RadCom

THE RADIO SOCIETY OF GREAT BRITAIN MEMBERS' MAGAZINE. WWW.RSGB.ORG

DECEMBER 2010
VOLUME 86
NUMBER 12

£4.25

1210

VHF NFD
Windmill Contest Group operating G0FBB/P

Kenwood TS-590S
Peter Hart, G3SJX gives his first impressions of the new radio

Design Notes
Stepper motor + old mouse = smooth SDR tuning knob

Dawn to Dusk
Nine islands in under 17 hours operating GB4DTD

WATERS & STANTON

SCOTTISH STORE • W&S @ JAYCEE, 20 WOODSIDE WAY, GLENROTHES, FIFE, KY7 5DF - CLOSED MONDAYS
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ICOM

IC-9100 NEW
VHF/UHF Satellite + HF + D-Star

100W on HF, 2m 75W on 70cms & 10W on 1296MHz.

Due In Very Soon! £TBA

IC-T70E NEW
2m/70cm Handheld

The IC-T70E VHF/UHF dualband handheld transceiver is the successor to Icom's best selling IC-T7H. It has many impressive features including 700mW loud audio, long-lasting power, rugged construction, plenty of memory channels, all at a competitive price. In short, the IC-T70E offers practical dual band operation & ruggedness, updated for today's radio enthusiast.

£159.95 D

NEW IC-E80D

* *2m/70cm Handheld*
* *D-Star +D-Star Repeat Mode*
* *Extensive GPS Compatability*
* *CTCSS & DTCS + Airband Receive*
* *1000+ Memories*
* *FREE software on Icom site*

In Stock Now

£314.95 D

ID-E880 NEW

* *2m/70cm 50W Mobile*
* *D-Star +D-Star Repeat Mode*
* *Extensive GPS Compatability*
* *CTCSS & DTCS + Airband Receive*
* *1000+ Memories*
* *Detachable Head*

£429.95 D

IC-E90

Triple band 6m, 2m, 70cms.

£234.95 D

IC-E92D

A great dual band handheld woth D-Star fitted. Wide receive.

£369.95 D

IC-E2820

Great dualband mobile.

£424.95 D

Fitted with UT-123 D-Star module. **£579.95**

HF Transceivers

IC-7600 FREE USB keyboard!

This HF-6m transceiver is the successor to the IC-756 series. It takes features from the flagship IC-7800 and the more recent IC-7700, putting them into a package that brings the price within reach of many more hams.

£3379 D

IC-7800	Deluxe HF / 50MHz All-Mode 200W Transceiver	£7999 D
IC-7700	1.8-54MHz 200W with built-in PSK-31 + keyboard	£5499 D
IC-7200	HF & 6m DSP 0.005-3335MHz wideband receive with USB port	£799 D
IC-7000	160m-70cm 100W (hf) Mobile, portable or base station	£1089 D
IC-718	160m-10m 100W transceiver that brings HF to those on a budget	£519 D

Other Radios

IC-910H	£1249 D	IC-R20	£389.95 C
IC-910HX	£1449 D	IC-R1500	£449.95 C
IC-2200H	£199 D	IC-R2500	£569.95 C
IC-R3	£389.95 C	IC-R8500	£1379.95 D
IC-R6	£174.95 C	IC-R9500	£9999.95 D

West Mountain

Rigblaster PLUS

The standard for an automatic switching interface. Your mic always works, no manual switching, no unplugging. USB operation.

£159.95 C

Rigblaster Pro

Complete system designed to perfectly integrate PC & radio. Whatever the mode, this will provide the answer. Inc a complete set of leads.

£279.95 C

HF Alex-Loop NEW

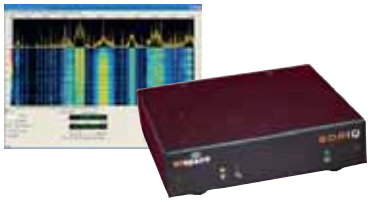
This amazing 7-band collapsible loop covers 7 - 30MHz continuously and folds down into a small package that fits in a brief case. It also features a rotary control for easy thumb tuning.

