/channel pre-set tie-ups. Military aircraft units and serials relating to airband are also of interest to the pre-set tie-ups. 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r.f. gain control (which should delight John Wilson and his pedestal), provision for a whip antenna with internal amplifier, a superb a.m. filter - 8.2kHz at -60dB, a superb s.s.b. filter 2.5/3.5kHz, an EEPROM microprocessor, half octave front-end selectivity and a.m. distortion mostly excellent. I could go on, but read the Passport evaluation white paper. At the current price of £499 I vote it the best value on the current market.

Adverse points are that its 3rd order intercept point, at 5kHz, is only 'fair' as is its dynamic range at 5kHz spacing. It has no clock (does it matter?) and the cassette operation is via the squelch control. It has no 'stop' after the kilohertz, which is sometimes a little confusing, I can highly recommend it.

Ted Kimber
Taunton
Somerset
PS. It is far more straightforward to operate than the AR7030 and it has a forward facing speaker.

We reviewed the AOR AR3030 receiver when it first appeared back in January 1994 We will shortly be starting to take a look at some of the older receivers that are still in production. Ed.

Dear Sir
Although I spent many years as a telegraphist in the Royal Navy, I am not a 'technical' person and most d.i.y. projects are well over my head. However, by following the guidance given in two fairly recent articles in SWM and using a balun unit supplied by Wellbrook Communications, I succeeded, with no great problems, in erecting a T2FD antenna.

The improvement in reception over my previous 'longwire' is quite marked and I have to thank all of you who put me on the 'right road'.

Because my home is in an exposed corner, I found that the whole assembly swayed quite a bit in strong winds and I feared chaffing, so I added a support half way along the length. For a modest outlay, this project was well worthwhile and I have no hesitation in recommending the design.

Finally, my thanks to you for putting together an informative magazine and please do not allow John Wilson to stop writing reviews! He has the rare ability to make the complex simple so that even dim wits like me can understand!

R. Walker
Renfrewshire

I am pleased that you took the plunge and made your T2FD antenna. There is no doubt in my mind that building something for your station, be it an antenna, a filter or even a complete receiver, provides years of enjoyment, coupled with a great feeling of achievement when the project is finally completed and working. Ed.

Dear Dick
Another good read plopped through the door today! With regard to Roger Waldron’s query about the supposed Russian transmissions in the Seventies.

Roger is presumably referring to the bane of every amateur’s life, that wretched noise known as The Woodpecker. Much to my surprise, I learnt in recent years that it did not emanate from Russia at all - although they may have experimented with their own version - but came from our own fair shores, from a site at Orfordness in Suffolk.

The site is now occupied by the BBC World Service and used for more peaceful purposes. I have visited the site and seen photographs of this colossal installation, which was an experimental Radio and Video-horizon (OTFI) radar system using spread spectrum techniques between 6-60MHz. It was operated by the Americans and was a failure, hence its withdrawal from this country.

73 de Bob GBJNZ

Hi, I have been an avid reader of SWM and a listener now for a number of years, and I enjoy very much receiving the various data modes. I bought a Homcomm type interface from Pervissel a couple of years ago and I have great satisfaction from it, which has further developed my interest in packet.

I have recently started to build a 'Baycom' type packet modem as my old 286 Laptop running DOS has finally given up the ghost. PktMon won't run under Windows 95 on my new Pentium but I have a major problem trying to locate a chip for the modem. I am looking for a TCM3105 IC, which Texas Instruments discontinued in 1996. I was wondering if any readers may have an immediate lying about in their spares box that I may be able to purchase or maybe point me in the direction of a supplier who might still have this part in stock.

Hoping that some one can help and thanks for a great magazine.

Matty Cunningham

If any reader can help, please contact the Editorial Offices and your message will be forwarded on to Matty, Ed.

Dear Sir
Could I please ask you to make a determined effort to get rid of the awful background on most pages of your otherwise excellent journal. In company with many recent correspondents, I find that the needless -muddy background combinations which you use completely spoil my interest in most articles. They also make many features well nigh impossible to read! After 60 years spent striving for perfection in the Audio, Video and Video equipment which I use, I find it most unpleasant to put up with a publication whose signal-to-noise ratios approaches unity on the worse pages! Would you put up with that on your radio, I wonder?

W. R. Potter
Lancs

We do our level best to make articles appealing, both technically and visually, given the pretty boring subject material of black-boxed radios. We are in a market place which competes with glossy, often weird, computer and associated technical magazines so we 'throw colour' at some articles to make them look interesting. Sometimes we go a little too far, which I apologise for, but we always listen to complaints and try to keep most people happy. Thank you for taking the trouble to write, us 'Art Bods' need keeping in check you know!

If the Editor told me about your letter sooner, or marked up the page proofs for this issue, I would have slightly changed a couple of the articles this month. Unfortunately the flims (quite a long process) have now been made, but I assure you I will be a little less ambitious in the future.

Art Ed

SWM October 1997
Few international radio broadcasters rely solely on transmitters in their own country to ensure that listeners have a good signal wherever they are world-wide. Relay agreements allow stations to provide stronger signals than their own transmitters can without making a huge investment in transmitting equipment overseas.

For example, listeners to Swiss Radio International (SRI) outside Europe have for some years benefited from short wave relay agreements with China Radio International and Radio France Internationale. Until now, the Bern-based broadcaster has used its own transmitters in Switzerland to send programmes on short wave to its European audience.

However, SRI is currently reassessing its distribution strategy on a world-wide basis, and has been discussing transmission terms with Deutsche Telekom this summer for short wave facilities at the Julich transmitting station near Cologne.

The Swiss station will use Julich for European transmissions to improve reception, which is currently less than satisfactory from its site near Schkopau and Lom in the Swiss countryside. SRI has wanted to construct a new, high-power short wave station in Switzerland for many years, but has fallen foul of environmentalists who will not permit such a broadcasting facility to be built. Look out for the new arrangements in the schedule which comes into effect at the end of this month.

Swiss Radio International’s strategy work means that it has been unable to take a decision on whether or not to join the major broadcasters in Europe which are taking part in WRN3, the new German-language service which comes into effect at the end of August.

SRI’s strategy work is not complete, but the station– which it equipped as part of an aid agreement for many years. References to the SRI satellite– footprint have been dropped from daily broadcasts to weekends only. English is also affected.

The current six daily broadcasts of Brussels Centre will be cut to five to be heard at 0830, 1300, 1730, 1830 and 2100UTC. At the same time, the North American English-language transmissions which have been relayed via Radio Netherlands’ relay station on Bonnair will cease.

At the end of August, Radio Netherlands dropped one of the two satellite subcarriers it has used on the Astra satellite for European direct-to-home listeners. The service, on the audio subcarrier at 1.38MHz on transponder 58 of the Astra system (which carries Granada television and the Computer Channel), ended, although English-language programmes continue to be heard on the subcarrier at 7.56MHz at 1830 to 2025UTC and again at 2330 to 0125UTC daily. In addition, Radio Netherlands is heard via WRN1 on transponder 22 at 0930, 1830 and 2330UTC.

The Voice of America is now relayed from Voice of America transmitting stations in the United States. The Greek authorities decided earlier this year to take advantage of a reciprocal arrangement in the agreement governing the provision of two Voice of America relay stations in Greece.

The agreement allows the Greek state radio service to transmit its external service from the United States for as long as the VOA relay stations operate in Greece. The schedule for the US relays is: 0600-0800UTC to the Pacific from Delano on 9.775MHz; 0900-0950UTC to Australia from Delano on 9.775MHz; 1200-1350UTC to Canada via Greenville on 9.59MHz; 1830-2200UTC to Canada via Delano on 11.73MHz and to Latin America via Greenville on 17.745MHz.

The Voice of the Mediterranean broadcasts from Malta via transmitters in at Deutsche Telekom’s Jupiter station, in Germany every day at 1900 for an hour on 9.765 and 12.06MHz. The station also broadcasts to the Far East and Australia in English on Sunday at 0200 for 90 minutes on 15.55 and 17.57MHz, followed by a 90 minute programme in Maltese on the same frequencies.

A Japanese-language programme, aimed at tourist groups to Malta, is beamed towards Japan on Sunday at 0300 on 17.517MHz only. Relays of Radio China International from the African state of Mali ended early in the summer. China has used the Mali transmitting station which it equipped as part of an aid agreement – for many years. Agreements with China Radio International’s announcements.

Rallies

September 27: The Crawley Computer Fair, this time in Crawley Leisure Centre, Haslett Avenue, Crawley, West Sussex. There will be a large range of new and used computer equipment on offer at bargain prices. Doors open 1000 to 1600. Admission is £1.50 for adults, £1.00 for OAPs and under 16s. Steve Bealch on (01342) 839266.

September 28: The Eastbourne Computer Fair is to be held at the Cavendish School Sports Centre, Eldon Road. Doors open 1000 to 1400. Admission is £1 for adults, £1 for OAPs and under 16s. Steve Bealch on (01342) 839266.

September 28: The Warwickshire Computer & Electronics Rally is to be held at the Community College, Oakdale, near Blackwood, Gwent, South Wales. Doors open at 1000. There will be traders, a Big Band sale and a talk-in on S22. Norman GWOMAW on (01495) 823344.

October 12: Computracions 97 Computer/Radio Rally is to be held at Hillwear Camping, Kingswear Road, Hilhead, Brixham, Devon. There is overnight camping, trade stands, car boot sale, Big Band, refreshments, unlimited free parking, talk-in on S22 by G7DRC, Special Events Station GB2CFU. Bill G6ZRM on (01803) 522116. E-mail: 106445.2574@compuserve.com

*October 17/18: The Leicester ARS is being held at Granby Halls, Leicester. Doors open at 10am each day (9.30am for disabled visitors). All major companies will be in attendance plus a large Big Band and stage run by the Leicester Radio Society. Morse tests will be available on demand, but both photographs plus proof of identity will be required. There are ample car parking facilities. Talk-in at 10.30 on S22 and S23G calling GB2HGH, GA4AF on (01455) 823344.

October 25: The G-Quertz Club Mini Convention is being held at St Aidan's Hall, Sudden, Rochdale, Lancashire. Admission is £1 and doors open at 1000. Talk-in on S22. There is a large selection of QRP subjects, big Band, plus a whole range of QRP subjects, Big Band, surplus, junk, components, kit traders, food and drink all day. Rev. George Dobs G3RJY on Telex: (01706) 31812.
BBC’s Anniversary
This year the BBC celebrates its 75th anniversary and to mark the occasion it will open a splendid visitors centre at Broadcasting House in central London at the end of the month. The new centre, open daily from 9:30 to 17:30, allows visitors a look at the history of the Corporation from the earliest days of wireless services, through the vital role it played during the Second World War, and right up to date with the digitisation of broadcasting.

Visitors will be able to take part in the recording of a short radio drama, or be a news reader, or record a segment of Desert Island Discs. There will also be an extensive section on television, including behind-the-scenes looks at popular drama like Eastenders.

More than 300,000 people are expected to visit the new centre every year for guided tours which will last about an hour and a quarter. Admission charges are £5.75 for adults, and £4.00 for children, with under-5s free.

To book tickets for the BBC Experience, call (0870) 6030304 in the UK. If you want to book from outside Britain, call +44 1222 577771. The official opening by Her Majesty the Queen will be on 29 October, and the show opens to the public the following day.

Relay Station Strike
A strike hit the BBC East Mediterranean Relay Station on Cyprus at the end of August. Twelve staff at the station (now run by Merlin Communications, the privatised former World Service Programme Delivery Services department on behalf of the BBC), were issued with redundancy notices in contravention, the staff claimed, of an agreement between the British Foreign Office who employed the staff up to the end of April.

It appears that the Foreign Office rather than Merlin Communications employs the local relay station’s staff. The BBC said that despite the strike, no transmissions from the Cyprus station were lost.

IBC, the London-based Tamil-language radio station which is heard across Europe via the Astra satellite, has been noted testing satellite and Astra staff were lost.

At the station were stolen by thieves about 24 hours after the cables feeding the transmitting station were stolen by thieves.

Radio's external service went off the air for as a result of something completely outside the station were lost.

Finally this month it is worth remembering that if your favourite radio station disappears from the airwaves without warning, it may be result of something completely outside the station was lost.

And Finally
Finally this month it is worth remembering that if your favourite radio station disappears from the airwaves without warning, it may be as a result of something completely outside the broadcaster’s control. In June, Aden Radio’s external service went off the air for about 24 hours after the cables feeding the transmitting station were stolen by thieves who wanted the copper in the wires.

 Luckily this sort of thing doesn’t happen too often, but it is a regular problem in countries in Africa where telecommunications infrastructure is often stolen much to the chagrin of phone companies and broadcasters.

Good listening until the next Bandscan for Europe and Africa in the January 1998 edition of Short Wave Magazine.

Next Month
Bandscan America

AVON
Bristol International RC: Tuesdays, 2000. The Little Thatch Country Club, 684 Wells Road, Whitchurch, Bristol. All visitors are welcome. The club has been formed so that all radio enthusiasts, whether they be licensed amateurs or CBers can get together and have a good ratter 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, Purdown, Bull Hill, Stapleford, Bristol BS16 1BG. September 30: Bristol past and present by Brian Haines, a fascinating look back through the archives by a well known local expert. Robin Thompson GT3KX on (01223) 420442.

South Bristol ARC: Wednesdays, 1930. Whitchurch Folkhouse Assoc., Bridge Farm House, East Dundry Rd, Whitchurch. September 26: Brian Haines, a fascinating look back through the archives by a well known local expert. Robin Thompson GT3KX on (01223) 420442.

Buckinghamshe

Cheshire
Mid-Cheshire ARS: Meetings held every Wednesday, 2000, at Cottonwood Village Hall, North of Tarporley. Cheshire: October 1 - HF on air club station G3ZTT plus construction class, 6th - Committee meeting, 8th - surplus equipment sale, something to sell, 15th - HF on air G3ZTT club station plus construction class, 22nd - Informal talk. Ted Bannister G6RBA on (01606) 992007.

Devon

Exmouth ARC: Alternate Wednesdays at the Scout Hut, Millpool Hill, Exmouth. October 8 - Who’s who cake, 22nd - Construction competition. D. Fox GNOR on (01395) 271880.

East Sussex
Hastings Electronics & RC: 3rd Wednesdays, 1930. Hastings Green Village Hall. The club runs courses for the RAE and Novices and is formed so that all radio enthusiasts, whether they be licensed amateurs or CBers can get together and have a good ratter and do things that you do in radio clubs. PO Box 28, Bristol BS99 1GL.

Greater London

Hampshire

Southampton ARC: Mondays, 1900. This club is now up-and-running after some years of inactivity. New members welcome. Harold McPherson on (01703) 737715.

Herford & Worcester
Malvern Hills RAC: 2nd Tuesdays. Reclinton, St. Anne’s Rd, October 14 - Talk by the Shrewsbury Telephonists Society for the BDM Society.

Hertfordshire
Hoddesdon RAC: Alternate Thursdays, 1930. Conservative Club, Rye Road, Hoddesdon. September 15 - Slide show - IOTA by Neville Chadle GJNUG.

October 16 - Visit to Stanstead Airport (ATC). Don G3JNJ on 0181-292 3678.

Kent


Norfolk

Warwickshire

West Midlands
South Birmingham ARS: West Heath Community Centre, South Heath, Birmingham, October 9 - Night on the air, construction class. More details from John G6WYX on (01845) 375475.

Wild West
South Bromleigh RS: West Heath Community Association, Hamstead House, Fairfax Road, West Heath, Birmingham, October 1 - Lecture by David Inman on Amateur Television Repeaters. 8pm. Don Keeling on (0121) 458 1603.

West Sussex

Wiltshire

Worcestershire
Hereford & Worcester
Malvern Hills RAC: 2nd Tuesdays. Reclinton, St. Anne’s Rd, October 14 - The shrewsbury Telephonists Society for the BDM Society.

Hertfordshire
Hoddesdon RAC: Alternate Thursdays, 1930. Conservative Club, Rye Road, Hoddesdon. September 15 - Slide show - IOTA by Neville Chadle GJNUG.
**JRC NRD345G**

JRC's latest receiver is setting of the mid-price receiver war again! It offers a very high specification and ease of operation. We know lots of people who have really wanted to benefit from the engineering and ergonomics that are the trade mark of JRC but simply couldn't afford it before. Well, wait no longer. Now you can afford it, especially at the new low price. The NRD345G is now just £749.00 is superb value for money.

**Lowe Price Now £749.00**

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**JRC NRD535**

The NRD535G has been the true DXers dream receiver for a number of years now, and is yet to be surpassed at this price level. It offers a very professional specification with high sensitivity and wide dynamic range. Tuning is in 1Hz steps and incorporates a magnetic rotary encoder and heavy tuning knob for silk-smooth tuning. Operational enhancements include pass band tuning, noise blankers, notch filter and RF gain control to give you maximum control over the incoming signal. The basic set on its own will provide more than enough performance for most people but more discerning listeners can add refinements like variable bandwidth control and ECSS to make a great receiver even better. Try one today and see just what we mean!

**Lowe Price From £1399.00**

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**Lowe SRX100**

- A great entry level short wave receiver
- 30kHz to 30MHz
- Modes AM, USB, LSB
- Clarifier control for SSB reception
- Signal strength meter
- Fully synthesised
- Easy to operate

*Free Passport to World Band Radio this month with every SRX100 sold!*

**Lowe Price £159.00**

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**Lowe HF250E**

- The serious DXers mid-priced short wave receiver
- 30kHz to 30MHz
- All modes - AM, AMS, USB, LSB, CW, NFM
- AMS has selectable(sideband too
- 255 memories
- 7kHz, 4.5kHz & 3.5kHz IF filters plus 200Hz audio filter for CW
- Infra red remote control as standard
- Full computer control with free software

**Lowe Price £799.00**

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**Yupiteru MV7100**

Wideband multimode scanner
500kHz to 1650MHz
1000 memory channels
AF, FM, NFM, USB, LSB
Programmable tuning steps
Signal strength bargraph
Delay & Skip function

**Lowe Price £299.00**

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**Yupiteru MV9000**

Advanced multimode scanner
530kHz to 2039MHz
1000 memories
20 memory scan banks
30 channels per second scan
Alpha tagging on memories
Bandscope

**Lowe Price £399.00**

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**Yupiteru VT225**

High performance airband scanner
Covers civil and military
100 memories
Inc. nicads & charger
Signal strength bargraph
Scan and Search

**Lowe Price £269.00**

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**Kantronics**

The world's premier data comms products. Everything you need from a VHF only packet controller to a multimode HF set up.

**KAMPLUS**

New model KAM with many enhanced features; includes VHF and HF Packet, FACTOR, GTOR, and many other modes as standard £399.00
KPC3P Micro power packet TNC £139.95
KPCS912P Dual port dual speed packet TNC £329.00
Plus a full range of accessories and upgrades

**Lowe Price from £149.00**
Garmin GPS12

The GPS12 is ideal for use by walkers and hikers. It has fast 12 channel satellite acquisition and stays locked on, even in tough conditions. Features include a moving map plotter that displays waypoint names, symbols or comments, proximity waypoint alarms, average and maximum speed data and trip timers. There’s enough memory for 500 waypoints - and you can store 20 reversible routes with up to 30 waypoints each. Includes Lat./Long, UTM/UPS, Ordnance Survey, Irish, Swiss, Swedish, German and Maidenhead Grid plus 107 map datums. Ideal for you first GPS receiver but powerful enough for the serious user.

Low Price £179.00

Garmin GPSIII

Coming soon, the GPSIII is a revolutionary handheld mapping product. The built-in International base map for the continents Europe, Africa, Asia, Australia and Oceania will include international borders, oceans, country names, major cities, major motorways and arterial roads, lakes and rivers. Packaged in a rugged case, the GPSIII features parallel channel receiver for the fastest most reliable positioning available. This is the only one of its kind with a built-in basemap and vertical/horizontal display. Similar in size and weight to the popular GPSII it will also have a high contrast black and white LCD display with electro-luminescent backlighting. This one will be a winner. Price Approx. £450.00

BIONIC EAR

The Bionic Ear consists of a high quality microphone and headphone combination with a high gain (800 times!) amplifier, carefully matched to the main components. With the microphone fitted into the handheld parabolic reflector, the Bionic ear becomes a sophisticated, direction listening device, cable of picking up a whisper at amazing distances. Ideal for recording birdsong or animals and dozens of other uses too!

Low Price £99.00

JPS NRF7

- General purpose noise and interference reducer
- Removes multiple tones from voice signals
- Special linear phase data filter
- CW filters have selectable centre frequency
- Connects into audio output
- Built-in speaker amplifier

Low Price £199.00

JPS NTR1

- Entry level DSP audio filter
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Philip C. Mitchell takes time from his weather forecasting schedule to help you use your radio for forecasting.

Since the appearance of 'The Interpretation of Facsimile Weather Maps' in Short Wave Magazine, February 1993, Offenbach, operated by the German Weather Service, terminated its long wave transmissions in May 1996 in favour of a satellite link and most weather FAX transmission schedules from other sources have been revised.

For example, a revised schedule from Hamburg/Pinneburg became operational on 15th January 1997 replacing one that had been in place for several years, so we may expect much weather data to be available from this source for some time to come, most of which, incidentally, originates from Offenbach EDZW!

Accurate Forecasts

It is this data originating from this and other sources that provide similar information, which form the basis of highly accurate forecasts and current status of the weather. The equipment needed and operating technique for the reception of FAX weather maps either via dedicated hardware or computer software has been fully described in past numbers of Short Wave Magazine, particularly so in Mike Richards' 'Decode' column.

For those who have access to a PC, a variety of software and interfaces are available at reasonable cost for FAX decoding. It is assumed therefore, the reader has some form of basic rig for FAX reception and display of FAX maps and charts, or maybe after reading on, will be encouraged to splash out on some additional equipment for the already overcrowded shack!

Whatever station is selected for the reception of weather FAX maps, it is always desirable to aim for a clear, interference-free result by spending some time on fine tuning of your equipment and to take careful note of all settings that give optimum reception. A sharp, detailed map is essential to enable a meaningful interpretation to be made.

Hamburg/Pinneburg Meteo

The facsimile weather maps that can be received from Hamburg have been mentioned in the opening paragraph, since they are easily received in the UK and Europe on the three operational frequencies, 3.855 (0.8kW), 7.880 (20.0kW) and 13.8825MHz (20.0kW). The weather maps transmitted from this station have always been received with minimum distortion - in the south of UK at least - contain enough information to form the basis of this article and enable the recipient to acquire a basic understanding of the weather.

It is hoped, therefore, that some FAX map enthusiasts and the new recruits to their ranks, will be transformed into more enlightened weathermen, at the same time being one jump ahead both in time and accuracy of the professional TV weather presentations. The secret in the interpretation of FAX maps is to initially devise a routine that will provide the recipient with meaningful facts about the weather both as it should be in some future time (surface pressure forecast) and as it is at present time (surface weather analysis).

Both these weather states are very clearly presented in the Hamburg transmissions, but first of all recommend that you concentrate on those maps that will give us all that is needed for a basic understanding of current and forecast weather. Of course, it is fascinating to scan through the many FAX schedules and discover, for example, how much ice exists in the Barents sea, but this does seem to act as a diversion to our main task, in this case, of weather watching and forecasting.

As you advance in your understanding of the weather, the more complex maps and charts can then be tackled. So, to simplify our routine, I recommend concentrating initially on the type of map in Fig. 1, the surface pressure forecast (ref: FFOB89), i.e. the one transmitted at 0821UTC for a forward period of 72 hours from 0000UTC (midnight), showing weather to come.

Figure 2 shows the surface weather analysis (ref: QPOA89) transmitted at 105OUTC that shows actual weather existing at 0600UTC on the day of reception. These maps are repeated at 1900UTC (forecast 72 hours from 1200UTC) and 1600UTC (weather at 1200UTC) respectively. From experience, I believe that
the 72 hour forecast is reasonably accurate, after that, accuracy does seem to diminish as the forward period is extended.

**Back To Basics**

But first let’s attempt to understand our two types of maps, as illustrated in Fig. 1 and 2, received from Hamburg Meteo. For many of us, understandably, these might leave us completely baffled at first sight, so a few basic facts will help in interpretation.

These facts will hold good even though the maps will alter in appearance every day and if interpreted correctly should enable us to accurately assess the weather at a particular time, both now and in the future, not only where we live but over a wide geographical area. Note that the two maps illustrated refer to two different reception dates.

Initial inspection of either map shows a great many lines superimposed on an geographical area of western USA and Canada, Atlantic, UK, western Europe and North Africa. Closer inspection shows that these lines are unbroken and in many cases form closed areas.

They indicate barometric pressure (i.e. what is shown on your barometer), which remains the same along the length of any particular line. The lines are called ‘isobars’ (iso means equal) as shown in Fig. 4, the pressure is measured in millibars (mB) as indicated and the isobar lines on these maps are 5mB apart.

**Depressions**

Figure 3 shows a simplified representation of a low pressure area or better known as a depression (the UK has a fair share of these throughout the year). The centre is marked ‘T’ (German: Tief means Low).