* *40/30/20/17/15/12/10m * Manual Tune In Seconds * 1m Diameter Loop * Packs In Case 40 x 27cm * 20W QRP Design * Includes Loop Mast * Easy Handheld*

£299.95 D

RFspace SDR-IQ

Advanced Receiver
Tunes down to 100Hz!



If you have been pondering about buying into SDR receiving, this design may be just what you have been looking for. Its ultra LF reception gives you the opportunity to explore a wide spectrum and the panoramic display gives great visual indication of activity. Just plug into PC USB port - it is self-powered for easy setting up.

We are now employing RF Space SDR receivers for a military contract which is at present undergoing trials - testimony to RF Space design and performance.

£469.95 D

HEIL SOUND Pro-Set-Elite-6 NEW

The ProSet-Elite 6 uses the new HC6 element that is ideal for the latest transceivers with DSP tx audio EQ.

Designed in the style of previous ProSets, you get dual headphones & adjustable boom mic. You need to add the appropriate AD-1 adaptor lead. Tell us your radio and we will supply correct one. **£179.95 C**

ProSet-Elite-IC Same functions but element matched for Icom. **£189.95 C**

ProSet continues for those who don't have EQ in their radios and is offered at a great price.

ProSet-4 or 5 **£114.95 C**
This is fitted with HC-4(DX) or HC-5 (Normal) insert. Needs AD-1

ProSet-Plus **£189.95 C**
This has dual inserts switchable

KENWOOD TS-590S JUST ARRIVED!

The New HF Radio

NEW

Get A Great Price From Us Or A Super Part Exchange Deal!

PLUS 2 Year Warranty!

160m - 6m with superb receiver inc. dual roofing filters, Auto ATU, 32 bit f/p DSP and USB PC connection.

£1489.95 D - PHONE FOR BEST PRICE!

HF Transceivers

TS-2000E £1489.95 D

The TS-2000E is the classic all-band, all-mode base station covering HF - 70cms at up to 100W. Includes dual channel receivers & DX-cluster monitor with built-in TNC.

TS-2000X +23cm **£1749 D**

TS-480HX Ideal for mobile, portable or base station. Gives a massive 200W on HF and 100W on 6m. **£849 D**

TS-480SAT This model gives 100 Watts on all bands up to 6m, but adds a built-in automatic ATU. **£749 D**

Handheld

TH-F7E	2m/70cm 5W (2-pin Kenwood) SMA +FREE Clip Mic	£229.95 D
TH-K2E	2m 5W 4-Key Keypad (2-pin Ken) SMA +FREE Headset	£159.95 D
TH-K2ET	2m 5W 16-Key Keypad (2-pin Ken) SMA +FREE Headset	£165.95 D
TH-K4E	70cm 5W (2-pin Kenwood) SMA +FREE Headset	£159.95 D

VHF Mobiles

TM-V71E £289.95 D

2m/70cm Dualband Mobile Transceiver. Features;- *Wideband Receive, Built-In Echolink, Simultaneous 2 Frequency Receive, Removeable Control Head, CTCSS Encode / Decode, 1000+ Memories, DTMF Mic.*

TM-271E	2m FM 60W mobile. CTCSS, 200 Memories, DTMF Mic	£165.95 D
TM-D710E	2m/70cms 50/50W mobile. APRS +EchoLink, DTMF Mic	£429.95 D

FAST SAME DAY DESPATCH SERVICE!
Orders must be received before 3pm.

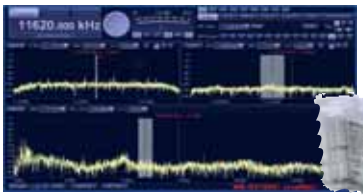
Carriage Charges: A=£3, B=£4, C=£6.95, D=£10, E=£12

WiNRADiO® WR-G31DDC "Excalibur"

NEW

Receiver 9kHz - 49.995MHz

Voted NEW "Number One" in RSGB Review



"It out-performed my 100dB HP Spectrum Analyser"

Meet the new industry standard receiver for serious HF work. Just plug into your PC USB port for a new experience in sensitivity and dynamic range. No hardware design can match the way that signals are extracted, demodulated and both visually and audibly re-produced. Serious DXer or casual operator, you will be amazed.

£649.95 D

WATSON W-8681MKII

Wireless Weather Station

- *LCD Touch Screen
- *Atomic Locked Date & Time
- * In / Out Temp.
- * Wind Speed & Direction
- * Rain Gauge
- * In / Out Humidity
- * Barometer with Trend Data
- * Forecaster & Weather Alarm
- * USB Connection to PC * PC Software Control & Data Programme
- * Historic Data Storage & Display

£79.95 D

Quansheng Dualband Handheld

TG-UV2

NEW

The TG-UV2 is a dual band 2m/70cm handheld. It covers 136.00 - 173.995, 400 - 469.995MHz & FM broadcast 88-108MHz. The radio includes 7.2V 2Ah Li-ion battery for extended life.

** 3 Power Levels: 5W / 2.5W / 1W * Steps: 5, 6.25, 10, 12.5, 20, 25, 30, 50 & 100kHz * CTCSS, DCS & 1750Hz Tone * Dual Watch * 200 Memories Alpha Numeric * 2 Deviation Levels * 2 Bandwidths * CTCSS & DCS Scan * Built-In LED Torch * Backlit Screen * PTT or VOX*

£79.95 D

Diamond Switch Mode Power Supplies

New Lower Prices!

GSV-3000

**Output voltage: 1 - 15V DC*
**Output current 30A continuous*
**Built-in cooling fan*
**Supply 230V AC 50Hz *Weight 9kg*
**Size 250x150x240mm*

£199.95 D

GZV-2500 **£139.95 D**
Output 25A, 5-15V DC, supply 230V AC Switch mode over volts protected.

GZV-4000 **£189.95 D**
Output 40A, 5-15V DC, supply 230V AC Switch mode over volts protected.

GZV-6000 **£369.95 D**
Output 60A, 1-15V DC, supply 230V AC Switch mode over volts protected.

Yaesu Christmas Sale Day!

Saturday 18th of December

Come and visit our shops in Hockley & Glenrothes, Yaesu will be joining us. Enjoy free food and some great deals. In our usual Christmas spirit, we will have some special offers and great prices for callers only. Treat yourself for Christmas and get a bargain.

Bill, Betty & Scott welcome you to our Scottish Store in Glenrothes.

MFJ

The World's Largest Range Of MFJ!

"The World's Best Auto ATUs Buy with Confidence! Just Press PTT You're TUNED!"

MFJ-998 AUTO TUNER

**Digital & Analogue x-needle VSWR*
**1.5kW SSB & CW *1.8 - 30MHz*
**20,000 memories*
**Built-in antenna selector*
**Auto bypass protection*

W&S £649.95 C

MFJ-929 AUTO TUNER

1.8-30MHz 200W, LCD readout, 20,000 memories, long wire & coax, radio interface.