The winds in the Northern hemisphere always blow in an anticlockwise direction slightly towards the centre of a depression. The isobars around a depression are close together, closest near the centre, farthest apart on the outside.

The closer the lines are, the stronger the wind, so the strongest winds are blowing near the depression centre, strangely enough though, right in the middle of a depression there is no wind at all! (This is due to there being no pressure difference and hence no air flow!). The lowest central pressure in millibars can be read off being no pressure difference and hence no air flow!).

These facts will hold good even though the maps which is marked H on the map (German: Hoch means High). This type of weather system generally brings weather that is the opposite to that associated with a depression.

Firstly, the isobar lines are closer together on the outside of an anticyclone than they are towards the middle and they are farther apart on average than in a depression. Hence lighter winds can be expected down to dead calm in the central areas.

Unlike a depression, an anticyclone is a far less active creature. It develops slowly (intensifying), moves slowly but sometimes not at all for days on end and gradually fades away (declining). Quiet, settled weather is its hallmark, in spring and summer mainly clear skies with warm days, but in winter months cold, sometimes cloudy days clearing at sundown to give a hard frost overnight and early fog, hanging on throughout the day.

**Anticyclones**

An area of high pressure or anticyclone is shown in Fig. 3, the centre of which is marked H on the map (German: Hoch means High). This type of weather system generally brings weather that is the opposite to that associated with a depression.

Firstly, the isobar lines are closer together on the outside of an anticyclone than they are towards the middle and they are farther apart on average than in a depression. Hence lighter winds can be expected down to dead calm in the central areas.

Oddly enough, although weather across an anticyclone will be rain free, drizzle is not uncommon in the winter months through condensation of fog particles in cold air. If temperatures are low enough, the dreaded freezing fog is much in evidence in the latter conditions.

The propagation of radio waves, especially so on the v.h.f. and u.h.f. bands, can be much affected by the development of an anticyclone. (…please do not adjust your sets!), particularly so on the decline, when the troposphere will undergo structural changes.

I have noted, in the case of FAX map reception, that some form of interference may be expected in these conditions. The arrival of a depression does seem to improve things.
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High (Anticyclone): A high pressure area brings dry, settled weather. Winds blow clockwise.

Low (Cyclone): A low pressure area brings clouds and rain. Winds blow anticlockwise.

The Maps
Both the surface forecast maps and surface analysis type maps will show all the features mentioned in the previous paragraphs. In addition, it will be noted that on the forecast map, Fig. 1, areas of significant cloud are indicated and it will be seen that these are usually generated in the regions of the low pressure areas along the lines of their 'fronts'.

The surface pressure forecast map as illustrated in Fig. 1 indicates weather status expected at a forward period of 72 hours from the time of compilation of map at 0600UTC. The actual Hamburg transmission time is 105OUTC daily. Therefore if this map is received daily, a succession of forecast maps can be saved with your PC. On a day-to-day comparison, the movements of weather systems will be apparent.

The JVFAX application has excellent facilities for the saving of maps and the playback of up to a sequence of 50 images within the movie option, at varying speeds. This can be most instructive regarding the actual development and movement of weather systems.

On the surface analysis map, Fig. 2, in addition to the isobars, depressions, fronts, etc., a great many small plots can be seen and the enlargement of a single plot will enable the precise weather conditions to be ascertained in a particular area. For those who perform decoding via JVFAX, a zoom option is available to enlarge and subsequently interpret such plots and also other parts of the map to clarify any required detail.

The enlarged plot shows the temperature, dewpoint, barometric pressure, wind strength and direction. The remaining symbols can be interpreted by referring to the appropriate tables published by the Meteorological Office. The tables are too big to be accommodated here.

Here then is a good way to verify the type of weather that can be associated with the 'highs' and the 'lows' and by comparing the surface pressure forecast map in Fig. 1 with the appropriate surface analysis map, Fig. 2, the accuracy of the forecast map can be checked. You should now at least be able to have a good idea of what to expect of the weather for the next day or so.

In General
A closer inspection of your map should reveal the direction of the wind as mentioned under the two main weather systems, depressions and anticyclones. It can be assumed that air originating from the north is colder than that from the south. It is fairly safe to do so most of the time, but you should study your FAX map closer and try to ascertain where the winds originate from.

On the leading edge of a depression whistling in from the Atlantic, the south westerly winds will be mild and moist most of the year, since the sea keeps a fairly stable temperature i.e. because of its mass takes a long time to warm up and cool down. However, an anticyclone stuck over Iceland in January can bring bitterly cold easterly winds to the UK from Scandinavia, where land masses have cooled considerably in a shorter period than that of the surrounding sea areas.

A similar anticyclone over the low countries in summer can bring positively tropical weather to the UK since its western side will be drawing in warm air from southern France and Spain. These general observations should enable a reasonable assessment of temperature to be expected which you can confirm by reference to the individual plots on the pressure analysis map.

Good weather watching and I hope that with perseverance, the information I've presented here will produce a few more weathermen amongst fellow s.w.l.s.

Further Reading
Fax and RTTY Weather Reports from SWM Book Store.
In depth weather information can be found in Atmosphere, Weather & Climate, published by Methuen, Barry & Chorley.
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Oldies, But Goodies

This month Joe Carr K4IVP, brings us some antennas from yesteryear that still work for s.w.l.s today.

![Diagram of T antenna](image)

**Fig. 1.** 'T' antenna.

![Diagram of Random length wire antenna](image)

**Fig. 2a.** a) Random length wire antenna; b) L-section coupler.

Over the past thirty years I've researched most of the available professional and amateur literature on radio antennas, and am still a sucker for anything new that appears on the market. And although progress goes on, there are still some fundamentals that don't change. For the typical short wave listener (s.w.l.), some antennas are better than others, but even some very simple antennas work quite well. Although much of my antenna writing involves some sophisticated designs, I am occasionally reminded that "... better is the enemy of good enough." Sometimes, in trying to find the optimum antenna, or the antenna with the highest performance numbers, we overlook perfectly decent antennas that will do the job. In this article, we will take a look at some of the tried and proven antennas that your grandmother might have used on her valve receiver, but will still perform wonders for your synthesised, synchronised, digitised, IC-ised Super Bandbuster Mark Future receiver.

**T Antennas**

The 'T' antenna - Fig. 1 - is especially suited to short wave listeners, although amateur operators have used them. The 'T' antenna is a length of wire 10 to 45m (or so) long that is fed at the centre with another wire, called the downlead. The antenna element can be bare (not insulated), but the downlead should be insulated 14, 16 or 18 s.w.g. wire (where no stress is on the lead, smaller diameters may be used). The antenna element should be made of 16s.w.g. or heavier, hard-drawn, stranded copper wire, or Copperweld wire. The latter is made with a steel core and is coated with copper. Because of the skin effect, r.f. only flows on the surface so the steel core does not add losses to the circuit. If Copperweld is not available, then use hard drawn, stranded copper wire. If regular soft drawn hook-up wire is used, then it will soon fatigue and the antenna will fall down.

The downlead is brought to the receiver by way of a small hole cut into the wall of the house, or through the window. At the antenna end, it is wrapped five to seven times around the antenna element wire, and then soldered. The purpose of the solder is not strength, but rather to prevent corrosion of the joint in weather. Strength is provided by the wire wrap.

**Random Length 'Longwire' Antennas**

The term longwire is used for a wide variety of different antennas. The only rigorously correct usage of the term is for antennas that are more than two wavelengths long. However, it is common to use the description 'longwire' also for antennas that are actually random length wire antennas (Fig. 2a). If the antenna element is, say, 30m long, then it is a 'longwire' at frequencies of 20MHz and up, and a random length antenna for lower frequencies.

The random length wire antenna of Fig. 2a is a 10 to 50m long run of 16s.w.g. or thicker wire (again, Copperweld is preferred). In the case shown, the end closest to the house is supported by a mast installed on the roof while the far end has a special support...
structure. However, both ends could be attached to buildings, trees, or special structures. The downlead of the random length antenna must be insulated, but need not be Copperweld wire. Ordinary 16s.w.g. stranded wire will suffice.

If the random length antenna is used for transmitting, then a good ground absolutely must be provided. In fact, a 'good ground' is also quite useful for receive only installations...but for amateur stations it is a must. A 'good ground' means a very short (relative to quarter wavelength) run of heavy wire to one or more 2.5m ground rods. Alternatively, if only a few bands are used, then a system of resonant quarter wave radials can be provided. These can be left on the surface, but only if there is no chance of injury to people crossing the space (In the USA, even prowlers, burglars and other trespassers can sue a homeowner!). Otherwise, bury the radials 20-30mm under the surface using the edge of a spade to make the cut in the ground.

Also required for the random length antenna used for transmitting, and useful for swl's as well, is an antenna tuner. A standard L-section coupler (Fig. 2b), or some other low to high impedance transformation coupler is required.

A variation on the theme is shown in Fig. 3. In this case, the wire antenna and downlead are the same as in the previous antenna. However, at the feed end you have the selection of several options in addition to direct connection to the receiver (see inset to Fig. 3): i) an inductor for antennas that are too short, ii) a capacitor for antennas that are too long for the operating frequency, and a pair of L-section couplers depending on whether the antenna impedance is higher than (iii) or lower than (iv) the transmission line or receiver antenna input impedance. For both the inductor and the capacitor two maximum values are listed in Fig. 3. Use the lower for antennas that are predominantly in the high end of the h.f. spectrum, and the larger for lower frequencies.

**Doublet Antennas**

A doublet antenna is one that is fed in the centre. Unlike the 'T' antenna, the doublet is broken in the middle and each half is fed by one side of a two conductor transmission line. The most familiar example of the doublet form of antenna is the half wavelength dipole, but there are also several other forms. If the doublet is half wavelength long, then each half is quarter wavelength. The overall length of such an antenna is found from:

\[ L = \frac{143}{F} \]

Where: \( L \) is the length in metres, and \( F \) is the frequency in MHz. Each quarter wavelength element is one-half this length.

Keep in mind that, although equations for antenna length look absolute, they are only approximations. An unfortunate trait amongst we antenna buffs is a fondness for using very precise mathematics for things with so much inherent variability that the maths is at best an educated guess...but a guess none the less. The actual length required is determined by the immediate locale, and what's in it to alter the antenna characteristics (houses, trees, etc.). For proper operation, the antenna will have to be tuned (of which, more later).

**Fig. 3:** Random length wire antenna with several different options for the tuning unit (see inset).

**Fig. 4:** Half wavelength dipole: a) direct feed; b) with 1:1 BALUN transformer feed.

**Fig. 5:** a) Standard folded dipole made of 300Ω twin-lead, and using 300Ω twin-lead for the downlead; b) Using a 4:1 BALUN transformer to match the feed point impedance to 75Ω coaxial cable.
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True base receivers are few and far between; some have simply evolved from the hand held equivalents with little tangible improvement in performance or facilities over their smaller counterparts. The AR5000 is not like this! Drawing from its earlier success, AOR has designed the AR5000 to be a true base station receiver - from the drawing board, this is very apparent when plugging in an external aerial, the result is unsurpassed performance instead of a clutter of music and pager bandplans, noise blanker, switchable to help reduce the effects of ignition noise especially while mobile, synchronous AM, automatic frequency control for accurate tracking of unusual frequencies, excellent range of facilities, compactness & light weight.

The AR5000 strong signal handling is very good, over the range of 500 kHz to 999 MHz this is further assisted by an automatic preselector which peaks the receiver's front end circuits for the best "on channel" sensitivity and ultimate rejection of out of band interference. Even better, you can manually over-ride the automatic preselection to peak the receiver away from the source of interference, this setting can then be stored in memory for smooth interference free scanning.

Chris Lorek, Ham Radio Today Vol.15 No.6 "...Not once did I find any problems on VHF or UHF due to strong signal overload from other bands - I was extremely impressed! Throughout the wide frequency range, the receiver was adequately sensitive, especially so at the upper end, with good overall strong signal handling characteristics... I must admit that I'm a fan of AOR's receivers, and having tested the AR5000, even more so."

Add to this the most comprehensive set of scanning facilities in this sector of the market, wide unbroken all mode coverage of 10 kHz - 2600 MHz in 1 Hz steps, high stability NCO (Numerically Controlled Oscillator) for drift free listening and the AR5000 proves to be quite a receiver.

These qualities have been recognised by government departments on both sides of the Atlantic who have carried out extensive trials against rival units and we are pleased to find they are placing orders for the AR5000, good sensitivity at frequency extremes, excellent range of facilities, compactness & light weight.

Capabilities have been further increased with the launch of the AR5000+3 providing three essential tools: A.F.C. switchable automatic frequency control for accurate tracking of unusual bandplans, noise blanker, switchable to help reduce the effects of ignition noise especially while mobile, synchronous AM, featuring double and selectable sideband with an easy to use wide lock range.

Alan Gardner, Short Wave Magazine, June 1996 "I found the c.f. performance of the receiver to be very good, making it suitable for professional as well as top of the range hobbyist use... unlike most other wide band receivers it uses separate Vericap tuned c.f. stages to provide important front end pre-selection for a large proportion of its range. This is particularly important in conjunction with a good dynamic range and a low noise synthesised local oscillator in order to minimise unwanted intermodulation products... Receive sensitivity was very good and tended to remain fairly constant throughout the range of the receiver..."
AR7030 - High dynamic range short wave receiver £799

High dynamic range, what is it all about ??
The AR7030 has been designed to provide excellent strong signal handling, this provides the operator with the very best chance of hearing weak distant DX even when very much stronger more local transmissions occupy the same frequency band and are positioned close to the wanted signal. Good strong signal handling simply is the ability to hear weak signals in the presence of strong transmissions... in technical terminology, the greater the dynamic range (and the higher the IP3 = third order intercept point), the better the results on crowded bands. For short wave listening, an IP3 figure around 0dBm is fair but many receivers struggle to better this even to +10dBm, while the AR7030 surges passed with IP3 greater than +30dBm. While it is nice to quote good figures in advertising, it is more beneficial if they are qualified.

Peter Hart, RadCom July 1996 "...The strong signal performance is extremely good. The intermodulation measurements are at the limit of my measurement capability and close-in result by far the best I have measured on any general coverage receiver. ...The excellent RF performance of the AR7030 is certainly most apparent in on-air tests." The measured performance in a RadCom table provided IP3 results better than +30dBm and dynamic range well over 100dB.

Lawrance Magne, Passport to World Band Radio "The '7030 was obviously designed with exceptional strong-signal handling in mind... Dynamic range is excellent at both 5 and 20 kHz separation points, and third order intercept measurements at 5 and 20 kHz separation points are superb. The '7030's dynamic range is at a level normally associated only with the finest professional receivers... Best dynamic range of any consumer-grade radio we've ever tested. What these measurements showed is that the '7030's dynamic range and third-order intercept points are at levels normally associated only with the finest in professional hardware. Yet the '7030 does this at a fraction of the price." An in-depth report in 1997 Passport quoted IP3 at +30dBm.

Strong signal handling is often more important than pure sensitivity, being the case in most European locations. Of course the AR7030 also provides good sensitivity and excellent selectivity, this balance coupled to innovative features is what has earned the AR7030 so many awards.
The basic form of the halfwave doublet is shown in Fig. 4a: the half wavelength dipole. The overall length (B) is calculated from Formula 1 and each element (A) is B/2. This type of dipole is most often fed with 75Ω coaxial cable. But in older designs of this antenna coaxial cable was not always used. At least two forms of transmission line were often used that are not coaxial. One form of alternate transmission line is called twisted pair. Two insulated conductors are twisted over on each other. You can either buy twisted pair wire, or make it using a hand drill and two lengths of regular stranded wire. Use about 24 twists per metre. The other form of two-wire transmission line is ordinary lamp flex.

It is good practice to couple the feed point of the dipole to the transmission line through a 1:1 BALUN transformer. This type of transformer provides no impedance transformation, but does convert the unbalanced transmission line for use with a balanced load/source such as the dipole antenna. Figure 3a shows the folded dipole form of doublet antenna. Again, the overall length of the antenna is half wavelength. The folded dipole consists of two half wavelength radiators that are closely coupled to each other. The two radiators are insulated from each other at all points except the very ends, where they are shortened together. The feed point is at the middle of one of the radiators. This form of antenna has a feed point impedance around 280Ω, so is a good match for 300Ω twin feeder.

The radiator element of the folded dipole can be made using 300Ω twinlead if only used for receiving, or low power transmitting, but if higher powers are contemplated then use 16s.w.g. stranded wire spaced 100 to 200mm apart. The spacers are ideally the ceramic types once found in abundance in radio stores, but Lucite, pvc or even treated (waterproofed) wooden dowels. The inset detail shows how to connect the spreaders to the antenna wires, and use safety wires to keep them in place.

Another means of feeding the folded dipole is to replace the centre insulator with a 4:1 ratio BALUN transformer (Fig. 5b). These low-cost devices will transform the 300Ω balanced impedance of the folded dipole down to 75Ω unbalanced so that ordinary coaxial cable can be used for the run to the receiver. If you've ever worked with twin-lead, you'll probably recall that it can sometimes be a mess.

Still another form of doublet antenna is the three-wire folded dipole of Fig. 6. This form of antenna is similar to the standard two-wire folded dipole, but uses three parallel conductors instead of two. The conductors are kept insulated from each other except at the far ends, where they are connected together. The impedance of the three-wire folded dipole is controllable by varying the ratio of the conductor diameters and their relative spacing. For our purposes, however, a simplified arrangement is used in which all three conductors have the same diameter, and they are all spaced from each other by 100 to 120mm. This arrangement will yield a feed point impedance of about 600Ω, so is a good match to 600Ω parallel line.

**The Windom Antenna**

The Windom antenna is a half wavelength wire antenna that is fed off-centre (Fig. 7a). Because the mid-point of the half wavelength antenna is the low point (about 70Ω), the off-centre feed point is at a higher impedance. Figure 7 shows the classic Windom antenna used in the 1930s. The single conductor downlead is fed at a point that is 0.36L, where L is the length of the antenna (143/F(MHz)). The Windom antenna is usually fed through an antenna coupler so that its impedance can be matched to the lower impedance of the transmitter or receiver.

The impedance of the feedline from the Windom is quite high, so connecting it directly to the receiver results in a high v.s.w.r. And although this mismatch is not the profound problem on receivers as it is for transmitters, it none the less represents a loss. Figure 7b shows the usual antenna tuning unit for the Windom antenna. A parallel resonant L-C circuit (C1/L1) is tuned to the desired operating frequency. Two taps are provided on the inductor (L1). The high impedance tap goes to the Windom downlead, while the low-impedance tap goes to a length of 52Ω coaxial cable to the receiver.

Figure 8 shows a modified Windom design in which the single wire downlead is replaced with either 300Ω twin-lead transmission line, or a 4:1 BALUN transformer that is in turn fed with 75Ω coaxial cable. This antenna does not provide an ideal impedance match, and one can expect (as with both Windoms) some 'II in the shack' when more than moderate power levels are used. However, the v.s.w.r. is not terribly high and can be overcome using a standard coaxial-to-coaxial 'line flattener' form of antenna tuner.

Figure 9 shows two variants of the Swallow Tail Multi-band Vertical antenna. The radiator elements in both Fig. 9a and 9b are cut to specific frequency bands, and are quarter wavelength (L(m) = 75/F(MHz)). As many as needed to cover the bands of interest may be used, provided that they don't bear a 3:1 frequency ratio. The reason for the constraint is that for all antennas but the resonant one the impedances are so high that connecting them in parallel with each other does not affect the overall feed point impedance.
However, at the third harmonic, the impedance again drops low and will load down the impedance seen by the transmission line. This is another situation where the results are more profound for amateur radio transmitters than for s.w.l. receivers, but it’s a good idea to avoid it, if possible. Besides, the antenna is actually resonant on its third harmonic, so you lose nothing.

The version in Fig. 9a uses a pair of insulated masts, or support structures (roof of a house, tree, etc.) with a rope stretched between them. The quarter wavelength resonant wires are spread out along the length of the rope, evenly spaced.

The version shown in Fig. 9b uses a large wooden cross-like structure. The antenna wires are connected to the cross-piece at the top end, and to the coaxial cable at the bottom end. This antenna apparently worked well for a fellow who wrote to me recently. He lives in a townhouse community that has a ‘homeowners association’ of nit-picking little dictators who like to tell people what they may do with their houses. One of the rules is “no outdoor antennas” of any sort. He erected a mast in his rear garden shaped like a ship’s mast and yardarm, and then convinced the busy-bodies snooping for ‘the committee’ (dread!) that it was somehow nautical, not radio!

**Shortened Dipole**

Some short wave enthusiasts cannot easily erect a half wavelength antenna because of space limitations. Those people can use a shortened dipole such as Fig. 10. These antennas are very similar to the regular dipole, except that the overall length is less than a half wavelength. The difference is made up by inserting an inductor in each element. Although the placement and value of the inductor is determined through a complex process, some companies offer preset coils that will suffice for most readers. Follow the instructions that come packed with the coils for proper installation. For those who wish to make their own inductors, when the coils are in the middle of each leg (as shown), and the antenna is made from 16s.w.g., wind the coils to have an inductive reactance of about 650Ω in the middle of the desired band.

**Conclusion**

Before considering spending a huge sum of money, and loads of effort, erecting a high performance antenna, you should consider whether or not one of the simple antennas presented in this article are sufficient for your needs. After all, it’s still true that “…better is the enemy of good enough.”
Transmitting The Colour Signals

The programmes were radiated by the Crystal Palace transmitter to which the programme was fed from Alexandra Palace by land-line. The Crystal Palace outlet consisted of twin transmitters having a common carrier drive and separate modulators and modulated carrier amplifiers which were in parallel to provide the required power into a common antenna.

The BBC arranged for colour receivers to be installed in the homes of research staff. All the sets were fitted with the RCA 21in tri-colour kinescope chassis, type 21/AXP/22A. The majority of the receivers were manufactured by Murphy Radio Limited and were in the nature of "commercial" prototypes in that the components and circuit techniques employed were similar in quality and cost to those used in domestic monochrome television receivers, although of course, much more complex. At any one time there were about eighteen of these receivers in use in various homes.

There were also a number of experimental receivers, mainly using the RCA tube, available to members of BREMA. By 1960, the General Electric Company had developed a commercial receiver which gave a much improved performance particularly from the point of view of brightness, sharpness and registration.

What About The Programmes?

There were altogether seven different programmes transmitted from October 1957 on a regular basis from Studio A at Alexandra Palace during 1957-1958. The programme was changed every month and was broadcast on six occasions in the first week of each month. These were radiated in the evening following the close down of normal programmes from about 11.15pm until midnight. The remaining three transmissions took place during the Trade Test Transmission period in the afternoons at about 3.30pm.

The colour test transmissions were only radiated from Crystal Palace; all other transmitters continued radiating the BBC Test Card 'C' with lively accompanying music. A film was usually transmitted from Crystal Palace as a separate part of the same colour programme and additional film transmissions took place in the third week of each month on four occasions with two in the evening and two in the afternoon. Of the seven programmes, three were plays evenly divided between modern and historical settings, two revues, a programme in which the emphasis was on dancing including ballet,
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were not very successful. Photographic techniques were not sufficiently developed for this purpose until the introduction of the BBC Colour Test Card ‘F’ on 1 July 1967 where it was possible to feature a large area of flesh-tone in the centre circle. BBC Test Card No. 61 (Flesh Tone Reference, produced by the BBC and Royle Ltd) did provide some form of alternative photograph for aligning studio cameras.

A special Colour Tuning Signal was devised to advise viewers in the late fifties that an experimental transmission was about to take place (Fig. 3). The central photograph, featuring Sylvia Peters, was radiated to show as much flesh-tone as possible so that viewers could adjust their colour sets as required despite the inherent limitations of the photograph.

Mobile Colour Television

When the series of experimental colour transmissions ended in April 1958, a great deal of knowledge had been gained. However, most of the programmes had originated in the studio and experience with outside broadcasts was minimal. It was decided, therefore, that before the colour cameras were finally packed away it would be a good idea to try colour OBs. The two colour cameras and associated equipment were transferred to a huge pantechnicon which before the War had housed one of the mobile Band 1 OB transmitters.

The first use of the mobile control room was at the Festival Hall on June 25th, 1958 when a small interviewing studio was set up in the foyer on the occasion of the Soirée of the Institution of Electrical Engineers. Guests were invited to appear in front of the colour cameras and were interviewed by Sylvia Peters who at that time was a BBC television announcer. Although this interview style of production was relatively easy to do, an attempt to get pictures of dancers on the floor was a complete disaster with the total lack of camera sensitivity being all too obvious!

Between 11 and 13 of August 1958, the Military Tattoo at the White City in London provided a subject which had many features which would probe the performance of the colour cameras. The Tattoo provided plenty of colour, movement and, at times, a mass of fine detail. One of the cameras was fitted with a zoom lens with a focal length of 50 to 200mm. The signal was relayed to Broadcasting House in Portland Place by cable where a large audience (mainly BBC engineers) viewed the Tattoo.

Over the three-day period the English climate threw everything it could at the OB which resulted in many problems regarding lighting. Because of these tests in 1958 it was thought that scenes shot outside in colour would not be acceptable to viewers for some considerable time due to the widely varying levels of natural light. However, a lot of invaluable experience was gained.