A great Auto ATU that needs just a single coax feed and 12V DC. Press the PTT and you are tuned! **W&S £209.95 C**

MFJ-925	Compact auto tuner	£169.95 D
MFJ-927	200W remote auto atu	£249.95 D
MFJ-928	Basic auto atu	£199.95 D
MFJ-931	Artificial ground	£112.95 C
MFJ-932	Mini loop tuner	£139.95 C
MFJ-934	Artificial ground + ATU	£199.95 C
MFJ-935B	Portable loop system	£199.95 C
MFJ-945E	Mobile atu 300W	£129.95 C
MFJ-991B	Auto atu 150W	£209.95 D
MFJ-993B	Auto atu 300W	£249.95 D
MFJ-994B	Auto atu 600W	£339.95 D
MFJ-962D	1.5kW ATU	£289.95 D
MFJ-969	160m - 6m 300W	£209.95 D
MFJ-971	Portable atu	£118.95 C
MFJ-974B	Balanced ATU 3.5-30MHz	£189.95 D
MFJ-986	3kW differential tuner	£349.95 D
MFJ-1625	Window Ant + Tuner	£199.95 D
MFJ-16B01	Dipole centre SO-239	£21.95 A
MFJ-16C06	6x dog-bone insulators	£4.95 A
MFJ-16E01	300Ω end fed SO-239	£10.95 D
MFJ-1796	40m-2m vertical	£239.95 D
MFJ-1798	80m-2m vertical	£299.95 D
MFJ-1908H	43ft fibre glass mast	£239.95 D
MFJ-1922	Digital screw driver control	£99.95 D
MFJ-1924	Prog. screw drvr control	£129.95 C
MFJ-1925	ATAS-100 controller	£72.95 C
MFJ-202B	Receiver noise bridge	£79.95 C
MFJ-250X	1kW dummy load (x-oil)	£55.95 C
MFJ-260C	300W dummy load	£44.95 C
MFJ-261	100W dummy load	£32.95 C
MFJ-265	2.5kW load fan cooled	£199.95 C
MFJ-403	Micro CW keyer	£66.95 C
MFJ-403P	Micro travel iambic	£79.95 C
MFJ-4103	PSU for FT-817	£52.95 C
MFJ-417	Pocket morse tutor	£76.95 C
MFJ-442	Slim electronic keyer	£199.95 C
MFJ-461	Pocket morse reader	£99.95 C
MFJ-4726	6-way remote ant switch	£159.95 C
MFJ-490	Memory keyer + paddle	£244.95 C
MFJ-495	Memory keyer	£189.95 C

VIBROPLEX UK Distributors

V-CM A compact straight key with super movement. **£59.95 C**

V-CW High quality iambic key in the style of Vibroplex **£149.95 C**

Watson Cross Needle Meters

NEW

These are high quality, accurate VSWR meters with large, clear display featuring X-needle movements.

WCN-200 **£69.95 C**
* 1.8 - 160MHz * 0 - 30 / 300 / 3000W
* 600W max above 30MHz * 2x SO-239

WCN-400 **£69.95 C**
* 140 - 525MHz * 0 - 30 / 300 / 600W
* 2x SO-239

WCN-600 **£89.95 C**
** 1.8 - 525MHz * 0 - 30 / 300 / 3000W*
** 600W max above 30MHz * 2x SO-239*

Butternut Vertical Antennas

These antennas are extremely efficient and use no traps. The large, air-spaced coils are the secret, and resonant adjtments can be made at ground level.

HF-2V 80, 40m DX vertical. 9.75m, Easy erect. **£289.95 D**
HF-6V 80,40,30,20,15,10m self support 7.9m **£389.95 D**
HF-9V As HF-6V but adds 17,12 & 6m. 7.9m **£449.95 D**

TenTec CW Transceivers

Complete 5W Transceiver with Crystal Filter

£124.95 C

Build yourself a complete CW transceiver with high quality crystal filter and up to 5 Watts output. Features very low current consumption ideal for portable work. The kits includes everything including case, just as shown. Each kit covers a 50kHz segment which is adjustable.

Models:
TT-1380 - 80m CW Transceiver
TT-1340 - 40m CW Transceiver
TT-1330 - 30m CW Transceiver
TT-1320 - 20m CW Transceiver

Radio Works Carolina Windom Ants

G5RV-PLUS
Efficient All-Band Antenna, 80-10m with Balun. 102ft length.

£79.95 C

All windoms include WARC bands

CW-160	160-10m 252' l.	£159.95 D
CW-80	80-10m 133' l.	£129.95 D
CW-80LP	80-10m 133' l.	£119.95 D
CW-40	40-6m 66' l.	£119.95 D
CW-40LP	40-10m	£116.95 D
CW-40PLUS	40-10m 66' l.	£139.95 D
CW-620	20-6m 33' l.	£119.95 D

Baluns

B1-2kPLUS	1:1 2kW	£39.95 C
B4-2K	4:1 1.5kW	£49.95 C
Y1-5KPLUS	1:1 1.8-50MHz	£52.95 C

Carriage Charges: A=£3, B=£4, C=£6.95, D=£10, E=£12

WATERS & STANTON

General Enquiries 01702 204965

UK's Lowest Prices

Online Catalogue www.wsplc.com

Present

YAESU

Choice of the World's top DX'ers

The Dynamic Pair! FT-450 & FT-950

FT-450 £619.95 D

FT-950 £1289.95 D

The FT-450 represents amazing value for a 100 Watt radio and even includes 6m and a 10kHz roofing filter. You also get variable IF bandwidth and dynamic noise reduction. For even more features go for the FT-450AT with auto antenna tuner. Step up to the FT-950 and you enter the world of advanced £1000 class design. You get 30kHz - 56MHz Rx, Auto ATU, triple conversion Rx with 3 roofing filters, 32 bit floating point DSP, Superb dynamic range, Tx variable bandwidth and Mic EQ adjust, plus CW zero/spot feature, CW message storage etc.

NEW VR-160 *Receiver*

Yaesu's new Dual Receive Handheld receiver covers 100kHz to 1.3GHz FM WFM and AM. Includes CTCSS and DCS. Supplied with LI-ion battery it has current drain of less than 1mA in sleep mode & 24hrs operation on full charge!

£189.95 C

NOW IN STOCK

VX-8DE *Handheld*

This triple band handheld features APRS display (for Tx your position get optional GPS module). Dual receivers, plus FM and AM reception. This water resistant radio includes barometer.

NEW LOW PRICE!

£359.95 C

VX-8GE *NEW LOW PRICE* £349.95 C

2m/70cms Dualband 5W + GPS Ant

You Don't Own an FT-817! Why Not?

Owning an FT-817 makes a lot of sense. It is the only self-contained portable transceiver covering 160m to 70cms. Take it anywhere in the world. It fits in hand baggage with ease. Use it as a staion monitor or receiver. Use it as a test transmitter. Drive a linear, use it mobile .....and all with built-in battery. So why don't you own one?

FT-817ND	HF - 70cms 5W all-mode transceiver	£499.95 D
FT-817BHIDSP	Fitted with DSP module	£599.95 D

^ FT-1900E

^ FT-7900E

^ FT-2900E

FTM-350E	*NEW LOW PRICE* 2m/70cm Mobile + Bluetooth	£469.95 D
FTM-10SE	50/40W 2m/70cms stereo FM Mobile	£299.95 D
FT-1900E	NEW 2m Mobile 65W	£129.95 D
FT-2900E	NEW 2m Mobile 75W	£139.95 D
FT-7900E	NEW 2m/70cm Dualband Mobile 50/45W	£229.95 D
FT-8800E	Dualband Mobile 50W / 30W	£299.95 D
FT-8900R	10/6/2m & 70cm Mobile	£359.95 D
VX-3E	2m / 70cm Handheld Wideband receive	£149.95 D
VX-7R	Waterproof dualband handy (silver / black)	£279.95 C
VX-6E	2m/70cms handy, 5W Wideband Receive	£229.95 C
FT-60E	2m/70cms, 5W handy Wideband Receive	£169.95 C

NEW FT-5000 Series Arrives!