Later Developments

From October 1958 until the early Sixties, a regular series of experimental colour transmissions was radiated from the Crystal Palace transmitter. The main purpose of these transmissions was to provide a high-quality signal for the benefit of the television industry engaged in research and development of colour television. The nature of transmissions was agreed with BREMA who were consulted at the very beginning of test transmissions back in 1953.

On 27 March 1960 the first transmission of colour television took place between Paris and London and was demonstrated at the Institution of Electrical Engineers.

Up until the autumn of 1960, test transmissions in colour took place both in the morning and the afternoon. However, the morning transmissions had to be discontinued from September 19 due to the introduction of extended hours for Schools programmes. On the mornings of Mondays to Fridays inclusive, colour slides and Test Card ‘C’ were radiated during alternate 15-minute periods. The afternoon colour transmissions, which continued after 19 September 1960, took place on Tuesdays, Wednesdays and Thursdays and consisted of a 30-minute programme showing pictures from 35mm film. The transmissions began at approximately 4.00pm, subject to programme commitments.

At this stage, it seemed that the NTSC colour system would be adopted in the UK, the PAL system was still to be developed. By 1960, the NTSC system had been in use in the USA for some seven years, but it didn’t appear to be making much progress. One of the main problems encountered in the USA was that colour television required highly skilled technicians to repair customers’ sets and these appeared to be in short supply.

The research work carried out by the BBC from 1955 indicated that the NTSC system was a sound standard, although there were many problems to overcome. It could provide a sturdy signal with excellent picture quality, but the main problems were associated with the colour camera.

Between 22 August and 2 September 1961, colour television was demonstrated for the first time to the general public by the BBC at the Earls Court Radio Show using the 405-line system. At the same venue the following year, the BBC demonstrated, for the first time, colour television on 625 lines.

The first colour television transmission via the American Telstar satellite took place on 16 July 1962. In the same year, on September 3, the BBC began monochrome field trials on 625-lines in the u.h.f. bands from Crystal Palace as part of the long-term plans for the commencement of BBC-2.

Between 8 and 16 July 1963, the BBC demonstrated three alternative systems of colour television to members of the European Broadcasting Union and representatives of the Eastern-bloc OIRT Organisation. The three
systems were NTSC, SECAM and PAL.

On April 20th 1964, BBC-2 began broadcasting on 625 lines in the u.h.f. bands. Due to a power cut at Battersea Power Station just minutes before the official opening ceremony planned for 7.20pm, the celebrations had to be postponed until the following evening. The first programme on BBC-2 was screened on the morning of April 21st without any ceremony. It was Play School, for the under fives. Just over a year later, on 24 May 1965, the experimental NTSC colour test transmissions were replaced using the PAL system.

On March 3rd 1966, the Post Master General authorised the introduction of regular colour television transmissions on BBC-2. The transmissions were planned to commence towards the end of 1967, using the PAL system. In 1966, the BBC provided facilities for colour television coverage of the British General Election results programme for the North American networks. The transatlantic colour signals were transmitted via the Early Bird communications satellite. At the BBC's Television Centre in London, Studios 6 and 8 were quickly transformed from mere carcasses to being fully equipped for colour working. The BBC-2 Presentation Studio and the Network Control Room were also equipped for colour. At Alexandra Palace, arrangements were made for the News Operations departments (both studio and film) to be switched to colour.

Preparations were made in 1966 for all existing BBC-2 transmitters to carry programmes in colour. By the end of 1967, the BBC planned to have 18 main transmitters in service plus a number of relay stations so that approximately 70% of the UK population would be able to receive colour transmissions. A further ten high-power transmitters were planned for 1968. Two large colour Outside Broadcast units were ordered by the BBC for delivery in 1967 for 'live' colour coverage of various sports events, in particular, Wimbledon. The installation of colour telecines and colour video tape machines at Television Centre and Alexandra Palace enabled the BBC to produce two hours of colour programmes each night from the commencement of the BBC Colour Television Service on 1 July 1967. The first transatlantic colour programme using the BBC's field-store standards converter was shown on 31 August 1967.

**BBC Colour Test Card 'F'**

The little girl in the red dress, sitting in front of a blackboard, used to be the 'star' hardly anyone knew. She used to appear for hours every day (except Sundays) on BBC-tv. In March 1969 it was announced that she was due to be seen on ITV every day, too, by the end of the year. The 'little girl' was Carole Hersee and she was clocked-up more air-time on television than anyone else, and not only in the UK! Test Card 'F' has been used around the world including countries such as Norway, New Zealand, Australia and Bahrain. In 1971, she was given an award at the Royal Television Society's Ball for services to the television industry. Although as a child she dreamed of becoming a model she abandoned the idea when she left school, going instead to work as a costume-maker for Shepperton Studios.

Carole has worked as a costume-maker ever since making many of the clothes for The Phantom of the Opera when it toured the world. She also worked on period outfits for the film Dangerous Liaisons.

The BBC Colour Test Card 'F' has been radiated for 30 years without any major modifications being necessary, although a digitally-generated version was introduced in 1984.

**Calling All Collectors!**

Readers interested in archive television, graphics and test cards (including the accompanying music) may like to know that the authors have produced various books and video cassettes on the subject. Further details are available by sending a stamped-addressed envelope to Keith Hamer, 7 Epping Close, Mackworth Estate, Derby DE22 4HR, Tel: (01332) 513399.
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How I Came To Love The Computer

John Wilson connects the newly launched Icom IC-PCR1000 wide band receiver to his computer and is surprised at what he discovers. Read on - and discover more!

When *Short Wave Magazine* published my thoughts on the marriage of computer to receiver, it led to my taking a look at the WinRadio, an experience which confirmed my belief that the last place you want to put a receiver is inside a PC. However, as I have mentioned since, I do use computer-controlled receivers almost every day in my EMC work, and although the receivers cost around £30,000 each they do at least work without being affected by the PC from which they are controlled via a GPIB (IEEE) data bus - so it is possible to marry the computer and receiver satisfactorily if the manufacturer is Rohde & Schwarz. Then out of the blue I was asked to cast my beady eye over a computer-controlled receiver from Icom - who know a thing or two about receivers. How could I resist, bearing in mind I was still mightily unimpressed by my last encounter with a computer-controlled radio, so here is how I got on with the latest black box, the IC-PCR1000.

The Mystery of the Black Brick

Black box it certainly is, because what you get for your money is a matt black brick about the size and weight of a thick paperback. But inside this paperback is a receiver covering 10kHz to 1300MHz (specification guaranteed 500kHz to 1300MHz), which provides all mode reception of u.s.b., l.s.b., c.w., a.m., f.m. (narrow), and f.m. (wide). No front panel; no controls; no display; but you do get an RS-232 lead and a couple of floppy disks containing the software. The 'handbook' tells you little because, in common with most computer-controlled devices these days, the instructions are held within the software and accessed via the 'Help' menu from the computer screen.

There is one control on the front of the receiver - an on/off switch, whilst the rear panel has a single BNC antenna socket, a 9-pin RS-232 connector, an external speaker socket, a data output socket for connection to a packet terminal, an earth bolt and a power input socket.

So connect the RS-232 lead to the computer and load the 'set-up' files from the first disk. Having loaded the second disk, up came a very pretty display comprising four units stacked one upon the other. At the top was a unit containing digital frequency read-out, a keypad, a tuning knob and other minor controls including up/down buttons for the TS (tuning step) function. Would you believe that you can select tuning increments from a huge spectrum - galloping 10MHz per step down to a micro fine 1Hz step - and at any frequency?

Beneath this unit is a meter panel which shows a large traditionally calibrated 'S meter' and the various scan controls, and below again is the 'Mode/Vol' panel which carries the mode selection buttons, i.f. filter bandwidth, i.f. shift control buttons for a.f.c. (automatic frequency control), a.g.c., NB (Noise Blanker) and ATT (r.f. attenuator), and the volume and squelch sliders.
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<th>Condition</th>
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<td>ICR-7000</td>
<td>Nice condition, getting rare</td>
<td>£599</td>
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<td>Icom</td>
<td>ICR-71E</td>
<td>Excellent s/w receiver, excellent value</td>
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<td>Yaesu</td>
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<td>ICR-72E</td>
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<td>Realistic</td>
<td>PRO-2006</td>
<td>Great scanner</td>
<td>£180</td>
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<td>Icom</td>
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<td>RC-12 remote</td>
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<td>JPS</td>
<td>NR-10 DSP filter</td>
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<td>R-353 air band</td>
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<td>Yupiteru</td>
<td>VT-225 as new</td>
<td>£190</td>
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<thead>
<tr>
<th>Book</th>
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<tr>
<td>5th UK Scanning Directory</td>
<td>£17.50</td>
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Finally, below the mode panel is a 'Band Scope' panel which shows a panoramic display of signals around the frequency to which the receiver is tuned. The maximum span of the display is 400kHz, but this changes itself automatically in use to suit different tuning step and sweep settings. More detail on the various 'panels' is given later on.

So I thought “This is wonderful” - until I noticed that at the top of the display was a cryptic legend saying “COM Port Trouble?”. There certainly was, because I couldn’t get the damned computer to talk to the receiver and there is no information in ‘The Handbook’ because it’s all contained in the ‘Help’ files, which I couldn’t access via the program unless you could get the computer to talk to the receiver. Have you ever had one of those days? (Note that you can always access the help files directly via Windows Program and File Manager - KN). I rang Icom UK to ask what the COM Port settings were supposed to be, but in the end I had to try another computer to get the system to work. Having succeeded (but how many of you have several different computers to try out?), I found that the IC-PCR1000 was quite amazing.

Not knowing quite where to begin I connected the telescopic whip antenna supplied with the receiver and tried a few favourite frequencies. As I expected, the h.f. bands contained a fair few squawks and squelches generated by my own computer, but at least there were many genuine signals to be heard (unlike that other PC controlled ‘receiver’), so it was clear that Icom had done a good job at h.f. Going on to v.h.f. and checking airband, amateur bands, the marine band and numerous radio and TV channels made it equally plain that the IC-PCR1000 was a real receiver. So what did I complain about with previous receivers? ‘Chuffing’ noises when using the tuning knob - not a sign of it on this radio; sudden leaps in background noise when tuning across certain v.h.f. frequencies - not a sign of that either; huge background levels of ‘crud’ when using a wire antenna - better than expected; I thought it was time to do some real performance checking.

One problem with wide range, all mode receivers is internally generated signals (sproggies), so I did a sneaky thing with the IC-PCR1000 by putting it inside an r.f. anechoic test chamber and controlling it from outside the room via a long RS-232 cable. I fed the audio from the receiver back out so that I could listen to it and also fed in a signal generator so that I could tell whether or not the receiver was still working.

I then programmed a scan to tune from 100kHz to 1300MHz in 10kHz steps, set the squelch control to just close off the background noise, set the mode to a.m. and let it run, and run, and run. To my surprise and delight it ran right through the entire frequency range with only a very few signals on which it stopped, and when I realised that these were all multiples of a basic 16MHz signal, I really didn’t know whether they were coming from the IC-PCR1000 or my computer - so the receiver is clean as a whistle, and as I checked the receive performance during the scan by putting in test signals from my Rohde & Schwarz generator, it was also apparent that the receiver sensitivity and background noise were completely consistent across the whole of its tuning range. Remarkable, and having satisfied myself that the receiver was ‘clean’ I checked that apparent level sensitivity more carefully. The results are shown in Table 1.

Table 1:

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>a.m. Sensitivity (dBm)</th>
<th>f.m. Sensitivity (dBm)</th>
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<tr>
<td>0.150</td>
<td>-102</td>
<td>-119</td>
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<tr>
<td>1</td>
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<tr>
<td>1000</td>
<td>-115</td>
<td>-118</td>
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</table>

Figures are given for 12dB SINAD in a.m. using the 6kHz filter and 60% modulation at 1kHz. In f.m. I used the 15kHz filter with 3kHz deviation at 1kHz. I began checking the f.m. sensitivity at 30MHz.

One problem with wide range, all mode receivers is internally generated signals (sproggies), so I did a sneaky thing with the IC-PCR1000 by putting it inside an r.f. anechoic test chamber and controlling it from outside the room via a long RS-232 cable. I fed the audio from the receiver back out so that I could listen to it and also fed in a signal generator so that I could tell whether or not the receiver was still working.

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Now that is a flat sensitivity response if ever I saw one, and just for the record I checked the sensitivity for 12dB SINAD in s.s.b. mode and it came out at -122dBm which is actually rather too sensitive for h.f. work but fine for v.h.f.

Just to see if the ‘S meter’ readings were as consistent as the overall receiver, I checked the calibration at three frequencies using the a.m. mode with the 6kHz filter with the results as per Table 2.

Take any of the frequencies and look at any of the ‘S meter’ readings and you can see the remarkable flatness of the results. To polish off these measurements I checked the 59 sensitivity on s.s.b. at 150kHz, 1.4, 10, 50, 150, 450, 750, 1000 and 1025MHz and it was consistently -64dBm at every frequency. Even down at 50kHz the S9 reading came out at -62dBm. This is a receiver which could almost be used for professional measurements, and I’m seriously considering buying one for the EMC Centre with which I am associated. Not having any circuit information through which to browse, I can only guess at the reasons for the regularity of performance, but one hint in the sales brochure mentions the use of r.f. tracking filters above 50MHz to improve image rejection, and let’s face it, Icom have been designing receivers for some 30 years and their experience shows in everything they produce.

Now those of you who have read previous reviews of mine will realise that I usually describe the operating features of a receiver before going on to the technical aspects, but in the case of the IC-PCR1000 I was so relieved that someone had produced a ‘proper’ computer-controlled receiver that I couldn’t contain my enthusiasm. However, perhaps I should tell you more about the operating features and how easy I found the IC-PCR1000 to use.

Logical Layout

I liked the arrangement of four stacked units which appeared when the software was fired up, and the layout was logical and easy to use. The main tuning knob operated by using the left and right mouse buttons for ‘up’ and ‘down’, and there was the customary speed up of tuning rate when you held down the button. You can enter a frequency directly from the PC keyboard, but have to remember that the entry is in megahertz only which means that for frequencies below 1MHz you must enter a zero followed by a decimal point before the kilohertz digits i.e. 198kHz is entered as 0.198 and 60kHz as 0.060. There is also a keypad on the virtual front panel.

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which can be accessed by the computer mouse, but I found it easier to use the PC keyboard. Around the main tuning knob are up/down buttons for selecting the tuning steps, and the memory 'Write' and memory 'Clear' buttons. Two smaller displays show the memory channel number and name (which is entered from the PC keyboard and very easy to use), and the memory bank and name. Finally, another display shows the tuning step in use, with another pair of typically 'Windows' up/down buttons for changing the step. This is in addition to the buttons by the main tuning knob. As I mentioned earlier, the choice of tuning steps is very comprehensive, ranging from 1Hz (what a synthesiser!) to 10MHz when you really need to get a move on. In between you have all the increments you could possibly wish for, including 6.25kHz for p.m.r. channels, 9 and 10kHz for a.m., and obviously a choice of 1.5kHz, 6kHz and 3kHz for f.m. modes.

**Traditional 'S'-meter**

Below the 'Tuning' module is the 'Meter/Scan' module which shows a large analogue representation of a traditional 'S-meter' alongside all the necessary controls for the scanning functions. One feature I liked was the programmed scan in which you can set up a tuning range, say from 118 to 137MHz for airband; select an appropriate tuning step, mode and bandwidth; give the scan set a name, and then call it up whenever you want to use it. By thinking about what you are likely to need, you can have a different receiving requirement which could not be covered by the tuning steps provided, and in use the synthesiser was free from plops and clicks during frequency changing.

**Band Scope**

The final panel contains a 'Band Scope' which is a fancy name for what used to be known as a 'Paradaptor', and consists of a frequency spectrum display centered on the frequency to which the receiver is tuned, and covering (in this case) a span of 200kHz. The span displayed is automatically adjusted according to the tuning step chosen, but two buttons provide span increase and decrease functions, and sweep 'start', 'stop' and 'pause' buttons are also displayed. The band scope is a nice addition to the overall facilities and does allow you to see what's going on in the band around the frequency, but there was one small problem I found in that if you have the bandwidth legend is accompanied by a little picture to give a visual display of the bandwidth, and all of this is large enough to be easily taken in at a glance. Controls for a.f. gain and squelch occupy the right hand side of the panel together with 'MUTE' and 'MONITOR' buttons, whilst the final four buttons to switch off the band scope running whilst in s.s.b./c.w. mode. You don't get any audio output. The only way I could use the receiver in s.s.b./c.w. was to switch off the band scope function - which brings me to the 'tool bar' at the top of the computer screen. Four buttons on this allow you to select or de-select the four panels displayed on the screen, and using the normal Windows drag and drop function means that you can arrange the layout of the units selected to suit yourself. A truly 'virtual' receiver.

But that's not all, Icom have provided two other virtual front panels for you, in the shape of a communications receiver which looks very much like the larger Icom receivers, and a desk top scanner which reminded me of the front panel of an AOR AR3000A. Something to suit everyone, and entirely flexible.
The Broader Picture

With the introduction of the IC-PCR1000, Icom have produced the first satisfactory example of a computer-controlled wide range receiver, and since I already have AOR 'Virtual receiver' software to review, with Fairhaven about to produce a virtual screen for their RD500 receiver, it seems clear that the 'virtual receiver' will be an addition to the existing market which has tended to be dominated by the stand alone 'hands on' receiver. My own reviews in the past have concentrated on the high performance h.f. receiver sector, and have been concerned with the all out r.f. performance aspects of such receivers. However, as one recent letter to Short Wave Magazine reminded me, there are many listeners for whom the r.f. performance is secondary to the ease of use and operating facilities of the equipment, and in reviewing the IC-PCR1000 I can see that point demonstrated very clearly. After all, as I said when I began writing for the magazine, it is astonishing how good listening results can be achieved by the simplest of receivers having levels of r.f. performance almost certainly vastly inferior to the top-end £800 plus h.f. receivers. It all comes down to 'horses for courses', and whilst many enthusiasts will want the high performance thoroughbreds, there are possibly more fans needing the abilities of the wide ranging hunter or three-day event champion (if you see the analogies).

The IC-PCR1000 does not have the thoroughbred h.f. performance of a receiver like the AR7030, but it's considerably better than other contenders in the field, and I think that ICOM, by keeping the receiver as a separate unit from the computer have adopted the right approach. By putting a receiver inside the PC you are placing it in an essentially hostile environment, and connecting directly to the main computer data bus system which carries high levels of fast transients is just asking for trouble. Using a relatively slow speed data system such as GPIB or RS-232 between the computer and the receiver gets rid of a lot of these problems and also allows physical separation between the receiver and it's main source of interference. The other overwhelming advantage of the separate black brick receiver is the fact that you can use it with any computer, including a lap-top, which makes it a hugely more attractive proposition for the user.

Conclusions

My main conclusion is that I'm a very fortunate chap to be allowed to look at so many interesting pieces of receiving equipment, each of them in their own way making me think longer and harder about the way manufacturers see the market. In the IC-PCR1000, Icom have used their experience and judgement to produce a general purpose receiver which will satisfy large numbers of enthusiasts. The wide frequency range from 10kHz to 1300MHz is impressive, as is the provision of all mode reception, whilst a synthesiser which will tune down to 1Hz increments at any frequency in that tuning range is a dream come true. The r.f. performance at h.f. is better than many other wide coverage receivers in a similar price range although not up to dedicated h.f. receiver standards, but the gain and measurement flatness are outstandingly good, and the construction and general finish are outstanding. It does need a fast (ish) computer to drive it properly, and it's no good trying to run it with a little 386 machine - I did, and it was completely hopeless. I did my testing using a 75MHz Pentium with 16Mb of RAM, and many readers will be using better machines than this, so there should be no problems. Priced at the incredible figure of £349, the IC-PCR1000 should be a winner.

My sincere thanks to Icom (UK) Ltd. Sea Street, Herne Bay, Kent CT6 8LD, Tel: (01227) 741741 FAX: (01227) 741741 for letting me review the receiver despite their trepidation at my reputation for disliking the marriage of computers and receivers (I can't think where that came from). When a manufacturer does the job properly and their representatives don't make claims that can't be upheld, what can there be to worry about?

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73 from Dave G4KQH, Technical Manager.
Passport To World Band Radio 1998

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short wave magazine
Lawrence Harris reviews the latest weather satellite decoding package from Timestep Weather Satellite Systems.

I have used the DOS version, PROSatII for some years, and increasingly this has carried the penalty of preventing the computer being used simultaneously for other work. I want to be able to write and occasionally watch! Timestep Weather Satellite System's new PROsat for Windows is a classic example of the Windows version of what was a DOS original - and now significantly upgraded. Timestep's programmer Peter Arnold has done an excellent job re-writing PROSatII for Windows95, and has used the opportunity to improve many of the original facilities, and create new ones.

I had the pleasure of receiving one of the earliest versions of this new version and have had time to put it through its paces. Better than that, I sent my initial queries via E-mail to Peter who responded to each one, and in several instances modified the software to incorporate my suggestions! Consequently, one or two early irritations were removed!

Basic System - What You Get

The package comprises an expansion card which fits into a spare 8 or 16-bit ISA Bus slot, a dongle (copy-protection hardware) which plugs into the printer port, software, and a manual. An external serial interface version is also available for laptops, etc. The software comprises the PROSat WXSAT a.p.t./WEFAX decoding program, and TrackII, the satellite tracking program - described further on.

The manual covers all the options available and it is well worth studying this carefully before jumping in at the deep end. There are some facilities which you didn't even know you wanted! It is very tempting to try using the software - selecting options without even opening the manual - and yes, I did some exploring!

WXSAT Reception Hardware

Do not misunderstand the nature of this system. As with other decoding systems, the hardware and software will decode WXSAT signals. They cannot receive the signals. To use this system, you must already have - or must get - the associated WXSAT receivers and antenna(s). For METEOSAT (or GOES or GMS - depending on where you live), you require a suitable 1691MHz antenna, common types in use are a 1.0m dish or a Yagi. I have both; I use the dish for METEOSAT, and need the Yagi for GOES reception (which is at about 3° elevation above my western horizon, somewhere amongst the bushes). The average METEOSAT antenna used by most amateurs will not have enough gain to feed the receiver, so a high quality, low-noise pre-amp must be connected directly to the microwave feed. The output is then fed through a short (matched) cable into the METEOSAT receiver. I use a direct 1691MHz receiver with switchable channels to allow the use of METEOSAT's 1691.5MHz channel. There is no equivalent second channel (that I know about anyway) on any similar satellite.

Reception of polar orbiting a.p.t. signals requires a suitable (that is, right-circularly polarised) crossed-dipole, mounted high enough to provide line-of-sight to the satellite while above the local horizon. A balanced, low-loss, high quality cable running down to the receiver should mitigate the need for a 137MHz band pre-amp (and therefore minimise interference from paging systems using nearby frequencies). Each of the above systems should provide a signal (WEFAX or a.p.t.) which can then be processed by this system.

Computing Requirements

PROsat is specifically designed to take advantage of the facilities offered by the Windows95 platform and includes much 32-bit programming code and multi-tasking capability. The computer must therefore have a minimum specification of 486DX2-66, at least 8MB of RAM, a spare 8 or 16-bit ISA slot, 20MB of available hard disk space, and an SVGA display (minimum 800x600 in at least 256 colours). Having more RAM allows the simultaneous opening of more image windows; a faster processor produces faster gridding, better multi-tasking and better performance. Video cards offering 16-bit high colour or 24-bit 'true colour' modes give better image production. For the whole of this review I used a Pentium 120MHz computer and substantially better specification (32MB RAM) than those listed as the minimum. To challenge the system I also used the computer for other jobs - including writing this review and having other programs running.

Installation

Although this process is straightforward, it took me longer than I expected because I had to configure an unused port and interrupt combination, as described in the manual. There are easy-to-read instructions and the process is explained without unnecessary complexity. It is important to examine the card before installation. You need to identify the two switch banks used to set the COM port and the interrupt setting - identified by seeing which ports and interrupts Windows tells you are available. After physically installing the card, I installed the software which came on three disks. Later versions come on four disks and include sample images. Windows-95 has the capability to detect the new hardware and this it did precisely.

The software can process geostationary WXSAT WEFAX and polar orbiter a.p.t. (OK, and GPS signals - but I don't have a receiver for those!). The connector on the card is compatible with the previous PROsat DOS system; the first cable output from the card is connected to the METEOSAT receiver - the second cable is connected to the a.p.t. (polar orbiter) receiver. With the continuous transmissions available from METEOSAT-6 I set the system to receive these.

Input Levels Set-Up

Having fitted the card and configured the software, more entries are required before routine operations can start. The COM port number has to be set on the tab entries under Receive, options, geostationary/polar. It is possible to fit two cards - one for polar and one for geostationary - and receive and process signals simultaneously. Note that this can already be done to a certain extent - as I will explain.
The last setting-up task is to receive live signals and adjust the individual input signal settings for both geostationary and polar satellites. As with the earlier DOS version there are two tiny potentiometers (set inside the recessed panel), requiring careful adjustment with a suitably tiny screwdriver. With a signal coming from the METEOSAT receiver, adjustment is made to bring the red band to the recommended average setting - near 250 (on the scale 0 to 255). A visible-light image is preferred for this adjustment because they contain a wider dynamic range of grey scale. After this adjustment, perfect synchronisation should occur each time.