200 Watts Output - 3dB Gain over 100 Watts!

The most exciting radio this year. It embodies Yaesu's latest technology receiver performance and operating convenience very much at the forefront! This radio will carve a milestone in ham radio. Performance like this does not come cheap, but as an investment it is an absolute bargain. Available in three flavours, This new range embodies many features developed by Yaesu for their top range models - all with 200 Watts output!

FT-DX5000	Basic Transceiver HF-6m 200W	£4339.95 D
FT-DX5000D	With Station Monitor SM-5000	£4795.95 D
FT-DX-5000MP	With Station Monitor & Roofing Filters	£5295.95 D

FT-897D *Transceiver*

This radio was conceived as a portable or base station. Covering 160m to 70cms, it is the ideal choice where size matters. There is even room inside for an optional FP-30 internal AC supply. With 100 Watts on all bands to 6m, 50W on 2m and 20W on 70cms, there's plenty of punch. It even has a beacon mode for propogation tests and a built-in CW trainer to teach you to read CW. To hold it is to appreciate how rugged it is. A great little radio with a big voice!

£759.95 D

FT-857D Transceiver - The Best Value Mobile?

£659.95 D

The FT-897D really is an incredible package. With a detachable front panel, it makes a great mobile installation that covers 160m to 70cms. You also get receive FM broadcast, AM airband and 100kHz to 56MHz. The 200 memories make band hopping and channel hopping easy and the excellent rx dynamic range has been crafted of the FT-1000MP. All in all a great radio. We reckon it is the best value in HF mobile.

FT-2000 - The Choice Of World DXpeditions

FT-2000 £2299.95 D

FT-2000D £2899.95 D

The inescapable fact is that the FT-2000 160m - 6m radio just keeps on selling. Designed as a true DX machine, it has all the features that a serious operator needs, whether for contest work, DXpeditions, or serious weak signal work. Choose the FT-2000 for 100 Watt operation or the FT-2000D with its AC supply and 200 Watts of power. Extensive DSP gives you selectivity down to 25Hz whilst the variable Tx bandwidth and Mic EQ let you adjust for the perfect respondse for your voice and type of operation. The dynamic Rx range has proved itself in live operation whilst the 3 roofing filters help to avoid blocking in the IF section. You get dual receivers plus a digital 5-channel voice memory, And for those who want to use their PC, there is FREE downloadable software. It's a great rig with great capability.

RadCom

THE RADIO SOCIETY OF GREAT BRITAIN'S MEMBERS' MAGAZINE

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Closing date for contributions, unless otherwise notified, is five weeks prior to publication date.

All material in *RadCom* is subject to editing for length, clarity, style, punctuation, grammar, legality and taste.

No responsibility can be assumed for the return of unsolicited material (if in doubt, call us first!)

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Full membership £48.00
(individual & club)

Family membership £57.00

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Student (21-25) . . . . . Free

Ham Club (under 21) . . . . . Free

Subscriptions include VAT where applicable. Special arrangements exist for visually impaired persons. Details and membership application forms are available from RSGB HQ.

P&P on RSGB orders:
£1.95 for 1 item, £3.50 for 2 or more items. Overseas rates on request.

Season's Greetings from the RSGB.

Image: Kim Meyern (RSGB)

News and Reports

Martin Lynch celebrates 20 years in the amateur business – P66

Reviews

Features

Amateurs loitering within tent for Railways on the Air – P60

Details of October's massive tropo opening – P50 and P52

Technical Features

The Joiner's Delight loop is discussed by Peter Dodd – P63

Regulars

RADIO SOCIETY
OF GREAT BRITAIN

THE NATIONAL SOCIETY WHICH
REPRESENTS UK RADIO AMATEURS

Founded in 1913 incorporated 1926.
Limited by guarantee
Member society of the
International Amateur Radio Union

**Patron: HRH Prince Philip,
Duke of Edinburgh, KG, KT**

Membership is open to all those with an active interest in radio experimentation and communication as a hobby. Applications for membership should be made to the Subscriptions Department from which full details of Society services may also be obtained.