This process is repeated using live a.p.t. from either a NOAA or METEOR WXSAT. In practice, I have found that METEOR a.p.t. to reach slightly higher levels than NOAA a.p.t. Following this adjustment live a.p.t. should synchronise properly - assuming that the correct satellite has been selected.

Routine Reception of WXSAT Signals

Having set the receiving system up (dish/dipole, pre-amp, receivers and software) the main program is started by double-clicking on the icon. In its basic form, the main menu offers File, Receive, Update, View and Help. There are several icons which start specific processes, or you can use the multiple choice selections from the main menu.

To receive either polar a.p.t. or WEFAX, ensure that the `front-end' is providing the signal (connect a speaker to the socket on the panel). From Receive - the choices are: geostationary, polar, schedule, auto-save, and options. The use of the first four menus require that the various options have already been set to allow for the immediate reception of either geostationary or polar WXSATs. The first action therefore needs to be the setting up of the various options. It is here that we enter future preferences, for geostationary reception we select satellite (METEOSAT), channel (three options of which auto is the most interesting), COM port (as referred during configuration), masks for colour reception and window size (for which I used dual reception). The manual explains the meaning of each option. As the hours pass, you can try the other options.

After setting up `geostationary', you should set the defaults for `polar'. Again the options are easy to identify; satellite (NOAA, METEOR, OKEAN), direction (ascending or descending), delay (to allow the WXSAT to rise higher before attempting to synchronise), sync mode, and of course COM port (which should have been set during configuration). So before any satellite is received you simply check the relevant options - taking just a few seconds.

`Geostationary' Facilities

When 'geostationary' is selected the menu offers 'satellite', 'channel', 'colour reception', 'serial port', and those mentioned during setting up procedures. The software has several options for processing and displaying geostationary images. In Britain, geostationary means METEOSAT (although in certain parts of western Britain GOES-E can be received), but the setting can be changed to GMS or GOES so the program can be used anywhere that these other satellites can be received. At all times you can receive individual frames and also run animation sequences.

There is a choice of preferred display (the options at the bottom of Fig. 1) - see 'image display size'. Full resolution images can be seen in real-time, though this is slightly tedious because the image is too large to fit in the window, unless you can use a 1280x1024 display, you may need to scroll. Better to use the single or dual window facility and get the 'whole' picture.

For METEOSAT operations there is a channel-changing option. The setting can be switched to 1 or 2, or to 'auto-scheduled'. Auto-scheduling uses a pre-set schedule which is fully editable and comes already set to switch channels between 1 and 2 to select the most interesting WEFAX images from each channel. Left in 'auto' mode you can watch selected images come in from both channels. You do need the Timestemp (or compatible) METEOSAT receiver for this process to work.

Another option is '3-D' display in which white areas are assumed to be clouds and are suitably profiled. There is a temperature readout available, though where accuracy is essential manual calibration using 'ground truth' data is required; you could probably get this from teletext - but then you could also get the temperature you wanted from teletext! The median filter option does as much as it can to remove METEOSAT's country outlines, but this is a challenging process!

`Polar Satellite' Facilities

Before actual reception of a polar WXSAT is started, the required settings must be specified under 'Receive options' - see Figure 2. The choices are NOAA, METEOR and OKEAN (SICH). Settings for direction, sync mode and type of sync (where required) should be set.
Reception is then started by clicking either Receive, polar or the specific icon. During reception the image builds up and an a.o.s. (acquisition of signal) time is displayed. The entire pass is viewable in the window - see Fig. 3, showing a NOAA-14 pass. After the pass you can zoom using F9 and F10 (as with the DOS version). Switching between NOAA sections (visible and infra-red) is performed using the 'View section' option - again, as with the DOS version. The whole pass is stored at full resolution and can be saved if required - occupying up to 4.8Mb.

The 'gridding' (lines of longitude and latitude) option for both NOAA and METEOR WXSATs is useful, but I preferred the country outlines option. For accuracy in either process, Kepler elements (see later in this review) for the period in question are essential. If the outlines/grid does not exactly coincide with reality, adjustments can be made on a 'click-and-drag' basis. You can store the elements with the file. This 'outlines' option worked very well - see Fig. 4 - when I applied it to the NOAA-14 image Fig. 3.

**Image Display Size**

The size of the image presented on the screen depends on selections made within the software. For METEOSAT WEFAX, there is a choice of reception window modes: 'dual reception', and 'big reception window'. Using the 'dual' mode, the program displays each new image in the 'new' window, then switches it to the 'old' window before the start of the next image. If the 'dual window' option is unchecked then each new image overwrites the previous one. The size of the individual windows is either maximum (if 'big reception window' is selected) or nominal if not. Each window is sizeable but can be left to show the whole picture, which occupies about one third of the screen - see Fig. 6. The 'big' window uses a much larger display so only part of the image can be seen without scrolling. There is no preliminary setting for window size for polar images - they display as shown in Fig. 5.

**Colour**

Images can be displayed in 'colour'. For beginners to WXSAT decoding, it is important to understand that none of the WXSATs transmit colour images. The on-board sensors record three wavebands: visible, infra-red and water vapour (which is a section of the large infra-red band). Secondly, images from geostationary WXSATs contain specific formats (that is, fixed areas of the whole globe), so using a mask technique it is possible for a programmer to attribute blue, white and green shades to sea, clouds and land areas respectively. By careful programming, every image format can be coloured effectively. Someone not knowing the technicalities of WXSAT reception could be forgiven for believing that weather pictures were received in colour!

Some palette (colour and contrast enhancement) files are included and can be used to instantly improve image clarity. Under 'colour', the 'load palette' option provides the choice. Alternatively you can create and save your own palette specifically for the image in question. The 'autoset' option does a fair job 'guesstimating' what colours are needed, and you can make modifications as required. Changing the boundary levels of colours is rather easier than the method used in the DOS version, and a number of overlays are provided which help minimise colour bleed (where the wrong colours are displayed on features). I need hardly say that by the time the user has experimented with colour palettes, he or she can appreciate the extraordinary number of facilities included within the package.

Figure 6 shows the 'two windows' option when receiving METEOSAT images.

**Autosave**

For both METEOSAT and polar satellites, the PROsat can be set to automatically save pre-selected satellite passes and/or individual METEOSAT images. Under the 'receive' option (Main menu), 'schedule' lets you set up a list of either formats/times for METEOSAT transmissions or satellites and times for the polar WXSATs. If you are not using a PROsat receiver then you cannot (automatically) switch channel frequencies (137.50, 137.62 or 137.85MHz) but you can still leave the system to receive and save passes from one polar WXSAT. The 'polar autosave' option enables this. During METEOSAT reception the program will switch to receive a scheduled polar WXSAT - so you can monitor both, in sequence.

**Animation**

Geostationary WXSATs transmit images containing scans of specific areas which are made at regular intervals. The 'D2' area from METEOSAT contains an infra-red image which includes the western part of Europe, and the whole of Britain. This is transmitted approximately every thirty minutes. By saving each D2 image and replaying them sequentially, an extremely effective 'movie' can be made, revealing cloud movements. There is an option to display this in colour or black-and-white, and you can leave this running while still collecting and displaying other formats.

Animations are opened as configuration files from the 'File' menu. Using this option you can prepare a number of
sequences, such as D2, C02, CT0T etc. You can 'open' an already prepared sequence, or you can define a 'new sequence'. The 'open' option also opens a number of other types of files: images, tracking windows, animations, and NOAA image sections. It is possible to run multiple animations.

**Configuration Files & Tracking Windows**

These are files which you didn't know you needed! On most occasions you will want to receive images from NOAA-12 or 14's next pass, without being sure exactly when this occurs. From the File menu you can open a pre-set configuration file which immediately displays a tracking window showing pre-selected satellites, the time of the next pass, and also sets up the reception data for you! You set your own preferences and save these as a new configuration file. This saves repeatedly checking that METEOR or NOAA selections and directions are set correctly. When you have mastered this facility, you will realise it is a real time-saver.

Also located in the File menu there is an option for 'new tracking window'. This is a version of the Trackll display which you can set up with your preferred satellite combinations and save. This is loaded up within the program and provides quick information on passes. There are more advanced facilities available for Prosat receiver owners.

**Trackll - Satellite Tracking Program**

As already mentioned, Prosat itself now has the facility to save sets of configuration files, each containing up to six satellites in Trackll format, and these can be loaded in seconds by pressing a function key. At first sight, Trackll appears to be a fairly basic satellite tracking program which can monitor up to six satellites simultaneously, showing the footprints of each - hardly an earth-shattering innovation. However, that is an 'iceberg' view. Trackll actually has much more inside.

The Main Menu options are File, Edit, Satellite, View, Update, Table, Clock, and Help.

With the Trackll display you can have on screen a selection of up to six satellites (or five with the Sun). Using Satellite, you can add, remove or swap satellites to get your preferred group of six. I chose NOAA-12 and 14, METEOR 3-5, OKEAN-4, SICH-1 and GOES-E. Once six are selected, 'add' is removed from the options list. 'Swap' will always swap the last satellite for a new one.

After completing the collection, you can save this group as block-1. Four blocks are available so you can save combinations of NOAAs, METEORS, and any other satellite combination that you want to monitor regularly. Mir is worth tracking if, like me, you regularly listen out for the conversations transmitted on 143.625MHz. I set block + to store the geostationary WXSATs MET-6, GOES-E and W', GOMS, GMS-5 and FENGYUN-2. This gives a good perspective on the world's weather coverage. Each block can be called by the press of a function key - F9 to F12 inclusive.

Having selected your preferred satellite block you can use 'View' to choose the display features. Options include ground track (which leaves a trail showing the satellite's previous path), name (the label, such as NOAA-14), footprint (the ground circle in which the satellite's signal can be received), rise-set sounds (the computer beeps when any displayed satellite is rising or setting), alternate map (this switches to the US centred projection), and status bar (an area at the bottom of the display screen). I set all options on.

From time to time you may wish to enter a new satellite into the program's database, or to remove one no longer of interest. This is done under Update, add/delete satellite. An entry box is opened enabling you to enter basic information such as name and catalogue number. This is sufficient when you are going to use the update by file method to enter the complete element set. The database can handle a total of 64 satellites, plus the Sun.

The remaining options under 'Update' are less likely to be used frequently. User position lets you set your longitude and latitude automatically if, by luck, you live in one of the cities included in the database. All major cities are there - including Plymouth! Alternatively, you can enter the data yourself. The final option allows the export (as a file) of the current Kepler elements in the database (possibly for use in a competitor's program).

**Schedules**

A method of producing a printed schedule of one or more satellites is almost essential if you are wanting to fit in a live pass or two during an otherwise busy day. Options quick, full and multi-schedule provide a single-satellite listing, a full minute-by-minute listing, and a quick-form summary of each displayed satellite, respectively. In each case the list can be printed.

Future events can also be simulated using the Clock option from the Main Menu. This offers the options fast (to fast-forward the displayed satellites), slip (which freezes the time) and the selection of displayed time (UTC or local). The floating time display (the box shown in the screen picture) similarly allows the time to be changed by clicking the fast or enable options. The latter allows the time setting to be changed to any selected time in the future or past (accuracy subject to the validity of the Kepler elements).

A channel changing schedule - see Fig. 8 - is available for METEOSAT reception to facilitate swopping between channels 1 and 2.

The Help option contains a short summary of the commands available from the menu, and their operation. The manual seems to form a better guide.

**Summary**

The Prosat package is comprehensive and should work efficiently with any WXSAT receiver though naturally it is optimised for use with Timestep's own product. By the time I had finished testing the software, Peter Arnold, the programmer, had incorporated virtually every suggestion that I had made - so how can I criticise the result?

Although at £299 plus VAT, the price may seem high, the product includes software for every WXSAT monitoring requirement - real-time colour display, programmable pass scheduling and image enhancement and analysis. What more do you need? Prosatll is available from Timestep, PO Box 2001, Newmarker, CB8 8QA. Tel: (01440) 820040, FAX (01440) 820281.
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**Circuit Operation**

The main circuit diagram for the c.w. processor appears in Fig. 1.5. The circuit diagram for the audio oscillator is shown separately in Fig. 1.6. Taking Fig. 1.5 first, IC1 operates as the input amplifier and provides the circuit with an input impedance of about 50kΩ.

The elliptic highpass filter uses C3 to C7 plus L1 and L2 in the standard five stage arrangement. R3 and R4 ensure that the filter has suitable source and load impedances (470Ω in both cases).

IC2 is used as a non-inverting amplifier which boosts the signal by a factor of 11. The output from IC2 is fed to a conventional fourth order highpass filter based on IC3. The combined response of the two filter blocks gives a cut-off frequency at just under 650kHz, and there is nearly 60dB of attenuation at 300kHz.

The elliptic lowpass filter uses C14 to C18 plus L3 and L4 in what is again a conventional five stage arrangement. R14 and R15 provide the circuit with suitable source and load impedances and once again these are both 470Ω. IC4 operates as a non-inverting amplifier which has a closed loop voltage gain of 23.

The signal is then fed to the two third order lowpass filters. These are based on IC5 and IC6 and together with the elliptic lowpass filter they provide a cut-off frequency at just over 900kHz and about 60dB of attenuation at 1.5kHz.

A 3dB bandwidth of just over 250kHz is therefore produced by the highpass and lowpass filters. R26 is the volume control for the direct signal and its output is coupled to the power amplifier.

This is based on IC7 (an LM386N) which has more than sufficient output to drive any normal headphones and with some types of drive level may be excessive. It would then be advantageous to add a resistor of about 1000Ω in value in series with C29.

The phase locked loop tone decoder is based on an LM567N (IC8) which is specifically designed for this task. The oscillator's output frequency is about 800kHz and the filter's off frequency is a little higher than this. Consequently, the fundamental frequency is passed straight through to the output, but the harmonics are severely attenuated.

This rounds the triangular waveform to produce a reasonably pure sine wave signal that is coupled to the power amplifier via volume R42. R27, R28 and R41 form a simple passive mixer at the input of the power amplifier.

On the face of it, there is no difficulty in using the output of IC8 to switch the audio oscillator on and off. In reality, things are complicated by the need to avoid loud switching "clicks" each time the oscillator is switched on or off. Various methods of gating the oscillator were tried, but only one gave a really "clean" output signal.

This method was adopted in the final design, and it uses a CMOS analogue switch (IC10) in parallel with C37, which is the timing capacitor in the oscillator. When the switch is in the 'on' state, it blocks oscillation by virtually short circuits IC7.

This stops the circuit oscillating but it does not produce any large or sudden changes in the output voltage that would generate switching "clicks". R36 and C38 slightly slow down the switching of IC10, which further helps in the quest for noise-free gating.

Note that if the reconstructed audio facility is not required, the entire circuit of Fig. 1.6 can be omitted, but everything in the circuit of Fig. 1.3 will still be required. If the timing indicator is not required either, omit IC8, C30 to C35, R29 to R32, D1 and R31.

**Power Supply**

The c.w. processor has a current consumption of xx mA under quiescent conditions, but the consumption increases significantly at high volume levels and when D1 is switched on. The circuit was originally designed for use with a 12V battery supply, but it operates quite well with a mains power supply provided it has a very low output noise level.

Good results are obtained with the circuit of Fig. 1.7 which uses a full wave bridge rectification and a small monolithic voltage regulator (IC12) to smooth and stabilise the output. Slight "hum" is evident on the output of the
prototype c.w. processor with R26 at maximum volume, but the 'hum' is not noticeable in normal use.

Perfectionists can reduce the 'hum' to a totally insignificant level by increasing the value of C44 to 2200µF.

**Construction**

Details of the printed circuit board are provided in Figs. 2.8 and 2.9, which respectively show the component and the underside views of the board. Building the board is reasonably straightforward, but as there are so many components to deal with, it is obviously necessary to proceed very carefully in order to avoid the odd error here and there.

It is important that the filter capacitors are all miniature types as there is not a great deal of space available on the board for most of them. They all have a lead spacing on 7.5mm, but cased capacitors having 5mm lead spacing will fit into the layout reasonably well.
It is not a good idea to use uncased capacitors having the wrong lead spacing, as one of the leads can easily become detached when manoeuvring them into place. The filter capacitors should have the tolerance of 10% better. The four inductors must be types that are suitable for use at audio frequencies and not radio frequency chokes. The circuit has only been testing using the inductors specified in the components list and it cannot be guaranteed to operate properly with other types.

Also, other indicators might not fit into this component layout correctly. Therefore, the use of substitute inductors is not recommended. Only one of the integrated circuits is a MOS type and that is IC10.

The normal anti-static precautions are therefore required when dealing with this device, but it is a good idea to use holders for all the d.i.l. integrated circuits. The 4066BE is pin-for-pin compatible with the 4016BE, but is not recommended for use in audio circuits. Accordingly, it is probably best to only use a 4016BE for IC10 in this circuit.

The fuse is mounted in a pair of fuse-clips which are soldered direct to the printed circuit board. The fuse-clips must be the type which has two printed circuit tags, such as the Maplin ‘type 1’ clips. Be very careful to fit the four rectifiers with the correct polarity as mistakes here could cause costly damage.

Once all the components have been added, complete the board by fitting single sided solder pins at the points where connections to off-board components will eventually be made.

A metal instrument case at least 250mm wide is needed to accommodate this project. For safety reasons the case must be a type which has a screw fitting lid or outer cover and not one that has a clip-on lid that would provide easy access to the mains wiring. Also, the case must be of all metal construction, and reliably earthed to the mains earth lead.

The printed circuit board is mounted on the left hand section of the base panel, leaving sufficient space for the mains transformer to its right. Solder tags are fitted on both of the mains transformers mounting bolts to provide chassis connection points.

Mount S1 well towards the right hand end of the front panel so that it is close to the mains transformer. The input and output sockets are mounted on the front panel of the prototype, but they can obviously be relegated to the rear panel if preferred. Standard jack sockets are probably the best choice, but it is obviously all right to substitute a different type if it is a better match for your other equipment.

Details of the hard wiring are provided in Fig. 2.10, which should be used in conjunction with Fig. 2.8. The wiring is generally straightforward and should provide no major difficulties. However, as some of the wiring carries the main supply, it is important that it is free from errors and that the completed wiring is checked very thoroughly just in case a mistake has been made.

As this project involves connections to the mains supply, and is fairly complex anyway, it is not really suitable for those of limited experience. It is not essential to use screened cable for any of the signal wiring provided it is kept reasonably short and well clear of the mains transformer and the mains wiring.

A mains transformer having a secondary current rating of 100mA is satisfactory if the unit is only used with headphones. However, a secondary current rating of 200mA or more is needed if the unit will be used to drive a loudspeaker. It should not be used with a loudspeaker that has an impedance of less than 8Ω.

**In Use**

Start with R31 at a roughly central setting. The input of the processor is connected to either the headphone socket or the tape output of the receiver using a screened lead.

Using the headphone output has the advantage that the input level to the processor can be adjusted via the receiver’s volume control, but satisfactory results were obtained when using the tape output of a Yaesu FRG-880D receiver.

If the signal level from a tape output seems to be slightly excessive, with the background noise tending to hold D1 switched on, reducing the value of R7 to about 10kΩ will reduce the gain of the processor to a more suitable level. If you connect the processor to the headphone socket, experiment a little to find the optimum volume control setting on the receiver.

This will be the highest setting which does not result in background noises almost continually activating D1. The receiver’s volume control is then left at this setting and the volume is controlled using R26 and R43 in the processor.

Resistor R31 must be given the correct setting before the unit can be used in earnest. If suitable test equipment is available, use an audio sine wave generator and some form of audio level generator (such as an audio millivolt meter or an oscilloscope) to set the audio generator’s frequency at the centre of the filter’s passband. This should be at about 750Hz.

Diode D1 will then switch on with R31 adjusted within a small range of settings. Simply adjust R31 to the middle of this range of settings. In the absence of suitable test equipment, set the receiver to the c.w. model and tune to an a.m. transmission so that a heterodyne beat note is produced by the receiver.

The frequency of the note can be altered by adjusting the receiver’s tuning control, effectively converting it to a crude audio generator. Adjust the tuning control ‘by ear’ to the centre of the filter’s passband. Due to the sharpness of the filter’s response, it should not be too difficult to do this quite accurately. D1 should then switch on with R31 at a small range of settings and, as before, R31 is set at the middle of this range.

Initial tests with the prototype were made using the unit on the 40m band and results were very encouraging. In many cases, there was a plethora of c.w. signals when listening to the direct audio output of the receiver. But only one audible on the output from the processor.

The audio reconstruction facility works well and can track quite fast c.w. rates. However, it might be defeated by really high speed Morse, or by the occasional operator who produces virtually non-existent ‘dots’. When reception conditions are very poor, especially when there is severe fading, it is probably best to full back-off R42 and not use the reconstituted audio signal.
**Amateur Bands**

**Round-up**

We are well past the summer minimum, but as yet there is little sign of a serious sunspot recovery. Either this is going to be a low peak cycle, or we can expect an explosively fast improvement. No bets on which!

At the time of writing we are in the middle of a hot spell, so the static crashes are worse than usual. Sometimes this is the result of a short circuit between two bands, with thunder and lightning in the distance.

**Antenna Tuners**

We are sometimes asked: "What's the profit in buying an a.t.u.?" Personally, I wouldn't consider buying one, having enough tools and knowledge to home-brew. However, let's rephrase the question: "What's the profit in using an a.t.u. at your station?"

If you have a dipole for the centre of each band, a each fed with coaxial cable by way of a balun at the feedpoint, then you only need think of an a.t.u. for 1.8 and 3.5MHz - so your a.t.u. is a simple affair covering just these two bands, and then only if you intending to cover the entire band. Forget 80 and TOP Band, and you don't need a tuner at all.

A bit more complex is the 1.8MHz end-fed Zepp used on all bands, where the a.t.u. must cope with large excursions of both resistance and reactance. On the other hand, there are some favoured feeder lengths in the older textbooks which are useful, even though the usual explanation of this antenna's operation is balderdash! If, like so many of us, you must make do with an end-fed wire to fit your space, fed against the earth best arrangement you can manage, then an a.t.u. can make a mighty difference to your improvement. No bets on which!

**Letters**

Our tame right-owl, John Collins of Birmingham starts by noting that on 7MHz he heard ZA1MH call CQ, followed by a massive pile-up; one would have thought that now ZAs would be fairly bread-and-butter, yet they are still asking for QSLs via the home call, TU/T8BVC, again to the home call, V44NEF, QSL direct. Next a question, around 2200UTC on 7MHz John heard 3L2GD asking for QSLs via SF2FOV; John couldn't be sure whether the call was 3L2GD or 3L2GC; if 3L2GD, 4L1F may be in the loop, or at least there help please! Finally, John notes that there are still problems with 80 Box 88 Moscow, and that Russian and CIS stations now give their Box Number or address over the air for QSL direct. Ted Treharne, G4TCC, writes: for measurement tolerances, you can measure it accurately, you're a better man than I am, Gunga Din! Still with Paul and the noise problem, it always the ideal to suppress the noise at source. Clearly, you can't always do this, so then the sensible thing is what are, at best, palliatives. An electric drill, for example, radiates from its mains lead; the mains plug may be suppressed, but the noise is picked up on, say, the telephone wires, or radiated from the flex back into the mains wiring and of course also to the receive antenna. The easiest check is to make up a short lead with a resistor across the end and a connector to match the receiver input. If the noise is antenna-borne, it'll be inaudible when you go to dummy KaT in and you may consciously notice the 'Martian Morse' - plus of the case 95% of the time. I have a PL-259 with a small S121 resistor inside the connector as a vital piece of test gear.

Finally, to Paul's lists. Weeding out the European stuff, we see QW/DL1AN for Market Reefs on Top Band, and on 3.5MHz a 7X, SV5CVJ; 7MHz offered E6GB, ZA1MH, H87BP, ZA1MH again, CM7RU, VP2MG, TIZOHL, CUAM, CUBL, THCF, CUNA, ZJ7FR, ZL2BD, VE1NBC, ZL1I, CUNA, ZT7FR, ZL2BD, ZL4AU, ZL3IN, CY9AA, and ZPVKIA. Up to now 14MHz to find W6BER, ZF2WI, with FG5HR noted on 18MHz and Europeans on 21, 24 and 28MHz. It all suggests a serious loud noise at that problem area. Newtown SY16 1ZZ, as always.

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**Convention**

This is as good a place as anywhere to mention the RSGB HF and IOTA Convention, at the Beaumont Conference Centre, Old Windsor, Berks, 26, 27, 28 September. Programme includes a full lecture programme, a Convention Dinner, Partner's Programme, RA Forum, RSGB HF Contest Committee, demonstration station, workshops, Morse Tests on demand - two passport photos and the money - RSGB book stand, etc. Weekend package deals to available, details from Fax: 0181 836 9009.
A while ago I asked, on two separate occasions, for any comments on the possibility of radio equipment interfering with breathalyzers. The questions were posed by Graham Rankin and received no response from 'Scanning' readers. Undeterred, Graham wrote to the 'Ask Bob' column in the preceding Times. The answer was duly given in that the newest type of breathalyser is sensitive to RFI (Radio Frequency Interference) when on 'alert', and therefore it is possible to be misread. I'm glad to see that Graham got his answer!

'Scanning' is a forum for all manner of questions concerned with this aspect of the hobby and is not just a frequency exchange. I'd like to labour that point as, on occasion, I get mail from readers asking for slight reference to scanning but it is still radio oriented.

As an aside, Monitoring Times is an excellent publication to have with the scanner and you can obtain it from the publishers of this magazine, via E-mail, FAX or mail, see the ad on page 70 - you will not be disappointed!

Letters
A letter from James McGahan is a good case regarding what the column does apart from give scanning frequencies. James has written before, on the subject of Fire Brigade call-signs, and wants me to thank those who wrote in their time in writing to him with advice. Tony Williams and Tom from Surrey, take a bow! The column proved, in that instance, to be a good forum for linking up people with interests in a particular area. It only involved me as I featured James' address and request.

If you have any queries about scanning, be that for info, like-minded individual contact, exchange of info, then write in and I'll flash you up on the page. Who knows? It's not just about frequencies, you know!

CCTV transmissions on the air could be a likely cause of interference to the scanning activity of a reader in Chertsey. He has noted transmissions, sounding like packet radio, on the following frequencies: 441, 447, 451.12, 451.537, 441.562 and 441.637. He also noted that 439.250 was affected. He wonders what could be causing the interference and is it the council installed CCTV system?

The frequency 441MHz plus is allocated to the p.m.r. sector, with MOD having an allocation further up at 443, but mostly, 441 is allocated to people like MedCall, Aircall, Rank Xerox and so forth. 439.250 is actually in the Amateur Fast Scanning base and would be ideal to run with. Firstly, the 'main set' would be a Yupiteru MTV-7000 (S/H at £170.00) followed by a Yupiteru VT-225 for dual band and some utility services (S/H at £175.00).

That's a total spent, so far, of £345. I'd then purchase an h.f. RX such as a 'Yasu FRG-7700 at £199 - again S/H. That's £44.00 spent.

Next, two filters, one for the FRG -7700 for short wave work, and this has to be a Howes ASLS and HA5OR kit at £29.80 followed by a Scannass and NF 170 notch filters. These notch frequencies could well be in use at other events so it's always worth keeping them somewhere close to hand if motorsport is your bag.

I managed to catch a couple of events and departures on both my scanners over that weekend as they routed cross country and even fired up the archaic frequency converter on my Sony PRO-80 to make sure that I had three sets dedicated to the band for the weekend. It sounded a bit like a comms jam at times!

Ultimate Station
A letter from J. Cockburn of Wheatley asks what, in my opinion, would the ultimate scanning station look like? He asks me to bear in mind cost and the like and not too go overboard with my equipment choice!

I did this as an exercise and decided to try to keep the cost down as well as target the station towards someone with a general, rather than specialist, interest in the hobby. Here's my line up then, Jim, and bearing in mind you allocated me £1000 only...!

Firstly, I'll presume the budget of £1000 is the absolute limit. This then allows me to buy second hand and, looking through the magazine last month, I see two choices of set which would be ideal to run with. Firstly, the 'main set' would be a Yupiteru MVT-7000 (S/H at £170.00) followed by a Yupiteru VT-225 for dual band and some utility services (S/H at £175.00). That's a total spent, so far, of £345. I'd then purchase an h.f. RX such as a 'Yasu FRG-7700 at £199 - again S/H. That's £44.00 spent.

Next, two filters, one for the FRG -7700 for short wave work, and this has to be a Howes ASLS and HA5OR kit at £29.80 followed by a Scannass and NF 170 notch filters. These notch frequencies could well be in use at other events so it's always worth keeping them somewhere close to hand if motorsport is your bag.

I managed to catch a couple of events and departures on both my scanners over that weekend as they routed cross country and even fired up the archaic frequency converter on my Sony PRO-80 to make sure that I had three sets dedicated to the band for the weekend. It sounded a bit like a comms jam at times!

Silverstone Frequencies
S/H in Warwick sends me in Silverstone frequencies as heard over the 11-13 July weekend. These may be worth hanging on to for other events. On the airband side, 118.325 was the ATIS, 121.075 was the tower, and is listed as such in the sonic section, 128.525 ground and 130.675 on-air safety.

Some other interesting frequencies heard were as follows: 467.7375 OB co-ordination, 453.9750 and 460.4750 were general circuit channels. These frequencies could well be in use at other events so it's always worth keeping them somewhere close to hand if motorsport is your bag.

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At the end of two weeks I had managed to catch a couple of events and departures on both my scanners over that weekend as they routed cross country and even fired up the archaic frequency converter on my Sony PRO-80 to make sure that I had three sets dedicated to the band for the weekend. It sounded a bit like a comms jam at times!

Percentage of radio equipment interfering with CCTV transmissions on the air could be a likely cause of interference to the scanning activity of a reader in Chertsey. He has noted transmissions, sounding like packet radio, on the following frequencies: 441, 447, 451.12, 451.537, 441.562 and 441.637. He also noted that 439.250 was affected. He wonders what could be causing the interference and is it the council installed CCTV system?

The frequency 441MHz plus is allocated to the p.m.r. sector, with MOD having an allocation further up at 443, but mostly, 441 is allocated to people like MedCall, Aircall, Rank Xerox and so forth. 439.250 is actually in the Amateur Fast Scanning base and would be ideal to run with. Firstly, the 'main set' would be a Yupiteru MVT-7000 (S/H at £170.00) followed by a Yupiteru VT-225 for dual band and some utility services (S/H at £175.00).

That's a total spent, so far, of £345. I'd then purchase an h.f. RX such as a 'Yasu FRG-7700 at £199 - again S/H. That's £44.00 spent.

Next, two filters, one for the FRG -7700 for short wave work, and this has to be a Howes ASLS and HA5OR kit at £29.80 followed by a Scannass and NF 170 notch filters. These notch frequencies could well be in use at other events so it's always worth keeping them somewhere close to hand if motorsport is your bag.

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Given £2000, from a lottery win perhaps, I'd be able to go in for higher spec equipment, second-hand and build up the sort of station you'd die for. Then again, dreams eh?

CB Activity
Lastly, some info required by a reader in Bushley. Herts, asks whether anyone has heard activity on the old 934MHz CB band! This reader, D.G.H., informs me he has heard CB traffic on a fairly infrequent basis and in particular on channel 15 - 934.71MHz.

The band ran from 934.01 to 934.96, in 50KHz steps and was 20 channels. It did not prove to be too successful, due to the cost of the equipment, but did operate. However, it seemed to have died a death as very little was heard about it.

Now it may be that someone has a set and has linked up with another user for some reason or probably interference free chatting. Anyone any idea whether this band is still alive? (This band has been withdrawn by the RA - the spectrum is now allocated to digital cellphones. KN)

I've tried it in Oxford over a period of a few days but had zilch on it. Anyone else had any luck? It would be interesting to hear whether it actually exists any longer.

And Finally
That said, it's time to shut it down again for another month. Keep the news coming in for any item concerned with scanning, and also with any unusual transmissions you may hear.

Note the new address and telephone number but please, urgent calls only after 6pm and before 9pm only. If you want a reply, an s.a.e. guarantees you a personal one! So, that's the lot for now! Catch you next month - until then, 73s.
This month's Book Profiles highlights six books written for the short wave listener. Whether you're just a beginner or whether you're a more advanced listener, these books contain something for everyone. You can't afford to miss out, so read through and order the one that suits you best.

**Short Wave Communications**

An introduction to radio communications, operating your radio, antennas, international band plans, marine bands, civil aviation, military operations, amateur and citizens band radio, international callsigns, receivers past and present, accessories, suppliers of equipment and lots more are all included in this little book.

A great buy and definitely one for your bookshelf, only £4.50.

**Short Wave Listener's Guide**

Written by Ian Poole one of the leading writers on radio, this book is the complete practical guide to short wave listening. It explains exactly what short wave listening is, how radio waves travel, what equipment is needed to receive a signal, how to set-up and run a short wave listening stations and how to obtain an amateur radio licence.

Each topic is clearly explained and illustrated and the practicalities of short wave listening are discussed, from buying a new or second-hand radio to making and erecting an aerial. A definite must for your bookshelf. £13.95.

**1997 Shortwave Frequency Guide**

This book is a very comprehensive, reliable and up-to-date manual. Within its pages is everything you need to know about clandestine, domestic and international services, to user-friendly listings in convenient frequency order and 13800 entries covering all utility stations world-wide. It's a real solid introduction to real short wave radio monitoring. Order your copy now for £23.00.
ORDER FORM in this issue or telephone Michael or Shelagh on (01202) 659930.

LISTENING!

Shortwave Radio Listening for Beginners

This well-researched book can help open the door to the manual unusual and wonderful things available on the short wave band. Shortwave Radio Listening for Beginners provides all the hands-on information you need to get off to a quick start with this fascinating hobby and listen in on today's most unique radio broadcasts from across the country and around the world.

An excellent introductory guide, this book describes, in easy to understand terms, everything from how short wave radio works to how to become a licensed amateur radio operator, and much more. £10.95.

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This book, now updated and expanded to include the latest information on short wave radio equipment, stations, procedures and operating practices, tells you everything you need to know to listen in on broadcasts from around the world.

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Short Wave Maritime Communications

This book gives you step-by-step instructions on how to monitor all the shipping frequencies around the world. The book is laid out with both the beginner and the well-seasoned maritime radio enthusiast in mind, providing the most accurate and detailed information in an easy-to-use format.

If you want to monitor ships receiving instructions from their agent where to go next, changes in course, how to get out of some difficulty, or what supplies are needed, then this book will show you how easy it all is. Regardless where in the world you live, Shortwave Maritime Communications will provide you with endless hours of enjoyment as you tune into the pick of the catch from the high seas. Order your copy now for the special price of only £14.50 (was £16.50).
There has been a great deal of interest in 'Search and Rescue' (SAR) frequencies in recent weeks, mainly due to the interference being suffered by SAR services. The interference on 5.680MHz first appeared at the start of August, and seems to be most active during the late afternoon and evenings UK time.

The interference is being caused by an a.m. broadcast station, which comes on air and quickly gets jumped on by a 'bubble jammer'. After a while the a.m. station stops broadcasting and the jammer also stops, but then seconds later the broadcast restarts again the jammer also returns. This leaves absolutely no doubt that the a.m. broadcaster and the 'bubble jammer' are connected in some way, or rather, are opposing each other. In either case, this is a real problem for SAR stations trying to conduct rescue missions!

Recently, there has even been a second bubble jammer, which just makes matters worse. Other readers have reported hearing scrambled transmissions also, but this may be on 5.680MHz i.s.b. On another occasion, an unidentified station was sending five letter and five number groups in Morse on the frequency. This was sent quite slowly, and with my limited c.w. skills, I was sending five letter and five number groups in transmissions also, but this may be on 5.680MHz i.s.b. A few months ago the UK SAR services were asking stations to use 4.754MHz when propagation on 5.680MHz was bad; they referred to this frequency as 'The UK Daytime Back-up Frequency'.

Another interesting signal heard in recent weeks is the call-sign "ETLL" who has called up several times requesting a radio-check. On one occasion, he called up Kinloss Rescue and announced that he was over northern Spain and maintaining a listening watch. This voice is reported to have an Irish accent (not confirmed by me, though), so this might be TransAer Airbus A.300 EI-TLL. However, I cannot understand why they would ask Kinloss for a radio-check, nor why they would maintain a 'listening watch'. By announcing that they were 'over northern Spain', they must have been an aircraft, but the call-sign does not fall into the standard patterns for aircraft call-signs; if it was the above aircraft, it should use either its full registration or 'EL'. If anyone has any other ideas on this matter, I would like to hear them.

Letters

David H. writes (via E-mail) from north of the border with concerns about listeners being identified in print, and possible reactions by the authorities. He says that he has been a keen s.w.l. for many years, and has recently gained his 'Class A' Amateur licence.

David says that he is concerned how often he sees people quite openly quoting their amateur radio call-sign when they send their logs, news and reports to various radio magazines and on the Internet. He is worried that this would make listeners too easy to identify, and does not want to risk losing his licence, and wonders if he is being over cautious.

Well, I have always had a policy of not being too specific in identifying those who write to me. When I mention somebody in this column, I always avoid being too specific with a name or location. In David's case, his E-mail gave me his location and amateur call-sign, but I choose not to use them to maintain his anonymity. Just to put David at ease, I used to be G6SUQ, but I let that lapse about 10 years ago. Up until two years ago I was still listed in the RSGB Callbook, and it was just earlier this year that I was removed from the US published The Radio Amateur Callbook.

In over fifteen years of listening to all sorts of h.f. frequencies, and over four years compiling this column, I have never had any problems with the authorities.

Going back to last month's letters and questions, Hans-Peter Tillman asks for an address of 'Kinloss Rescue'. It has taken me some time to find the proper address; I have it in my 'filing system', but in the wrong place! Kinloss Rescue took-over from Edinburgh Rescue at the end of January 1996, and since then the 'most quoted' address is as follows: Air Rescue Co-ordination Centre Kinloss, RAF Kinloss, Forbes, Morayshire, IV36 0UH, Scotland.

Hans-Peter also asks how he can QSL the individual RAF and RN helicopters that he hears on h.f. Well, from letters and comments that I have seen, it is certainly possible to write to them direct rather than relying on some sort of central bureau. The big problem is finding the correct address for each airfield where the helicopters are based. I have the information about where they are all based, but I do not have accurate addresses for all of them. If anyone has successfully QSLed a SAR helicopter, please can they write in with details so that I can forward the address.

Leicester

Once again, I will be attending the Leicester Amateur Radio Show during October. This year's show is being held on Friday 17th October and Saturday 18th October, and the venue is the same as last year, the Granby Halls in the centre of Leicester (For the lat time! Next year's show is at Donnington Park - Ed).

After last year's show, most of us were under the impression that the show would be held, somewhere different this year as the site was due for re-development. It seems that the move has been postponed for another year.

I will be 'working' - if you can call it that - on the PWP stand, so I hope that readers will find time to come over and say 'hello'. I draw the line at signing autographs, but I will have some frequency listings to hand out.

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There was no shortage of exotic Sporadic-E reception during July. There were also a few mysteries thrown in for good measure. Conditions were wide open to the Middle East on several dates, most notably the 17th and 24th.

Arabic Reception

Peter Chalkley (Luton) identified Iran on July 10th when at 0900UTC, clear pictures and sound were received. The 'IRIB' logo was clearly visible and his scanner read 48.240MHz. A second encounter occurred at 1015 on the 15th when an Arabic sound channel was heard on E2, with video at 48.240MHz. On the 13th on E2, at 1600 and again at 1700UTC, Keith Greenwell (Luton) noticed text pages with an eagle logo which was similar to Dubai's satellite transmission.

On the 17th, signals from the Syrian second network on E2 were discovered while checking Band 1 at 0715UTC. By 0910 a second Arabic signal was present at 48.240MHz and Peter is sure this was Iran again. At 0915 a completely different Arabic signal was present on E3, which could not be identified. No European signals were present during this opening.

Conditions on the 24th went one better when Syria E2 was present for over four hours! At times, the same programme was resolved on channels E3 and E4. This is a mystery because the only official Band 1 outlet for the second network is E2. Perhaps there are new outlets for the 2nd network?

High MUFs

On July 10th, Stephen Michie (Bristol) managed to resolve Belarus on Channel RS while the fm band was active. During the same period, Barry Bowman (Manchester) noticed a strong Ukrainian (YT-1) signal corresponding to Channel R6 in Band III. This is the first report of Band III Sporadic-E activity for several years.

Mystery Signals

This is the third consecutive season that a video signal has been resolved at 57.75MHz, a frequency used in China but not in Europe. The signal seems to originate in the south-west of Ukraine or northern Rumania and the sound channel is similar to Russian. The programmes are different to those being received at the same time on the channels R2 and R1, thus ruling out spurious mixing effects within the tuner or distribution amplifier.

Colour bars with a tone from the direction of the Middle East have been noticed twice this season in Derby. Andrew Jackson (Birkenhead) also logged the mystery signal on the 14th at 0840UTC.

Some of the on-screen logos are still causing confusion. One resembles "T" (the is are fat, squared and white). This logo is thought to originate in Belarus, although they usually show a 'b'T' logo.

Portuguese 2nd Network

An interesting catch has been the 35W Channel E2 RTP-2 relay at Valencia Do Duoro in the north of the country. Its RTP-1 counterpart transmits on E4, also with 35W. The FuBK test card, with 'RTP LISB2' identification, is broadcast well into the afternoon, so it is an easy one to spot from the south-west.

July Log

We have been deluged with reception reports from readers, so the July log is presented as a collection of various logs. The service name appears in brackets where appropriate. To save space, only the most productive days are shown.

1 Italy (RAI, UNO, TVA and VIDEO), Serbia (RTS), Hungary (MTV), Croatia (HRT) and Spain (TVE-1).
2 Italy, Spain, Portugal (RTP-1), Sweden (SVT), Russia (ORT), Ukraine (YT-1), Croatia (HRT) and Moldova (TRM).
3 Italy, Slovenia (SLO-1), Portugal (RTP-1 and RTP-2), Spain, Ukraine (YT-1 and YT-2), Serbia, Rumania (TVR-1) and Norway (NRK-1).
4 Syria E2, Iran (IRIB) E2, Slovenia, Belarus (BT), Moldova, Lithuania, Ukraine, Hungary, Russia (RTV), Denmark (DR-TVO, Sweden, Norway and Iceland (RUV).
5 Finland (YLE), Corsica (Canal Plus), Italy, Czech Republic (TV NOVA), Ukraine (YT-2), Lithuania (LTV), Sweden, Norway and Germany (ARD-1).
6 Dublin E2, Portugal, Spain, Slovenia, Croatia, Lithuania, Germany and Italy.
7 Croatia, Slovenia, Serbia, Czech Republic, Ukraine, Lithuania, Belarus, Russia, Hungary, Switzerland (DAS), Italy, Spain, Portugal, Norway, Sweden and Albania (RTSH on channel IC).
8 Iran E2, Hungary, Rumania, Slovenia, Czech Republic, Serbia, Portugal (RTP-1 and RTP-2), Spain and Italy.
9 Italy, Corsica, Spain, Portugal, Rumania, Belarus, Ukraine, Estonia (ETV), Norway, Denmark, unidentified Russian video at 57.75MHz.
10 Syria E2, Dubai E2, unidentified Arabic signal E4, Rumania, Italy, Spain, Portugal, Hungary, Norway, Finland and Sweden.
11 Syria E2, E3 and E4, Ukraine, Rumania (TVR-2), Czech Republic, Italy, Sweden and Norway.
12 Serbia, Slovenia, Italy, Spain and Portugal.

Reception Reports

John Woodcock (Basingstoke) reports lots of activity from all over Europe using his h.f. longwire antenna on Band I approximately 3A long. Simon Hookenhull (Bristol) is also using indoor antennas, either a telescopic rod or wire type. Despite this, Sporadic-E reception from many European countries has been noted including Lithuania on July 14th. The signal was identified by the weather map at 1900UTC.

Fig. 1: NRK-2 PM534 test pattern with 'TO' 'nrk' identification at the top.

Fig. 2: Norwegian TV2 weather forecast. We gather the forecaster doesn't always look as if she is asleep! Note that TV2 and NRK-2 are two completely independent TV services operating in Norway.

Fig. 3: Swedish 'SVT' identification graphics. This stylised logo is also present on programme schedules. During programmes for schools a 'VR' logo is displayed.

Fig. 4: A modified PM534 test card used by Saudi Arabia. This was photographed from satellite TV but terrestrial transmissions also use this modified test card with its extensive black areas.
Vincent Richardson (Clwyd) queries an 'LTY' logo followed by a programme schedule on July 10th. This is Lithuanian and the correct logo is 'LYT' in stylised lettering which makes the 'V' look like a '7'. Peter Barber (Coventry) has cleared up a mystery surrounding a logo shaped like a tie on July 12th and 14th. Apparently the ETA killing of a Spanish politician prompted TVE-I to replace its usual logo with a black tie until the day of the funeral. The symbol even appeared between the letters 'L' and 'T' to the left of the clock! Ukraine, Rumania, Italy (TV and VIDEO private stations) and Serbia are examples of the more commonly received countries by Peter this season.

On one occasion a heading 'PTC-2' logo was seen as a co-channel sign to Serbia (PTC-1) on Channel E3. The Ukraine and the Italian private station 'VIDEO' were logged many times by Tom Crane (Essex). So far this season, Lt. Col. Rana Roy (India) has logged many Arabic stations in Band I, including Dubai and Iran. On the 'R' channels, various Russian stations have been identified. On one occasion a Chinese test card was seen on channel RI.

Two examples of reception are shown in Figs. 1 and 2. In addition to these networks, Ian Milton (Tyne & Wear) has also logged the TV Norge and NRK-I networks, the latter being noted in Band III. Further south, Shuan Taylor (Howden) identified Belgian broadcasts from Wavre on channels E8 RTBF-I) and E10 (BRTN-I). New NRK-2 networks have been identified by Howden (Somerset) and it has also been logged by Tony Healless (Blackburn). On the 10th, Nicola Hutchings (Somerset) identified Croatia on 105.1MHz and 105.9MHz. On 106.2MHz, a station with the RDS code "NOVA" was heard. Could this be the Czech Republic? Other countries include Finland on 87.9, 91.2 and 94.0MHz, identified from the RDS codes with "YLE prefixes and Sweden on 89.5MHz with the code "SR P1". Andrew Jackson (Birkenhead) has added dozens of f.m. stations to his log this season, including 'FUNRADIO' on 87.7MHz from the new 50kW Kosice transmitter in Slovakia. 'PRO TON' on 90.0MHz has now been identified as coming from the Plzen transmitter in the Czech Republic.

Keep On Writing!

Please send off-screen photographs, reception reports and general information by the 3rd of the month to: Garry Smith, 17 Collingham Gardens, Derby DE22 4FS.

Fig. 5: A colour test pattern radiated by KKT JOQI-TV in Japan.

Fig. 6: This month's dip into the archives. The BBC-2 Clock caption with superimposed sunset shown at Closedown in March 1975.
international news feeds and distant programme channels went away both impressed and indicating his recommended approval of the installation (to the borough council). The saga continues...

It was good to hear from Dave Philipps (West Loos) recently, he uses a 1m offset tracking dish feeding into either an Echosat SR8700 or a Nokia 1700 - whereas the threshold extension on the 8700 pulls in weak signals Dave finds that the Nova overall gives better picture quality on stronger signals. Next is the jump into deep water and digital reception - Dave's considering the current flavour of the month, the Nokia 9500.5. There are rumours that Mascom, a German company (that have produced a much modified and versatile Nokia 9500), are about to launch in Europe their 9600 which incorporates even better upgrades than before.

If you thought that jamming was restricted to the short wave bands, think again! July 1 and Eutelsat II F2 @ 10°E (10.970GHz vert.) as usual was down linking the MED-TV Kurdish language programme channel (MED-TV is produced in and uplinked from the UK). Two of our readers notice that the TV signal is 2.8°E to 1°W and has logged many programme feeds + conventional programme channels. Being keen on football, Dean watches Telecom 2C, which often carries the Canal Plus OB circuit of the matches back to the Canal Plus HQ. The Kopernikus 23.5° and 28.5°E birds have been extremely busy the past few weeks carrying live news feeds from the extensive flooding regions in Eastern Germany/Poland. Certain sporting feeds carry German commentary plus effects on the 6.6MHz sub carrier, a clean feed of effects only can be found on 7.20MHz. Clean effects are often provided for the foreign broadcasters to add their own commentary.

And from Sandown, IoW, Roy Carman has sent in a massive analogue reception log! Roy has been enjoying the extensive and very thorough coverage of the Tour de France cycle race that has been carried extensively for French TV as OB feeds on Telecom 2C. Camera work is impressive and the live links from the TV motorcycle camera up to the helicopter - which also carries an onboard camera - are impressive and beautiful particularly when the race is passing through the mountains. Back to reality and the evening of August 19th with a live OB feed for Central TV into their evening news programme, the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside.

In Ipswich on the evening of August 19th with a live OB feed for Central TV into their evening news programme, the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside - ironically the Staffordshire Fire Brigade advising viewers to take care in the tinder dry countryside.

Dean Rogers (Abbeywood) sent in this shot of golf via DFS-2 @ 28.5°E:

Eastbound programme feed ex US into the UK’s GMTV via Intelsat K.
up to the continent until the new broadcasting bill is passed, expected Spring '98. The transmission ban applies to all signals above C-Band and attempts to prevent any broadcasting monopoly being established within the DTH (direct to home) broadcast market. ISkyB (Indian Sky Broadcasting) from Rupert Murdoch's News Corporation is included within this ban. ISkyB ex Star TV from Hong Kong intended to hit the digital air waves with 45 channels via PAS-4 at 68° East using their own unique encryption. The new bill when passed will limit foreign ownership for Indian continent broadcasters to 49%, the majority therefore will be held by Indian companies. Meanwhile, Sony are serenading Rupert Murdoch as it seeks a joint venture with the News Corporation's Japanese Sky Broadcasting (JSkyB). Sony hope to include their own music channel based around their large music library within the JSkyB project. To encourage Sony to opt for their own satellite music channel across Japan, JSkyB intends launching Spring 1998. Two analogue satellite broadcasters in Japan are reckoning to switch into digital Autumn 1998 - Skyport with their nine channels and CS-Ban running five channels. To encourage digital take-up, subsidised and free equipment will be on offer.

The American FCC have issued licences to 13 companies allowing fixed services in the upcoming 28GHz Ka band. Usage will include data, telephony and TV transmission using over 70 satellites either currently operational or planned. Using Norway's Telenor THOR-2 satellite now orbital and working at 1°W, Hughes have received a contract to construct and launch THOR-3, again at 1°W being delivered in orbit August 1998. Coverage will be primarily Scandinavian and Eastern Europe. THOR-3 will carry 14 x 47W Ku band transponders and have a planned life of at least 11.5 years.

The Government of Gibraltar have finalised plans to allow GE Capital Satellites establish a satellite teleport base on the 'Rock' giving access into Atlantic, European, African and Far Eastern satellite regions. In another Mediterranean move the Republic of Cyprus will establish pan-European and local island coverage via the soon to orbit Sirius-2 bird at 5°E.

News from the UK includes the NTL offering a 24 hour service for occasional TV users out of their Crawley Court, Winchester Teleport, having just commissioned an updated control room for their dish farm. And news operation AP-TV have recently networked multimedia and internet data around the world via satellite using UK hi-tech NDS technology. One test transmission via an international video feed sent an electronic copy of The Sunday Times to American, European and Australian subscribers. Currently testing at 6Mbit/s NDS reckon their system will run up to 30Mbit/s per sec.
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* 100 Memories
* 10kHz steps
* 3 IF Filters
* Analogue S-meter
* Dual AGC

New Batteries

* Rechargeable Alkaline
* 1.5V cells
* No memory effects
* Charging mid cycle is OK
* 5 year charge shelf life
* 3 times capacity of ni-cads
* Very low cost

There's more coming. 10kHz to 1300MHz SSB FM AM computer receiver. Order today.

With 5 Year Warranty Contract £1482

AKD HF-3

* 30kHz to 30MHz
* SSB & AM
* 1kHz steps
* Clarifier
* 3kHz filter
* 1kHz readout
* Lovely display

AOR AR-7030 PLUS - £849

KENWOOD R-5000

* 100kHz - 30MHz
* SSB CW AM FM
* 100 Memories
* 10kHz steps
* 3 IF Filters
* Analogue S-meter
* Dual AGC

Garmin GPS-12XL

The very latest model from Garmin. You won't find better value. A complete navigation system for car, boat or walking!

With 5 Year Warranty Contract £229.96

AKD HF-3

* S-meter included
* Memory channel
* Very nice tuning dial
* SO-239 ant. socket
* Built-in speaker
* Very easy to use

New HF-3M in stock £199

AOR-5000 With 5 Year Warranty Contract £1349

Yupiteru MVT-9000

Ours are
CE Approved

Not all versions are - buy from us and be confident - of legal UK stock!

* 530kHz to 2039MHz
* 1000 Alphanumeric Memories
* Duplex monitoring & tracking
* USB LSB CW FM AM
* Channel spectrum scope
* Blistering scanning speed
* Good performer on the SW bands
* Totally programmable
* Multiple tuning steps
* Extremely sensitive front-end
* Good strong signal performance
* Includes AC charger and Ni-cads

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Orders: 0500 737388
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Enquiries 01702 206835
01702 204965
FAX 01702 205843

Open Mon-Sat 9.00AM - 5.30PM
### Welz WS-2000 Scanner

**Price:** £269.95

- World’s smallest scanner
- FM, WFM, & AM
- 500kHz - 1300MHz
- Fast scanning speed
- Clear LCD readout
- 2000 Memories
- Even better sensitivity
- Good strong signal handling
- Runs from just 2 x AA cells
- Battery saving mode

**Value Limited Stocks!**

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### Yupiteru MVT-7000 Scanner

**Price:** £299

- 800kHz - 1900MHz
- WFM, NFM, SSB, AM
- 1000 Memory Channels
- 20 Search Banks
- 30 ch. per second search
- Band Scope Display
- Password Protect
- Computer control output
- Signal Strength meter
- Illuminated Display
- Programmable Steps
- Ni-cads and AC charger

**Special**

### Yupiteru MVT-7100 Scanner

**Price:** £269

- 100kHz - 1650MHz
- NFM, WFM, SSB, AM
- 1000 Memories
- Signal Strength Meter
- Illuminated keypad - display
- 500 Ch. pass memories
- 30 Ch. per second speed
- Unique code scan
- Ni-cads & AC Charger

**Great Value**

### Yupiteru MVT-7200

**Price:** £359

- 100kHz - 1650MHz
- NFM, WFM, SSB, AM
- 1000 Memories
- Illuminated keypad - display
- Signal Strength Meter
- Built-in for ferrile AM aerial
- Narrow band SSB filters
- Improved SW reception
- Improved selectivity & battle drain
- 30 ch. steps per second
- Ni-cads & AC Charger

### OptoElectronics Scout

**Price:** £239

- 10MHz - 1.4GHz
- 400 Memories
- 255 hits record
- Auto store/ recall
- Interfaces with AR-8000
- Ni-cads and AC charger

### OptoElectronics Xplorer

**Price:** £798

- Complete FM Receiver
- Spectrum scan in 1 second!
- Reads out exact frequency
- Records "hits" and multiples
- Shows tones and deviation
- Computer interface option
- Ni-cads & AC charger

### FC-128 Counter

**Price:** £99.95

- 1MHz - 2.8GHz

**New from Optoelectronics is the Tecnoys counter that is "pager" size and can clip on to your belt. Claimed to be the smallest in the world, it covers 10MHz to 1.2GHz. Runs for 10 hours from 1 x AA cell.**

**Micro Counter**

**Price:** £99.95

A nearfield receiver that covers 30MHz - 200MHz in less than a second and looks onto any FM signal providing good speaker output and instant deviation reading. Includes ni-cads and charger.

### Super Gainer

**Price:** £369.95

- Drive speaker or headset to good volume
- 16 factory pre-set positions for easy use
- Battery saving mode
- Runs from just 2 x AA cells
- Good strong signal handling
- Even better sensitivity

### OptoScan

**Price:** £269

- Tests your FM - WFM - SSB - AM with a signal strength meter
- Records "hits" and multiples
- Shows tones and deviation
- Computer interface option
- Ni-cads & AC charger

### WATSON BNC Scanning Whips

**Price:** £29.95

- 25MHz to 1.2GHz
- Car Antenna
- 90° super magnet that really sticks!
- Low profile 400mm long black whip
- 2.75m of coax fitted BNC plug
- Out-performs all others
- Scanning whilst on the move

### WATSON WSM-1900 Antenna

**Price:** £69.95

- Airband Civil & Military model WSM-225
- 25MHz to 1.2GHz
- Car Antenna
- 29cm super magnet that really sticks!
- Low profile 400mm long black whip
- 2.75m of coax fitted BNC plug
- Out-performs all others
- Scanning whilst on the move

### WATSON GPS Active Antenna

**Price:** £99.95

- 1.6GHz GPS Ant.
- Low profile for car
- Magnetic mount design
- 6dB gain design
- Guaranteed improved range
- BNC terminated coax.
- OK for Garmin etc.

### WATSON WEP-400 Earpiece

**Price:** £99.95

- Improved
- Soft pad
- Neckband fit
- 6 Ohm driver
- Extremely comfortable
- Fitted with 3.5mm plug

### WATSON WSC-2 Belt Case

**Price:** £14.95

Combined quick release spring clip and belt loop. Set adjusting, fits all handys.

*Prices are correct at the time of print and are subject to change.*

---

**Note:**

- All advertised items are subject to availability.
- Prices are exclusive of VAT.
- VAT can be added upon request.
- For more information, please visit our website or contact us via phone.
Super Syncro 1100 - 1100mAH Nickel Metal Hydride (NiMH) AA size rechargeable cells. No memory effect. Twice the capacity of NiCds. £3.00 inc P&P.

Skyscan DX-V1300 base disconne - Most disconnes only have horizontal elements and this is the reason that they are not ideal for use with a scanner. Most of the transmissions that you are likely to receive on your scanner are transmitted from vertically mounted antennas. The DX-V1300 has both vertical and horizontal elements for maximum reception. Constructed from best quality stainless steel and aluminium and comes complete with mounting pole. £49.95 + £3 P&P.

Wideband mini-mag antenna - Wideband (25-1300MHz) receive antenna featuring super strong miniature magnet and coax cable terminated in BNC connector. £29.95 + £3 P&P.

Roberts R861 - compact digital world band receiver - Fully featured 153kHz to 30MHz (AM, SSB) and 87.5MHz to 108MHz (FM) portable digital world band receiver. Features include RDS, world time clock, 306 memories, RF gain control, direct frequency entry. Comes complete with free PSU, antenna, frequency guide and case. £169.95 + £5 P&P.

Airband mini-mag antenna - Civil (108-137MHz) and military (225-400MHz) dual band receive antenna featuring super strong miniature magnet and coax cable terminated in BNC connector. £24.95 + £3 P&P.

Skyscan Desktop Antenna Model Desk 1300 disconne - Built and designed for use by scanners. Coverage: 25 to 1200MHz. Total height 36° and 18° wide at widest point. Comes complete with 4m of RG58 coax cable and BNC connector. High performance antenna, ideal indoor or as a car antenna when vehicle is stationary. £49.00 + £3 P&P.

Yaesu FRG-100 communications receiver - Award winning 50kHz to 30MHz base station AM, CW, USB, LSB, FM (optional) communications receiver. Features include two clocks and timer, 50 memories, FM option, remote control jack. Superb value at £349.95 + £7 P&P.

Radio shack DX-394 communications receiver - 150kHz to 30MHz base station AM, CW, USB, LSB communications receiver. Features include clock and timer, signal meter, 100+ memories, RF gain control and direct frequency entry. A steal at £149.95 + £7 P&P.

AKD Target HF3 communications receiver - 30kHz to 30MHz mobile or base station AM, USB, LSB communications receiver. Very simple to operate. Ideal for the novice, but with a performance more demanding listeners will appreciate. £159.95 + £5 P&P.

Commtel COM 202 - AM/FM handheld VHF/UHF scanning receiver. Covers 66-88MHz (FM), 108-137MHz (AM), 137-174MHz (FM), 380-512MHz (FM). Full civil airband coverage, comes complete with free case and rechargeable batteries. £129.95 + £5 P&P.

Realistic PRO-2042 - AM/FM/WFM switchable base station HF/VHF/UHF scanning receiver. Covers 25-520 and 760-1300MHz. Features 100 monitor channels, backlit orange LCD display. Scan rate of 50 channels/sec. £249.95 + £10 P&P.

Uniden Bearcat 9000 XLT - AM/FM/WFM switchable base station HF/VHF/UHF scanning receiver. Covers 25-550 and 760-1300MHz. Features 500 memories, auto sorting, backlit orange LCD display. Scan rate of 100/300 channels/sec. £249.95 + £10 P&P.

Yupiteru MVT-7100 - All mode switchable handheld HF/VHF/UHF scanning receiver. Covers 0.5-1650MHz. Features 1000 memories, over 500 pass memories, 10 limit search banks, 12 step sizes. Comes complete with earpiece, belt clip, wrist strap, rechargeable batteries, PSU, in-car adaptor and telescopic antenna. Ring for latest pricing!

WE ALSO HOLD A LARGE RANGE OF SECOND USERS SHORTWAVE AND SCANNING RECEIVERS. PLEASE CALL WITH YOUR REQUIREMENTS.
How to use the Propagation Charts.

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

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

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

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

Good luck and happy listening.
Ron Ham's barometric pressure chart, taken at Storrington, W. Sussex, August 1997.

Guide to the Chart

The 10.7cm solar radio flux is used as an indicator of the general level of solar activity. The K and AP indices are measures of geomagnetic activity. The K index ranges from zero (very quiet) to nine (severely disturbed). K values of five or greater correspond to geomagnetic storm conditions that can relate to poor propagation conditions.

The AP index ranges from 0 to 400. An AP of 30 is the threshold for geomagnetic storm conditions.
Unidentified Flying Objects are always good for debate. Readers will by now know my opinion: they might be unidentified, but we don’t need to invoke extra-terrestrial life-forms in order to explain them. It’s highly likely the intelligent life exists elsewhere in the Universe and almost impossible that we will meet up with it.

Knowing the way the United States authorities work, it came as no surprise to read the revelations in the national press that previous sightings were really U2 spy aircraft. The US Government didn’t want their Cold War adversaries to know about these flights and so made up a frightening story about aliens! Even though all has been revealed, some American enthusiasts are so disappointed at the non-existence of visiting aliens that they persist in believing what they want rather than what actually happened!

Flying Activities

So far, Andy Mattacks (Surrey, Tel: (01883) 652109) hasn’t had any takers for his Trident simulator. This is probably the only chance most of us will get to fly an airliner and at a price less than a typical lesson in a light aircraft! See July ‘Airband’ for a more detailed description and photo.

You can help provide time and effort or else spare parts for restoration of a Victor cockpit, then the Victor Association would like to hear from you. Contact Garry O’Keefe, 34 Francis Close, Compass Point, Saunders Ness Road, Cubitt Town, London E14 3DE, although I stress that you won’t find part of an aeroplane in Garry’s house!

Not a Victor part but an a.d.f. indicator has been acquired by Andrew Stephenson RS174635 (London). The yellow/black dial marking colours are unusual and the single pointer is more suggestive of a light aircraft. It might have been specified for more than one aircraft type, of course.

It’s ‘Indicator Electrical 9550’ with what looks like an RAF AP1086 stores vocabulary reference IQQ/16356. This is the RAF catalogue of all spare parts they hold in stock.

The ‘MOD Record’ plate refers to MODifications and if none of the boxes 1 to 12 on this plate have been crossed through then no MODifications have been done.

It might have been fitted to WF382 on October 28, 1968. This serial is not listed in Military Aircraft Markings (available from the SWM Book Store) but would have been within a block allocated to Vickers Varsity aircraft.

Wire locating prevents the case being opened by unauthorised people and also stops the screws working loose by accident. You can open it, of course, as long as you promise never to put it back in a working aircraft.

If opened, the seal will be broken; it was put there by someone with an inspector’s stamp coded ‘MOS’ (not the Ministry of Supply which ceased to exist before 1968, I believe).

Why not send me a photo, Andrew? Or, failing that, a good impression can be obtained by simply putting the unit on a photocopyer, cover with a cloth or newspaper to make the surroundings dark, and literally copy it!

Also do a ‘brass rubbing’ of the electrical connection. Can anyone shed more light?

Radar

Secondary Surveillance Radar (SSR) relies on aircraft carrying a transponder. This equipment receives radar pulses that the ground stations send out. Then it transmits a high-powered reply back to the ground.

An advantage is that information can be encoded and included in the reply. There are various modes but Mode 3 is the civil one and all military traffic also operates Mode 3 as a minimum requirement.

There are features within Mode 3 and Mode A (should we say 3/A?) is one of them, sending a four-digit number back to the ground. The pilot selects the required number (squawk code) as instructed by the controller. The controller issues a unique number to each flight and so can tell them apart on the radar screen.

When in contact with London Flight Information Service (FIS), aircraft might be asked to transmit Mode A and C (see 3/A) if one is using a two-line electronic squawk display.

If opened, the seal will be broken; it was put there by someone with an inspector’s stamp coded ‘MOS’ (not the Ministry of Supply which ceased to exist before 1968, I believe).

Why not send me a photo, Andrew? Or, failing that, a good impression can be obtained by simply putting the unit on a photocopyer, cover with a cloth or newspaper to make the surroundings dark, and literally copy it!

Also do a ‘brass rubbing’ of the electrical connection. Can anyone shed more light?

Flight Ops Dept

Taking advantage of my offer in July to look up frequencies for local airways is C.R. Holme (Bournemouth) who should find (all MHz) UG1: 129.375, 133.6, 134.75 & 136.4; UR1: 127.425, 129.425, 132.45, 132.6, 135.05, 135.425 & 136.6; URB: 126.075, 127.425, 129.425, 132.95, 135.05, 135.425 & 136.6. Note the overlap when different airways cross the same sector.

Now, C.R.H., could you confirm which part of UPS and UR you want? They don’t seem to run near to you.

ACARS enables aircraft to tell their owners’ operations departments their positions and other technical data. Stephen Hill is correct that 131.525MHz is an extra ACARS frequency, the Secondary (Europe) allocation to be precise.

Thanks for the good wishes from Brian Oddy G3FEX (our “LMBS” columnist); we’ve both completed 10 years of writing for SWM! He agrees that a successful format should remain unaltered.

Brian Remmings a Decca Navigator station at Bolberry Down on the south-west coast. I think it’s the master of Chain 1 (South-West British). See also the August issue under the ‘Navigation’ sub-heading.

Frequency & Operational News

I read in GASIL 4 of 1997 from the CAA that Beccles is closed but perhaps only temporarily. At Jersey, a new departure a.t.i.s. is on 129.725MHz.
**GARMIN**

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Aviation - Marine - Land

**MAGALLAN**

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<td>Sky Blazer</td>
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Aviation - Marine - Land

**GPS ACCESSORIES**

- Car antennas: £Call
- PC kits: £Call
- Cigarette lighter adapt: £Call
- Mounting bracket: £Call
- Power data cables: £Call
- Unit to unit cable: £Call

Call for latest accessories

**PSION**

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PSI on full range

**DIGITAL CAMERAS**

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**LASER POINTERS**

- Lazerlyte Bullet: £39
- Lazerlyte 100: £39
- Lazerlyte 200: £54
- Lazerlyte 400: £64
- Lazerlyte Executive: £79

- Call for latest prices

**SCANNERS**

- Welz 2 WS-1000: £230
- Icom IC-R10: £335
- Uniden UBC-220XLT: £149
- Uniden UBC-60XLT: £99

Many more in stock

**TRANSCEIVERS**

- Alinco DJ-190: £149
- Alinco DJ-S41: £129
- Icom IC-77E: £285
- Kenwood TH-22E: £230
- Alinco DJ-45: £265

(Too many to list, please call)

**CENTRAL LONDON'S ONE-STOP COMMUNICATIONS CENTRE**

- USR Pilot Personal: £199
- USR Pilot Professional: £309

We promise to beat any genuine quote
You've probably spotted Lawrence's PROsat for Windows review on Page 42. Well, we were so impressed with this package that we've negotiated a very special deal with Timestep so that our readers can benefit.

If you order your copy of PROsat for Windows using the form below, you can save a staggering £151.33 off the normal price (£156.25 for the external version).

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SWM Offer Price
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£255.00 inc. (External)

PROsat for Windows SWM Reader Offer
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Please send me External @ £255
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Address
Postcode
Telephone No.
I enclose cheque/PO (Payable to PW Publishing Ltd.)
Or Charge to my MasterCard/Visa/Switch/AMEX Card the amount of
Card No. 
Valid from to
Signature
Offer Expires 15/11/97.
AVIATION VIDEOS – PLANE FOOTBALL CRAZY – see aircraft such as Martinair B747 + MD-11, Corsair B747, Czech IL-62 and TU154s plus lots lost more when visiting fans arrived at BHX in June for one of the biggest football events held at Villa Park. 90 Minutes Plus
Extra Time of aircraft action!
Price: £16.99 + £1 P&P

FIVE DAYS IN MAY – BIRMINGHAM INTERNATIONAL AIRPORT – a video ‘diary’ including the aircraft that visited BHX for the Western European conference including German AF VFW614 and A310 Airbus, Polish AF YAK40, Slovak & Czech TU154s as well as various Military and private exec jets. Also features BHX’s regular ‘traffic’. The best of the five days compressed into a 2 hour action video.
Price: £14.99 + £1 P&P

ON THE FLIGHTDECK VOLUME ONE - Five varied flights including overhead join and landing at Welshpool in a Cessna 152. An approach and landing at Prague in a CSA B737-500. Larnaca-Beirut-Larnaca great aerial footage of Beirut and its airport from a Cherokee Archer II.
Price: £14.95 + £1 P&P

HONG KONG ‘96 A 2 hour all action video. Includes footage of aircraft making the last minute 45 degree turn onto finals into Kai Tak. See aircraft such as B747, B757 and B777 plus Airbuses A300, A310 Cathay, ANA, Air China, Dragonair, JAL, Mandarin, Thai plus assorted freighters such as UPS, Polar, Atlas etc. With ATC.
Price: £16.99 + £1 P&P

Why not send for our free Mail Order Catalogue full of Aviation Books, Videos, Scanners, Antennas, Maps & Charts. * New * New * New * Issue 6 of our UK Pocket VHF/UHF Frequency Guide will be available in September and still at the same price of £3.95 + 50p P&P. One of the originals and still the best. Lists all UK airfields in alphabetical order and has a full numerical order frequency listing. Now includes relevant HF frequency listings PLUS lots of other useful information.

THE AIRBAND JARGON BOOK – Explains what exactly is being said and the instructions being given over your airband radio between ATC and the aircraft. Price: £6.95 post free.
Airband

Continued from page 67

and I will take a guess that this is because the higher-powered arrival a.t.i.s., relayed on the v.o.r. frequency, can't be received very well when on the ground at the airport (as I found out myself when I flew there).

Sheffield's runway is 10/28 asphalt, says Stephen Hill; also, a.t.i.s. 121.7, see September 'Airband' is confirmed by Andrew Green (Barnsley) and air traffic 128.5MHz, see August, by John Bar. Stornoway now has Aerodrome Flight Information Service 130.35MHz.

The Lower Airspace Radar Service is enhanced by Honington 135.2MHz.

Scottish Frequencies

Back to the May issue where I listed all the Scottish sectors and frequencies. If you want a chart of these sectors, AIC 98/1997 will help and you can get a copy from the address on the Airband Factsheet. The two page A4 Factsheet is free from the Broadstone Editorial Office (but not from me!), if you send an addressed, reply-paid envelope. When your copy arrives, send another addressed envelope to the appropriate authority (concerns will weigh about 22g) as instructed on the Factsheet.

I do hope all readers in the Scottish area will take advantage of this. In summary, Flight Information Service is available on 119.875MHz in an area roughly overlapping the Forth Low and Antrim sectors. If this frequency is not operational, or when flying in other areas, the normal sector frequencies for Antrim, Forth Low, Hebrides, Moray and West Coast also provide this service.

Scottish radio relays are at Craigowl Hill, Fifehead Head, High Buston, Lowther Hill, Mangersta, Prestwick, Rhustafnish, Snaefell, Fitful Head, High Buston, Lowther Hill, Stornoway, Sumburgh and Tiree.

I hope all readers in the Scottish area will take advantage of this. In summary, Flight Information Service is available on 119.875MHz in an area roughly overlapping the Forth Low and Antrim sectors. If this frequency is not operational, or when flying in other areas, the normal sector frequencies for Antrim, Forth Low, Hebrides, Moray and West Coast also provide this service.

Scottish radio relays are at Craigowl Hill, Fifehead Head, High Buston, Lowther Hill, Mangersta, Prestwick, Rhustafnish, Snaefell, Stornoway, Tiree and Windy Head. Primary radar heads are at Aberdeen, Great Dunfell, Lowther Hill, Stornoway, Sumburgh and Tiree.

London Airways have 134.125MHz and Stephen Hill and Chris Jordon (Poole) will find that Biggin Hill, London (City) and Southend inbounds are controlled here.

Navigation now, with information from Martin Sutton (CAA). Thanks also for the frequency list, Martin. New d.m.e. beacons (response frequencies in MHz) are at Machrihanish (MAC, 11941), Stornoway (STN, 1185, old beacon but new frequency) and Wick (WIK 1170). Is the old WIC still there on channel 1B? And a new reporting point: DORKI is between the Ockham and Biggin v.o.r. beacons presumably on UR12 near Dorking.

Next Deadlines

The publication schedule has been altered, so the revised next three deadlines (for topical information) are October 6, November 10 and December 8. Replies always appear in this column and it is regretted that no direct correspondence is possible.

Abbreviations

ACARS Aircraft Communications Addressing & Reporting System
a.d.f. automatic direction finder
AIC Aeronautical Information Circular
AIP Aeronautical Information Publication
a.t.i.s. automatic terminal information service
CAA Civil Aviation Authority
d.m.e. distance measuring equipment
g grams
GASIL General Aviation Safety Information Leaflet
MHz megahertz
v.o.r. very high frequency omni-directional radio range
T his month I have a whole suite of programs from regular contributor Jan Nieuwenhuis (The Netherlands). Jan has been providing information for 'Decode' readers for many years now and has been gradually building up a selection of useful database programs. The suite of four programs described here covers a wide range of listening interests - much of which will, I'm sure, appeal to 'Decode' readers.

Probably the best known of these programs is WXFAX. The latest version of this handy utility (v3.4) provides an up-to-date listing of all known h.f. FAX stations. Not only does the program provide a simple frequency listing, but there are full address and transmission details provided wherever available. To make the package accessible to as wide an audience as possible, Jan has written the program to run under DOS. As a result, it will run on just about any PC from a 286 upwards, providing it has 640Kb of memory, VGA display and running DOS 3.3 or later. Although this is to use the Station Data graphics are a bit thin, it does ensure quick operation.

Installation of the software is simply a matter of copying the files on the supplied floppy disk to a directory of your choice on the hard drive. You can also run WXFAX from the floppy, but access becomes a little slower. Operation of the program is pretty much self explanatory as all the features can be accessed via the main and sub menu systems. With the main listing you have the option to sort the information by frequency, country, callsign or location. Once the appropriate option has been selected you can scroll through the complete list viewing thirteen lines of information at a time. The information stored for each station is name, country, callsign, frequency, transmission time, transmitter power and the FAX mode e.g. 120 rpm/IOC 576. This is just about all you really need to know, but if you did need more then there was on-line help available by pressing the F1 key. This provided rapid access not only to basic information on how to navigate the program, but also a full ITU country list and an index of all the station abbreviations used in WXFAX. To supplement the viewing options, WXFAX included a comprehensive set of printing options. Within this menu you could print a full sorted listing, ITU country list, station address list, transmission information, weather data or a complete list of codes or your own selection. This was really very comprehensive. If you use a computer control program for your receiver you will be pleased to hear that WXFAX includes an option to export all the frequency information to a tab-delimited file for import into your control software. You will need a little computing knowledge to make full use of this but it is a welcome extra.

An alternative method of viewing FAX station data is to use What's My Station (WMS) and this uses a neat set of windows to display the full information on any selected station and is particularly useful when your tuning around looking for a station to monitor. All this is supplemented by some very handy general FAX information covering operating and decoding systems. Overall this is a simple, but very well thought-out, program that's packed with useful information. If you've got a PC and are interested in FAX you really ought to have a copy of WXFAX.

Next in the list of goodies from Jan is a Windows (3.1) based ships' callsign database, SHIP-CS. This provides a very informative listing showing the ship's name, callsign and country of registration and is likely to be of particular interest to all listeners who enjoy maritime monitoring. In addition to the basic listing, there is a full listing of the world-wide callsign assignments plus some detailed information on the operation of Scheveningen and Oostend radio stations. At present the ships callsign list is restricted to ships that have been registered in Belgium, Netherlands and Luxembourg, but it nevertheless makes a very useful reference. The next two programs are both Windows based but of less interest to 'Decode' readers. The non-directional beacon database program NDB provides comprehensive information on broadcast stations that have programs directed towards Europe. The database features the same type of flexibility as WXFAX and will no doubt prove of great benefit to those with an interest in broadcast listening. Having tempted you all with these programs, here's how to get hold of a copy.

The fully inclusive price for WXFAX 3.4 and EURO-TX 2.1 is just $60.00 (25 Guilders, 23 Dollars) or $7 US dollars outside Europe. NDB 1.0 and SHIP-CS 1.0 are available for £4.00 (10 Guilders, 10 German Marks, $6 US Dollars) or $7 US dollars outside Europe. With prices as low as this it is important that you use the correct payment method or most of it will be lost in bank charges. Could you therefore send either cash, Euro-Cheque or International money orders. The address to send to is: Jan Nieuwenhuis, Vloedlyn 12, NL-1791 HH Den Burg (Texel), The Netherlands. My thanks to Jan for supplying the review samples.

FAX Synchronisation

Colin Tannah has written to me asking for help with a FAX reception problem. Colin currently uses jFAX for his reception but this particular problem effects many FAX enthusiasts when they're just getting to grips with the hobby. I've shown a sample picture from Colin in Fig. 1. As you can see the image detail is not at all bad, but the image is very badly skewed and can even be seen coming back on itself.

To understand the problem I need to refresh your knowledge of how the h.f. FAX system operates. At the transmitting end of the link the paper image is wrapped around a drum such that the ends of the rolled-up sheet nearly touch. This drum is then set spinning at a pre-set rate - usually 60, 90 or 120rpm. An optical sensor then slowly scans along the length of the image converting the black and white chart image into electrical impulses that are used to modulate the transmitter. At the receive end the process has to be reversed to enable the image to be reproduced. In the original electromechanical systems the receiver would be the same as the transmitter except the optical sensor is replaced with a marking device that responds to the electrical impulses from the radio receiver.

I'm sure you can see that if we are to receive a good likeness (or facsimile) of the original, both the speed of the drum and the movement of the sensor along the chart need to be exactly matched. In addition, it's also important to ensure that the starting edges of the paper are aligned or the chart may print over the edge. To help ensure that images can be received accurately between different systems there are a set of agreed international standards that are used by all the stations. The drum speed is the simplest and is measured in r.p.m. with the common standards being 60, 90, 120 and 240rpm. The movement of the sensor is a little more complicated as the exact rate will depend on the size of the paper at...
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Rather than bombard you, dear readers, with meaningless lists of products this month we thought it might be helpful to let you know what’s ‘Hot’ and what’s not.

We’ve recently refurbished our Southampton Showroom and fitted out two dedicated ‘Radio Shacks’ (one for Data. one for General Radio) where customers are very welcome to try products on-air rather than just having to have to rely on a glossy brochure and a bit of Sales patter.

Our New Look Showroom

Just Starting Out?

Maybe you picked up this copy of Short Wave Magazine off W. H. Smith’s shelves and are wondering what all these buzz words like Scanners, DX and QSL mean? You’ll be pleased to know that our retail staff are all active Short wave radio enthusiasts and are keen to help YOU get the most from this fascinating hobby. So, don’t be bashful, we won’t think you are silly when you ask what seems to be a daft question! Why not call our dedicated customer support line on 01703 251549 and we’ll do our best to put things into plain English.

Scanners - What’s Hottest?

The AR8000 is leading the way in the scanner field at present by offering the benefits of a short wave AND professional wide band VHF/UHF receiver in a neat hand held package! Perhaps one of the AR8000’s strongest points is the EXTREMELY comprehensive user manual which offers lots of useful tips about starting out in the hobby.

The numerous features include:

- 500kHz - 1900MHz continuous coverage
- Built-in Medium Wave antenna
- AM/NFM/WFM and yes... USB/LSB & CW!
- Password protected memory (to stop those ‘prying eyes’!!)
- 1,000 alphanumeric nameable memories
- three way power operation - internal Nicad, 12V DC and 240AC mains (PSU included)
- Optional PC interface.

Available exclusively from SMC the AR8000 MCO Enhanced is supplied ready to use with the Optoelectronics Scout and the Siskin Multicat.

Plus lots more, phone or write for a comprehensive user manual which SMC the Super Snooper Sniffer...

Have you ever wondered how books like the UK Scanning Directory are compiled? How do they find out who uses what frequency? One possible explanation could be the Opto Scout, an ingenious little device that slips in your top pocket whilst sampling two-way radio users nearby logging their frequencies into its memory. Up to 400 frequencies may be stored for later retrieval from the Scout’s built-in LCD screen or by dumping the information out to a PC (using an optional RS-232 interface such as the Siskin Multicat) for in depth analysis with programs such as Microsoft Access etc.

SWM October 1997
interface from the various manufacturers invariably they are specific to just that one radio.

A couple of years ago we launched the Siskin Multicat which revolutionised C.A.T. control. At last, one interface that works with ALL Icom, Kenwood and Yaesu C.A.T. radios and Scanners such as the AR8000/MCO Enhanced and the Optoelectronics Scout.

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In case you didn't make it, our Fun Day on August 16th was a rip roaring success! We were well supported with representatives from Icom UK, AOR, Yaesu, Venus Electronics, the Camel Trophy Comms Team and the Cable & Wireless Emergency Response Unit! Profits from the bar and refreshments raised over £200 for Leukaemia Research. Our twice hourly free draw proved popular with all visitors and our thanks go to Kenwood UK and ICOM UK who very kindly provided a wide selection of prizes.

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the receiving end. This is an important point about the FAX system as it can easily be used to enlarge or reduce on the original size.

Rather than specify the sensor speed in mm/second its the relationship between the drum speed and the size of the received image that's used. I won't go into the exact relationship here, but the term used to describe it is Index Of Co-operation or, more commonly, IOC. Providing the drum speed and IOC are correctly set you should receive an image which is a very good facsimile, but not necessarily the same size, as the original. This is particularly important with computer based decoding systems as they use a completely different method to electronically simulate a FAX machine to enable FAX images to be either displayed on the screen or print-out via a standard printer.

So what happens if either the drum speed or IOC are not exactly aligned with the transmitter. Of the two the IOC is the less critical. If you try receiving a 576 weather FAX chart with the IOC set to 288 you will find that the chart is still readable but is very squashed. However, the drum speed is extremely critical. To illustrate the point, I'll run through an example. If you imagine we're receiving a 60rpm 576 IOC image that is due to be 200mm wide on the printer. Some simple maths shows that this is equivalent to the paper passing under the sensor at a rate of 200mm per second (60rpm x 600 x 200mm). So let's look at what would happen if the drum speed was running slow, just 59.9rpm. This would give a new paper speed of 199.666mm per second. Whilst this may seem pretty close, it would mean that on every turn of the drum the image would shift out of alignment by 0.334. Okay this is still small beer but what would happen over a typical FAX transmission time of 10 minutes?

Again, some simple maths shows that the image would shift by an amazing 200mm! In practice this would cause the image to be skewed to an angle of around 45°. So you can see that even very small errors in the drum speed can cause dramatic distortion of the received image. Returning the original question from Colin, you can see that he needs to adjust the drum speed to get his image properly aligned. Fortunately, this problem is well recognised by the suppliers of FAX decoding systems and they all either feature very accurate internal reference sources or include controls to adjust the drum speed in fine increments. In the case of JFAX you just have to press the "r" key whilst receiving until the image is properly aligned. If you want to get a little more scientific with the adjustment you could try setting your FAX decoder to align with the MSF Rugby frequency standard on 60kHz. All you have to do is start your decoder in the normal way but set the drum speed to 60rpm. Next start receiving and tune around 60kHz ± 1.5kHz. If you listen to the receiver at the same time you should hear the regular tick of the time signal. Now you just have to fine tune you receiver so the FAX decoder starts to produce a black or white stripe that aligns with the time signal. Just monitor this for a while until you can start to see a tiny white stripe showing parallel with the edge of the screen or paper if your using a print-out. If it drifts away from being exactly parallel then you need to adjust your decoder's drum speed to pull it back into line.

In order to get this absolutely spot-on you will need to monitor for at least ten to fifteen minutes. Although it's a bit tedious, you will probably only have to do this once or twice a year depending on the stability of your decoder's reference oscillator. Another important aspect of FAX reception is the initial synchronisation at the start of the transmission. If you think back to the image wrapped around the drum if the edge of the image at the receiver does not exactly line-up with the start of the transmitted image you may end up with a nice square image that prints right across the edge of the paper. In order to cater for this the starting edge of the receiving FAX has to somehow be aligned with the same point on the transmitter. The solution to this and the appropriate selection of drum speed and IOC is to be found in the automatic picture transmission systems used by all the major FAX stations. This system adds three extra elements to each transmission, a Start tone, synchronisation pulses and a stop tone.

The start tone not only tells the receiver that a transmission is about to begin, but the frequency of the start tone used to indicate the IOC of the image with 300Hz for 576 and 675Hz for 288. The synchronisation sequence consists of 30 seconds of pulses that flick from black to white. This is an extremely delicate balance between the image and occur at the proposed drum speed. In this way the decoder knows where the image starts and can work out the appropriate drum speed to use. To complete the process a 450Hz tone is used to indicate the end of the transmission. Although it's a bit tedious, you will probably only have to do this once or twice a year depending on the stability of your decoder's reference oscillator. Another important aspect of FAX reception is the initial synchronisation at the start of the transmission. If you think back to the image wrapped around the drum if the edge of the image at the receiver does not exactly line-up with the start of the transmitted image you may end up with a nice square image that prints right across the edge of the paper. In order to cater for this the starting edge of the receiving FAX has to somehow be aligned with the same point on the transmitter. The solution to this and the appropriate selection of drum speed and IOC is to be found in the automatic picture transmission systems used by all the major FAX stations. This system adds three extra elements to each transmission, a Start tone, synchronisation pulses and a stop tone.

The receiving end. This is an important point about the FAX system as it can easily be used to enlarge or reduce on the original size.

Rather than specify the sensor speed in mm/second its the relationship between the drum speed and the size of the received image that's used. I won't go into the exact relationship here, but the term used to describe it is Index Of Co-operation or, more commonly, IOC. Providing the drum speed and IOC are correctly set you should receive an image which is a very good facsimile, but not necessarily the same size, as the original. This is particularly important with computer based decoding systems as they use a completely different method to electronically simulate a FAX machine to enable FAX images to be either displayed on the screen or print-out via a standard printer.

So what happens if either the drum speed or IOC are not exactly aligned with the transmitter. Of the two the IOC is the less critical. If you try receiving a 576 weather FAX chart with the IOC set to 288 you will find that the chart is still readable but is very squashed. However, the drum speed is extremely critical. To illustrate the point, I'll run through an example. If you imagine we're receiving a 60rpm 576 IOC image that is due to be 200mm wide on the printer. Some simple maths shows that this is equivalent to the paper passing under the sensor at a rate of 200mm per second (60rpm x 600 x 200mm). So let's look at what would happen if the drum speed was running slow, just 59.9rpm. This would give a new paper speed of 199.666mm per second. Whilst this may seem pretty close, it would mean that on every turn of the drum the image would shift out of alignment by 0.334. Okay this is still small beer but what would happen over a typical FAX transmission time of 10 minutes?

Again, some simple maths shows that the image would shift by an amazing 200mm! In practice this would cause the image to be skewed to an angle of around 45°. So you can see that even very small errors in the drum speed can cause dramatic distortion of the received image. Returning the original question from Colin, you can see that he needs to adjust the drum speed to get his image properly aligned. Fortunately, this problem is well recognised by the suppliers of FAX decoding systems and they all either feature very accurate internal reference sources or include controls to adjust the drum speed in fine increments. In the case of JFAX you just have to press the "r" key whilst receiving until the image is properly aligned. If you want to get a little more scientific with the adjustment you could try setting your FAX decoder to align with the MSF Rugby frequency standard on 60kHz. All you have to do is start your decoder in the normal way but set the drum speed to 60rpm. Next start receiving and tune around 60kHz ± 1.5kHz. If you listen to the receiver at the same time you should hear the regular tick of the time signal. Now you just have to fine tune you receiver so the FAX decoder starts to produce a black or white stripe that aligns with the time signal. Just monitor this for a while until you can start to see a tiny white stripe showing parallel with the edge of the screen or paper if your using a print-out. If it drifts away from being exactly parallel then you need to adjust your decoder's drum speed to pull it back into line.

In order to get this absolutely spot-on you will need to monitor for at least ten to fifteen minutes. Although it's a bit tedious, you will probably only have to do this once or twice a year depending on the stability of your decoder's reference oscillator. Another important aspect of FAX reception is the initial synchronisation at the start of the transmission. If you think back to the image wrapped around the drum if the edge of the image at the receiver does not exactly line-up with the start of the transmitted image you may end up with a nice square image that prints right across the edge of the paper. In order to cater for this the starting edge of the receiving FAX has to somehow be aligned with the same point on the transmitter. The solution to this and the appropriate selection of drum speed and IOC is to be found in the automatic picture transmission systems used by all the major FAX stations. This system adds three extra elements to each transmission, a Start tone, synchronisation pulses and a stop tone.

For those of you that want a real-time tuning but don't currently have Windows '95 installed you will be interested to hear that I've found another program that may fit the bill. If you're in any way interested in electronic music you will probably have come across the program GoldWave. This is a top quality digital sound file editor which includes a host of wonderful features including lots of interesting special effects. But what appeals from a 'Decode' point of view is the inclusion of a neat signal monitor device that can be set to display an incoming signal as an oscilloscope display, bar chart, or more interestingly, a spectrogram.

The device is actually part of the recording system and the trick is to set it to monitor the incoming signal but not to actually start recording. The resultant display is very similar to that provided by the program Spectrogram except it lacks the calibration markers. Nevertheless it is extremely useful as a tuning aid and for basic analysis of data signals.

To give you an idea of its usefulness I've included a screen dump of the program - Fig. 2 - whilst tuned to a multi-channel telegraph transmission. Here you can clearly see the horizontal lines that represent the data for each of the channels. As well as using GoldWave for real-time analysis you can also make digital recordings of signals and then use GoldWave's zoom feature to take a more detailed look at the signal. You can also speed-up or slow-down the signal to help reveal more about how the signal was constructed. This latter function could be very useful for resolving high speed Morse.

The program is widely available on the Internet and through the many shareware vendors. By the time you read this there may well be a link on my Web site! If you find any other interesting analysis packages or have a novel use for any software please write and let me know.
Want to improve performance on the AM broadcast band both MW and SWP?

We now have available a small PCB that fits internally within the AR8000 and allows the narrower SSB filters to be selected when in AM mode. This can greatly assist with AM listening on crowded shortwave bands. Once the PCB is fitted the narrower filters can be selected by pressing the LOCAL button and deselected in the same way. For further details please give us a call.

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A full range of separate Antennas, Preampifiers, Cables, Receivers and accessories are held in stock.
Info in Orbit

This month's 'Info' is a little different from usual. Once a year or so, I believe it is a good idea to take a step back and view our hobby in perspective so that those unfamiliar with satellites in general and weather satellites in particular, can see what we are doing - if not why we are doing it! It has been prompted by many letters, particularly one from Beryl Byrne of Redditch. She recently bought her husband a computer and a copy of SWM. The July issue of 'Info' prompted her to investigate WXSAT's, and her letter asked for basic information. I have received several other letters wanting to know how to start.

Correspondence and Images

Many people have entered the 'soundcard' decoding (of WXSAT images) route following previous references in 'Info'. Briefly, this innovative method of decoding uses a soundcard fixed in a reasonably well specified computer. Software written independently by Christian Bock and Steven Bonnett does the signal processing. Brian Powell of Hereford uses the soundcard program to produce a detailed image from NOAA-14 captured on 19 July - see Fig. 3. He uses the Timestep PROscan receiver with WXSAT (English version 2.3). Brian built his own computer, which is currently a Pentium 133 with plenty of RAM and an Audio-Excell 16-bit soundcard, as well as the Timestep DOS card (PROsat II). Brian also heard OKEAN-4 (on 137.40MHz) passes during recent months has been variable. Several of "an exceptional METEOR pass from central Africa to Novaya Zemlya". My own experiences of METEOR passes during recent months has been variable. Several have been rather poor with much interference, but I have also had a few of very good quality.

Internet Site Update

Following many E-mail enquiries concerning the a.p.t./WEFAX sound-card decoding software issued by Christian Bock and Steve Bonnett, Internet users will now find both these programs available directly from my own web site. Other programs referred to in 'Info' will be linked as well. The URL is http://www.ndirect.co.uk/~lawrenceh/index.htm

More Non-WXSAT Frequencies

Argentina's MICROBAT-1 transmits telemetry on 137.95 MHz n.b.f.m. There are short bursts of c.w. every 90 seconds. The signal is strong and easy to receive. ORBCOMM-FM1 uses 137.71 MHz f.m. ORBCOMM-FM2 uses 137.68 M Hz f.m.

The Orbital Communications Corporation is developing and operating the world's first satellite-based, two-way data communications system - ORBCOMM. The system makes use of small, low earth orbiting satellites. My thanks to John Corby (Canada) for this information.

Kepler elements - MIR and Shuttle

1. For a print-out of the latest WXSAT elements, MIR, and the Shuttle (when available), send a stamped addressed envelope and secured 20p coin or separate, extra stamp. Transmission frequencies are given for operating satellites. This data originates from NASA. During Shuttle operations I send Kepler elements by return-of-post. 2. I also send monthly Kepler print-outs to many people. To join the list please send a 'subscription' of 2p (secured, plus four self-addressed, stamped envelopes) for four editions.

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3 You can have the data as a computer disk file containing recent elements for the WXSATs, and a large file holding elements for thousands of satellites. A print-out is included, identifying NASA catalogue numbers (for the WXSATs, Amateur Radio satellites, and others of general interest), ideal for automatic updating of your tracking software. Please enclose 50p with your PC-formatted disk and s.a.e.

Satellites - The Background

Many people have a scanner (the general purpose type) receiver capable of tuning to different frequencies - often in the 30 to 1300MHz band - in an amateur manner), and at least one antenna. Some may even be thinking about investigating satellite monitoring and want to know how much it can cost to get started. Some background information on satellites and frequencies should help to clarify the situation.

Several nations have put satellites into orbit, and these are generally classified into categories such as defence, navigation, amateur, national and personal communications, weather (referred to as WXSATs), earth observation, television direct broadcast, and scientific research. If any nation or organisation selected a transmission frequency without regard to other users, the result could be chaos, with services suffering severe interference whenever a local frequency conflict arose. Consequently, a world body - the International Telecommunications Union - was established to control and approve frequency usage for specific applications. The ITU also addresses issues of interference whenever a local frequency conflict arose. Consequently, a world body - the International Telecommunications Union - was established to control and approve frequency usage for specific applications. Continued development of new electronic systems means that there is rarely a period of time when any frequency band can be considered 'safe' or 'permanent' for its current users.

WXSATs on HF?

You do not have to buy any satellite receiving equipment at all in order to get WXSAT pictures. An H.F. receiver operating in the 30MHz to 300MHz band, fed by a good random length antenna or other suitable antenna and a.s.u. (antenna tuning unit) can receive terrestrial broadcasting stations, and there are several with which you can monitor a variety of weather satellite pictures. I have a Lowe HF-225 receiver which can keep me occupied - for hours at a time! Info. is about reception from the satellites themselves.

Monitor or Decode?

Before committing yourself to serious expenditure, you have to decide whether you want to 'use' (decode) the signal or simply 'listen' (monitor). If your interest is in monitoring satellites rather than taking the data and analysing it, then you are saving the not inconsiderable cost of signal analysis - decoding - as it is termed. With a scanner and one or more antenna(s) you can tune into a large number of satellites, and not worry about whether you are going to lose any d.b. of signal from the earth station.

If you read through this feature (and the second part next month) and choose to simply monitor the satellites (which many people do) then you may be interested to know the frequencies used. I occasionally include lists of these satellites operating near the 137MHz band, most of which I have personally monitored, and one or two I have not heard but which others have reliably reported. More frequencies are given in this column - see non-WXSAT frequencies.

WXSAT Bands

There are two types of WXSAT - the polar orbiting spacecrafts and the geostationary installations. The former include the American NOAAs, the Russian (or Commonwealth of Independent States - CIS) METEORS, and the CIS oceanographic imaging satellites. The geostationary WXSATs include METEOSTAT (European), GOES (American), GOMS (CIS), FENGYUN (Chinese), and QMS (Japanese). The Indian government's communications satellite INSAT also provides some weather imagery.

There are essentially two bands used by WXSATs and both are under threat! The frequencies between 137.00 and 137.95MHz are used by polar orbiting WXSATs for the broadcasting of 'automatic picture telemetry' (frequencies listed at the end of this column). The oceanographic satellites SICH-1 and OKEAN-4 (also known as -1/2) transmit a.p.t. infrequently, you might occasionally be lucky enough to hear a transmission. The NOAA WXSATs also transmit a higher resolution image (h.r.p.t.) on 1698.00 or 1700.0MHz, from which the lower resolution a.p.t. is derived. Systems to receive and decode these (h.r.p.t.) images are far more costly because the components - such as the receiver - are more expensive, and the receive antenna must be tracked to follow the satellite. Geostationary WXSATs use 1601.009GHz for transmitting WEFAX images. METEOSTAT-6 also transmits WEFAX on 6945MHz, as well as Primary Data. Because of their economical cost and the continuous stream of images which they provide, WEFAX decoding is popular and is sometimes combined with an a.p.t. system - see next month; for most purposes the cost is not too prohibitive.

Entry Level Summary

Suitable systems for decoding a.p.t. and/or WEFAX require a computer, an antenna for each band, receiver(s), decoding hardware and software. PDUS and/or a.p.t. equipment is relatively expensive to decode. A tracking antenna is required for h.r.p.t. together with a receiver and software; PDUS requires a large dish, special receiver and additional software. For beginners, a sensible approach is to set up either a WEFAX or a.p.t. system (or a combination if you have the funds) to gain experience. A move to h.r.p.t. or PDUS could follow later after invaluable experience has been gained with the basic system.

Antennas - Monitoring with a Discone

For monitoring purposes, the discone can suffice. This type of antenna can receive signals covering a wide band of frequencies - the entire v.h.f. and u.h.f. bands - between 25 and approximately 1300MHz. I have heard most of the amateur radio satellites, all of the polar orbiting WXSATs, the 150MHz band Russian navigation satellites, and a large number of other satellites transmitting in the 136 to 150MHz part of the radio spectrum - all while using a discone and wide-band pre-amplifier. Prices and quality vary; a discone carrying more elements and made of solid rod rather than thin alloy is more likely to stand up to inclement weather. A glance at METEOSTAT-6 (geostationary) uses 1691 and 1694.5MHz for WEFAX. GOES-8 (western horizon) uses 1691MHz for WEFAX.

Using such an antenna, you should hear the WXSATs in the 137MHz band. The resulting signal, however, will vary significantly and in a manner that may not be obvious unless you are already experienced in receiving WXSAT pictures direct from the satellites.

137MHz Band Antennas

A whip antenna, often used with a portable scanner, is an example of a narrow band antenna - one which receives signals within a relatively narrow frequency range, or multiples/sub-multiples of that range. This type of antenna is usually 'cut' (designed) for the frequency band of interest, so for the WXSATs, one could cut the length for 137MHz. In practice, the antenna should still receive signals between about 80 to 700MHz. Being tuned, such an antenna has a higher gain than that of a dipole. A dipole (centre fed) antenna is usually cut such that each of the two rods has a length of about one-quarter of the required wavelength. For the 137MHz band, the total length across both rods should be about 11.5m, to account for the changed velocity of the signal within the material of the dipole. Dipole antennas are easy to make and cheap to buy.

WXSAT 137MHz Antennas

The type commonly used for 137MHz WXSAT reception is a variation called a 'crossed-dipole' and consists of a pair of dipoles stacked together at 90°, and carefully connected (phased) so that optimum reception is for right-hand circular polarised signals - the type transmitted by polar orbiting WXSATs. Another increasingly popular antenna is the quad - quadrifilar helix. I plan to feature this antenna in a future issue.

METEOSAT Antennas

WEFAX signals on 1691.0/1694.5MHz can be received from METEOSTAT-6 containing the four-minute image slots. Two types of antenna - a dish or loop Yagi - are used for collecting these transmissions. The dish should be about 1m diameter with a 'coffee tin' type of feed. Alternatively a Yagi fitted with around 47 elements should also provide a good signal. Yagis are very convenient to use. A suitable mount can be made and Yagis offer little wind resistance.

Dishes must be mounted and, as with any Yagi, must be aligned on METEOSTAT-6, currently at 9° longitude. The signal available from either antenna is insufficient to provide noise-free data so a low-noise pre-amp must be attached directly to the antenna feed. These antennas are not good enough for PDUS reception - but that is another story.

WXSAT Equipment Suppliers

I shall be including system prices in the next edition, by which time the variations in system options will have been covered. A glance through the magazines shows that the main UK suppliers of WXSAT products are: Timestop: Tel: (01440) 820040, Martelec: Tel: (01420) 82752, TH2 Imaging: Tel: (0843) 223831, Remote Imaging Group: members receive a quarterly magazine which regularly includes some special offers on equipment purchase; for membership enquiries write to RIG-SUB, PO Box 142, Rickmansworth, Hertfordshire WD3 4RQ.

The commercial suppliers may have a current price list; this can vary from time to time depending on the availability of special offers.

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SEE US AT THE LEICESTER SHOW STAND E03
When referring to the data herein, which is based upon reports of actual reception, do bear in mind that some international broadcasters may alter their short wave transmission schedules on October 25 to allow for seasonal changes in propagation.

Such changes often result in listeners being temporarily unable to locate their favourite broadcasters. Details of any changes which you notice while searching the bands will be welcome here for 'LMS'.

Long Wave Reports

Note: I.w. & m.w. frequencies in kHz; s.w. in MHz; Time in UTC (=GMT).

**Short Wave Reports**

He was still hearing it with an unaided car radio station at Akraberg on 531 could be received also heard after dark - see chart. Whilst stations in the Middle East and N.Africa were reported by John Slater in Scalloway, Shetland. WNRB Boston, MA on 1510 were heard on 015IUTC. CJYQ St.John's, NF on 930 and (Thornton Heath) as SINPO 34112 at 0355 by John Slater in Scalloway, Shetland. As expected, there were few reports of m.w. transmission rated SIO 333. The signal from Clarkstown, Ireland, was SIO 333.

In contrast, there were no reports of the sky waves from the Radiotelevisione Italiana (RAI) 10kW outlet at Caltanisseta, Italy on 189kHz reaching the UK during the evenings or after dark. All other entries were logged during daylight or at dawn/dusk.

**Long Wave Reports**

In past years Alan Roberts (Quebec, Canada) has noticed that long wave propagation is enhanced during the mid-summer nights and this year was no exception! At 0310UTC on July 25 he picked up Saarlouis, Germany, on 183kHz with a French report on the latest sheep cloning experiment in Scotland. The 2MW transmission rated SIO 333. He then tuned up the band and at 0320 heard a song 'Don't look back in anger' on 252kHz. It was followed by the station DJ with the ident 'Long Wave Radio, Atlantic 252'. The signal from Clarkstown, Ireland, was SIO 333.

### Medium Wave Reports

As expected, there were few reports of m.w. transatlantic reception at night during July.

WTOP in Washington, DC on 1500kHz was logged on the 2nd by Tony Stickells (Thornton Heath) as SINPO 34112 at 0151UTC. CQJY St John's, NF on 930 and WNRB Boston, MA on 1510 were heard on the 18th at 0240 and again on the 22nd at 0355 by John Slater in Scalloway, Shetland. Typical ratings were SIO222.

The sky waves from the All India Radio (AIR) 1MW outlet at Nagpur on 1566 were picked up at 2345 on July 3 by Tony Stickells. They were peaking 33233. Some of the m.w. stations in the Middle East and N.Africa were also heard after dark - see chart. Whilst touring parts of Scotland from Strathclyde Brian Keyte (Bookham) noticed that the Farois station at Akraberg on 531 could be received over most of North & West Scotland by day - he was still hearing it with an unaided car radio South of Carlisle.

**Short Wave Reports**

The 25MHz (11m) band is likely to remain unused for broadcasting until the propagation conditions improve.

The conditions in the 21MHz (13m) band varied daily but the broadcasts from several countries often reached the UK. Those from IRA Rome 21.520 (to Africa 0600-1300) were rated 4434 at 0815 by Bernard Curtis in Scalloway, Shetland. DW via Julich? 21.680 (Eng to SE Asia 0900-0950) 44444 at 0930 by Thomas Williams in Truro; BSJSAI Saudi Arabia 21.956 (to Quraysh) to S.E.A 0900-1200) 24332 at 0956 by Rhoderick Illman in Oxted, R.Portugal int via Sines? 21.720 (Port to Africa? 0900-1100) 34333 at 1015 by Ernie Wiles in Bedford; UAER, Dubai 21.605 (Eng to Eur 1030-1055) 44333 at 1030 by Norval Ward in Dunedin; RFI via Issoudun 21.620 (Fr to Africa 0800-1500) 45444 at 1132 by Eddie McKeown in Newry, R.Portugal int via Sines 21.655 (Port to Brazil 0700-2000 Sun/Sat) 22222 at 1220 by Robert Connolly in Killkeel; UAER, Dubai 21.605 (Eng to Eur 1030-1335) 494 at 1331 by Tony Hall in Freshwater Bay, IoW; BBC via Ascension Is 21.660 (Eng to WS/iae Africa 1100-1700) 35334 at 1440 by Simon Hockenhull in E.Bristol; RFI via Issoudun? 21.580 (Fr to Africa 0900-1600) 55544 at 1500 by Tim Allison in Middlesbrough; BBC via Cyprus 21.470 (Eng to Africa 1400-1700) 34433 at 1545 by John Eaton in Woking; WYFR via Okeechobee, USA 21.745 (Eng to Africa, 1600-) 23322 at 1635 by Darren Beasley in Bridgewater; WYFR via Okeechobee! 21.725 (Fr to Africa 1-2045) SIO433 at 2000 in Quebec; WYFR via Okeechobee? 21.525 (Eng to Africa, 1600-2200) 34433 at 2055 by Fred Pallant in Storrington.

Propagation in the 17MHz (16m) band has also varied daily but broadcasts from several continents could usually be received here. During the morning the BBC via Mayhe, Seychelles 17.885 (Eng to Africa 0500-1400) was rated 34333 at 0650 by Stan Evans in Herstmonceux; R.Cairo via Abisport 17.970 (Eng to Africa 0600-0800) 24332 at 0700 by David Edwardson in Wallsend; R.Slovakia int 17.570 (Eng to Australia 0830-0857) 44333 at 0845 in Scalloway, SRI via Schwarzenburg! 17.515 (Fr, Eng, Fr, Ger, Port to Australia 0830-1000) 45333 at 0907 in Newry; DW via Rwanda? 17.800 (Eng to Asia, Australia 0900-0950) 24332 at 0928 in Oxted; REE via Noblesia? 17.890 (Sp to ? 0900-) 43333 at 0909 in St Albans; R.Pakistan, Islamabad 17.865 (Eng to Eur 1100-1200) SIO333 at 1100 by Tom Smyth in Co.Fermanagh; Israel R, Jerusalem 17.545 (Heb [Home Service] 1400-1700) 44444 at 1200 in Bedford; Voice of Russia 17.610 (Eng to WS) 33323 at 1200 by Clare Pinder in Appleby.

Later, R Cairo via Abis 17.595 (Eng to S.Africa 1215-1330) was 24432 at 1245 in Kilkeel; BBC via Ascension Is 17.830 (Eng to W/C.Africa 0730-2100) 33322 at 1400 by Gerald Guest in Dudley; VOYA via Tangier, Morocco 17.895 (Eng to Africa 1600-1900) 44444 at 1625 in Freshwater Bay; REE via Noblesia? 17.795 (Sp to Africa, S.Africa 0900-1900) 44534 at 1740 by Vic Prier in Colyton; WYFR via Okeechobee, USA 17.555 (Eng to Eur 1600-2145) 44333 at 1915 by Sheila Hughes in Morden; R.Netherlands via Bonaire, N.Antilles 17.605 (Eng to S/EW Africa 1300-2035) 44444 at 1943 in Woking; RFI via Fr Guiana? 17.630 (Fr to S.America?) 1600-2200) 45444 at 2034 in Storrington; RCI via Sackville, Canada 17.820 (Fr, Eng to Africa, 1900-2200) 35333 at 2120 in E.Bristol; VOPC Taiwan via WYFR 17.750 (Eng to Eur 2200-2300) 25322 at 2204 in Bridgewater.

The conditions in the 15MHz (19m) band have been more reliable and good reception from some areas was noted. In the morning the BBC via Kranji, Singapore 15.360 (Eng to Asia 0500-1030) was 25322 at 0630 in Wailess/ijs; Japan via Ray Bay, Gabon 15.230 (Eng 0700-0800) 33323 at 0700 in Appleby; Voice of Russia 15.470 (Eng [WS]) SIO444 at 0808 by Francis Hearne in N.Bristol; Voice of Armenia, Yerevan 15.270 (Fr, Eng to Eur 0800-0900 Sun) 43443 at 0835 in Herstmonceux; Monitor: R.India via KHBI Avingan Pt, N.Mariana Is 15.665 (Eng to E.Ur? 0800-0900) 33333 at 0900 in St Albans; Voice of Russia, Moscow 15.510 (Eng [WS]] 34433 at 1126 in Freshwater Bay.

During the afternoon the BBC via Marisah Is, Oman 15.310 (Eng to S.Africa 0300-0915, 1000-1400) was 34333 at 1224 in Woking; Tashkent, Uzbekistan 15.295 (Eng to Asia 1330-1400) 44433 at 1330 in Morden; RCI via Sines, Portugal 15.325 (Eng, Fr to Eur, M.East, Africa 1330-1500) 44444 at 1330 in Truro; Voice of Vietnam, Hanoi 15.010 (Eng to Asia
LONG MEDIUM & SHORT

LOCAL RADIO CHART

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

- **Listener:** (A) Alan Almond, Middleton<br> (B) Barry Atnich, Alloa<br> (C) Simon Alper, Ealing<br> (D) Will Alper, Harrow<br> (G) George Alper, London<br> (H) Robert Alper, Hanwell<br> (I) Chris Alper, Enfield<br> (L) Alan Alper, Lewisham<br> (N) Norman Alper, Northolt<br> (T) Tom Alper, Tower Hamlets

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**MEDIUM WAVE CHART**

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- **Listener:** (A) Alan Almond, Middleton<br> (B) Barry Atnich, Alloa<br> (C) Simon Alper, Ealing<br> (D) Will Alper, Harrow<br> (G) George Alper, London<br> (H) Robert Alper, Hanwell<br> (I) Chris Alper, Enfield<br> (L) Alan Alper, Lewisham<br> (N) Norman Alper, Northolt<br> (T) Tom Alper, Tower Hamlets

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**LONG MEDIUM & SHORT**

**Lister:**
- (A) Alan Almond, Middleton
- (B) Barry Atnich, Alloa
- (C) Simon Alper, Ealing
- (D) Will Alper, Harrow
- (G) George Alper, London
- (H) Robert Alper, Hanwell
- (I) Chris Alper, Enfield
- (L) Alan Alper, Lewisham
- (N) Norman Alper, Northolt
- (T) Tom Alper, Tower Hamlets
in Freshwater Bay; R. Finland via Port 9.855 (Eng 2000-2030) 54444 at 2021 in Middlesbrough; Voice of Vietnam, Hanoi 9.840 (Eng to 2030-2100) 23432 at 2030 in Galashiels; R. Thailand via Udorn Thani 9.680 (Eng to 2030-2045) 44344 at 2040 in Nevvy, Voice of Indonesia, Jakarta 9.525 (Eng to 2030-2100) 33333 at 2044 in Moscow; Sr. France 9.195 (Eng 2045-2200) 20100 in Middlesbrough; Middle East 9.780 at 0738 in Colyton; R. Budapest, Hungary 7.155 (Eng to 1900-1930) 43344 at 1900 in Dudley; R. Thailand via Udorn Thani 7.210 (Eng to 1900-1958) 54444 at 1900 in Appleby; Voice of Nigeria, Ikorodu 7.200 (Eng to 1900-2100) 22432 at 1900 in Galashiels; Israel 7.465 (Eng to USA 1900-1925) 33333 at 1910 in Truro; Polish R, Warsaw 7.285 (Eng to 1930-1955) 33333 at 1934 in Middlesbrough; VOIR Tepe Int 6.055 (Eng 1830-1850) 33333 at 1831 in Middlesbrough; Lestonia, Tallinn 5.925 (Eng 1900-1930, Mon/Thurs only) 30222 at 1900 in Co.Fernagharn; REE via Noblejas 6.125 (Eng 2000-2100) 43344 at 2000 in Appleby; China R Int 6.950 (Eng 2000-2157) 34444 at 2000 in Dudley; R. France via Lithysol 5.930 (Eng 2000-2027) 44444 at 2005 in Freshwater Bay; RCI via Skelton, UK 5.995 (Fr, Eng 1900-2200, also to M.East, N.Africa) 33333 at 2036 in Plymouth; R. Ukraine Int 6.010 (Eng 2000-2200) 45444 at 2100 in Bridgewater; R. Korea via Kimilsung Int 6.060 (Eng 2000-2200) 21311 at 2100 in Galashiels; R. Noblejas via Noblejas 6.125 (Eng 2200-2300), noted as 'good' at 2210 in Oadby.

Noted during the early morning in the 7MHz (41m) band were Vatican R, Italy 2.725 (Eng to Africa 0500-0530), noted as 'good' at 0505 in Kilkeel; HCJB Quito, Ecuador 7.475 (Eng to N.America 0300-0500) 54444 at 0229 in Woking; R. Austria Int via Moosbrunn 9.655 (Eng to England 0230-0300) 30444 at 0237 in N.Bristol.

TROPICAL BANDS CHART

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| 4.835 | ZBC R-4 | 2315 | 20100 | TROPICBand
| 4.820 | La Voz Evangelica | 2315 | 20100 | TROPICBand
| 4.800 | LNBS Maseru | 2315 | 20100 | TROPICBand
| 4.800 | AIR Hyderabad | 2315 | 20100 | TROPICBand
| 4.835 | RTM Bamako | 2315 | 20100 | TROPICBand
| 4.815 | R.Difusora, Londrina | 2315 | 20100 | TROPICBand
| 4.790 | Azad Kashmir R. | 2315 | 20100 | TROPICBand
| 4.777 | R.Gabon, Libreville | 2315 | 20100 | TROPICBand
| 4.770 | FRCN Kaduna Nigeria | 2315 | 20100 | TROPICBand
| 4.775 | FRCN Lagos | 2315 | 20100 | TROPICBand
| 3.995 | NBC Blantyre | 1000 | 25500 | TROPICBand
| 3.985 | China R via SRI | 1000 | 25500 | TROPICBand
| 3.975 | R.Budapest | 1000 | 25500 | TROPICBand
| 3.955 | Nexus, Milan | 1000 | 25500 | TROPICBand
| 3.380 | NBC Blantyre | 1000 | 25500 | TROPICBand
| 3.345 | AIR Jaipur | 1000 | 25500 | TROPICBand
| 3.330 | Christian Voice | 1000 | 25500 | TROPICBand
| 3.325 | FRCN Lagos | 1000 | 25500 | TROPICBand
| 3.290 | Namibian BC, Windhoek | 1000 | 25500 | TROPICBand
| 2.380 | ASBC Caribbean Beacon | 1000 | 25500 | TROPICBand

*DXer*
Off the Record

The East Anglia Productions recreation of Radio London started on schedule on 18 August from off the Essex coast near Frinton. Last minute difficulties over the use of the intended lightship, mentioned last quarter, led to another vessel, the Yeoman Rose, being used.

I do recall a similar station run by the Caroline Movement who attempted to recreate offshore radio five years ago with only very limited success. I listened very attentively to the new Big L on 1134kHz, wondering if it would live up to my expectations and that of its advance publicity.

Without any hesitation, I can report that it certainly worked for me, all the memories brought back were quite startling, the disconcerting thing I suppose was that it all happened a whopping 30 years ago! The secret of this success is clearly the ability of the organisers to get so many of the original Radio London voices back on the air.

I suppose a contributing factor is that Radio London was closed down under the Marine Offences Act in August 1967, rather than simply being legalised. Now 30 years later, this Big L reincarnation still possesses its own charm, style, and atmosphere that seem to elude most of the newer sound-alike f.m. pop music stations.

355 Tribute

The offshore station Radio 355 closed down on 5 August 1967, owing to the impending legislation that was to take effect on 15 August. The success of the station, its presenters and crew was undoubtedly great to those who had known it, and even more so to those like me who were among its audience.

Paul Graham presented the Radio 355 Tribute programme aboard the Radio London vessel Yeoman Rose and demonstrated, amongst other things, his remarkable knowledge of offshore radio and the people involved in it. From 6pm to 9pm on the 30th anniversary of 355's closure, most of the original presenters were back, working together aboard a radio ship.

I somehow found myself typing the script for veteran newscaster John Ross-Barnard, while Dave Gilbee (Dave McKaye) now works for Melody Radio in London. Tony Monson is in the music/record business and John Aston does special effects for the film industry. It was a programme of mixed emotions, the pleasure of meeting former colleagues after 30 years, and a considerable amount of nostalgia with all of us in the same boat again.

For me it seemed most strange introducing myself as Martin Kayne, a name I assumed for my pirate radio activities during the 60s, in order to hopefully conceal my true identity from the authorities. The slight tinge of sadness was the absence of our programme director Tony Windsor who passed away some years ago.

Tony's taped close down message was indeed very moving, even when played so many years after the event. The tribute ended with a recording of 355's Managing Director, Ted Allibury, who's words were clearly as relevant today as they were back in 1967.

I must thank Ray Anderson and Paul Graham of East Anglia Productions for making the whole thing possible. Also special thanks to Chris Elliot, Peter MacFarlane and all DJs and crew aboard the MV Yeoman Rose and the supply boat Lady Gwen for their help and hospitality.

Souvenirs of this event, and the original Big L, are available from Radio London Merchandising, 21-23 Walton Road, Frinton, Essex CO13 0AA.

Radio Argus

London based m.w. station is just about to celebrate its 12th birthday, they claim to be the third oldest pirate in the capital. Bob Marsh of Bexleyheath in Kent has reported hearing this station at substantial signal strengths. It is likely that their 819kHz frequency will be dropped in favour of a rock service on 1494kHz and a heavy metal output on 7836kHz. However, these are only proposals at this stage.

The relay facility offered to Radio Free London on 1134kHz was only used for one broadcast. RFL withdrew suggesting a lack of audience response, they are now back on short wave. Radio Argus regard short wave as a supplementary service only but are attempting to raise funds to establish h.f. facilities for use in the future.

Pirate Frequencies

I get many letters asking for station broadcast times and frequencies. I did at one time keep a database of them, however the job of constantly updating this information proved too time consuming. Les Borthwick of Harwich, Scotland, is seeking a QSL address for Reflections Europe and Mike Newell is after a comprehensive list of pirate broadcasts.

If you are equipped to use the Internet, there are a few web sites you can visit. SRS News provide a daily log of short wave pirates heard in Europe together with lots of background information, they are at http://www.pp.hogia.net/imonly/index.html

Another source of pirate frequencies is the British DX Club magazine. Their free radio correspondent Alan Pennington edits Alternative Airwaves, which is updated each month and is packed with frequencies and info.

The mailing address of BDX is 10 Hemdean Hill, Caversham, Reading RG4 7SB. Membership is £10 per year for UK residents and £14 elsewhere in Europe. I have to confess to being a member myself!

Mike Raven

Both Offshore Echo's and Horizon Magazines have sadly reported the death of disc jockey Mike Raven, back in April. He was originally with Radio Atlanta, but was best known for his activities on Red Sands towers in the Thames estuary.

He was one of the key people behind Radio Invicta, King Radio and eventually Radio 390, all of which had their offices here in Folkestone. After the pirates, Mike joined the BBC, but left for a career in, believe it or not, horror films! Lust For A Vampire and Discipline Of Death were just some of the titles in which he was featured.

Later he took over a sheep farm in Cornwall. One of his radio catch-phrases was "Mike Raven the oldest living teenager in captivity" and that's how I am sure he will be remembered. He was 72.

Getting Started

Jimmy Conroy of Longbenton, Tyne & Wear, says he was a teenager when the pirates of the 60s came along, prior to which he recalls listening to Radio Luxembourg in the evenings. He says the pirates brought a breath of fresh air into radio broadcasting.

He started in hobby radio by constructing crystal sets and plugged them into his taped valve recorder to amplify the signal. Another of Jimmy's memories was the opening of BBC Radio 1, on 247m, in September 1967, he still remembers the opening music. Actually, Theme One by George Martin is still available on the CD Sound Gallery volume 2, among a whole collection of theme tunes.

Andy Cadier

28 Romney Avenue
Folkestone
Kent CT20 3QI

SWM October 1997

85
Trading Post

For Sale

2m hand-held, Rexon RL-102, 138-175MHz, I.c.d. read-out, 20 memories, dual watch, SW out, dual scan, power save, NiCad pack, plus speaker mic., absolutely mint, boxed, manual, genuine bargain, just £65 o.n.o. Peter G0DHR, 23 Station Rd, (01203) 732553 evenings or (01803) 367508 day.


Drake SW8, f.h.v. with airband, £400. YAESU FRG-8800 with v.f.h., £795. Realistic PRO-2036 base, £150. Sony SW55 boxed, £150. No offers. Tel: Swindon (01793) 882567 after 6pm, keep trying.

Fairmate HP-2000 scanner, excellent condition, also UK Scanning Directory. Air Band Handbook and Confidential Frequency Handbook (Short wave), the lot for £140 o.n.o. Ian, Huddersfield. Tel: (01484) 46242.

FRG-7700 f.h.v. receiver, v.g.c., memory unit, manual, a.m., s.b., u.b.s., c.w., £190. Ex-military receiver, 1-20MHz a.m., s.b., (4fo), converted to 240V mains, boxed + more, £390. Yupiteru MTV-225, mint, year old, used very little, manuals, boxed + more, £190 or swap SW55, SW77. Tel: Runcorn (01269) 961246.

Kenwood TS-590S transceiver, £750. YAESU FP-800 p.s.u., £120. Timewave DSP 595ZX, £250. ERA Micoreader, £100. Sandpiper V9 vertical, £35. Longwire antenna with Wellbrock balun and feeder isolator, £40. Garry, Maidstone. Tel: (01684) 691309.

Lowe HF-150 + keypad, p.s.u., Lowe PR-150, both used as second set, very low running time, £420. AR730B mint condition, £50. Yupiteru MTV-9000 multi-band receiver. £220. Tel: (01924) 267591 after 1800.

NRD-355 f.h.v. receiver, mint condition, original packaging and manual, control software and lead, £750. Tel: Malvern (01684) 756899.

Pocom AFR1000 automatic RTTY decoder, £50. Sony AT-1 active antenna, £25. Bremi 13.5V d.c. 3A stabilised power supply, £15. £65 valves, £1 each or £50 the lot. Tel: Kent (0181) 855 3652.

Realistic DX-200 5-band communications receiver with manual, in good working order, £100. Mick, Birmingham. Tel: 0121-326 7653.

Realistic PRO-60 hand receiver, new, 30 to 512MHz, 760-999MHz, complete with original NiCad battery pack and charger, bargain at £135. Tel: (01785) 212520.

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