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Details of the Society's volunteer officers can be found in the RSGB Yearbook and on the RSGB website.

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The online *RadCom* can now be found at www.rsgb.org/radcom.

National Club of the Year 2010, sponsored by Waters and Stanton Plc

The Regional competition will shortly be completed and the regional winners will be entered in the National competition. This year's National competition is sponsored by Waters and Stanton Plc and the Society is very grateful to Peter Waters and Geoff Stanton for taking on the role of principle sponsors for the next three years.

Full details of the competition can be found on the RSGB website and the regional websites. The top prize for the top club will be a handsome trophy and a cheque for £1000. The second and third placed clubs will again receive cheques for £500 and £250 respectively. The competition winners will be announced at the RSGB AGM which will take place on Saturday 16 April at the Menzies Mickleover Court in Derby.

The prize money comes with no strings attached and clubs may use the money in any way that they want. Last year's winners, the Chelmsford Amateur Radio Society, used the money to support the many exam courses that they run, whether that's support for disabled students, aids for the students or equipment during the exam.

If you haven't yet decided to join the regional competition it is not too late: the closing date for entries is 25 January 2011.

This is a golden opportunity to get your club on the map and, through team work, your club could hold the prestigious title of National Club of the Year.

Board Elections 2010

Governance of the RSGB is regulated by the Memorandum and Articles of Association (M&A) of the Society, a copy of which may be found on the Members' only section of the website.

An irregularity has been identified in the nomination of the two candidates to stand for election as nationally elected members of the Board. Unfortunately, it was not noticed until after *RadCom* had gone to press that both candidates shared two nominators. This is not in accordance with the M&A and therefore the candidates were not properly nominated.

The Board has considered its options under the M&A and has determined that the only course of action open to it is to declare the election for nationally elected members of the Board invalid. Given other requirements of the M&A, the Board will now co-opt both candidates as Board members for a twelve month period until the next election (late 2011) when the candidates may stand for election again. **The Region 4 regional election is unaffected and still closes at midday on 2 December.**

The Society very much regrets this error, but believes that the best interests of the membership are served by acting as set out above.

Arkwright Trust Awards

On 29 October, at a prestigious ceremony at the IET, Savoy Place, London; two scholars, both young radio amateurs supported by the Radio Communications Foundation, were presented with their Arkwright Scholarship bursaries.

Stephen Forrest, M3YSF who attends Altrincham Boys Grammar School and Conor Millns, M3OXL who attends The Priory Academy LSST Lincoln both became interested in amateur radio through their school radio clubs and are interested in taking up a career in engineering. An Arkwright Scholarship is awarded for the two years of the scholars' 6th form studies. In 2010, 805 young people applied, out of which 430 applicants were interviewed following a written examination. At the end of the selection process 263 scholarships were awarded. Since 2005 the Radio Communications Foundation has supported 11 Arkwright Scholars.

Peter Kirby, G0TWW, RSGB General Manager and RCF Trustee, photographed with Conor Millns, M3OXL. Unfortunately Stephen Forrest, M3YSF could not attend the presentations due to illness.

CONGRATULATIONS

To the following members whom our records show as having reached 50 or 60 years' continuous membership of the RSGB.

60 years

Mr D Atter	G3GRO

50 years

Mr S J W Freeman	G3LQR
Dr P G Robson	G3NZK
Mr J H Hampson	G3PJL
Mr H R Thornton	GM3PKV
Mr D R Mullins	G3RGM
Mr AT James	G3RUV
Mr P J Cort Wright	G3SEM
Cdr P J Patrick	G3TWG
Mr M Duce	G4BQF
Mr N J L Lockett	G4EMB
Mr K Aaron	G4KCI
Mr M A North	G8CGO
Mr J J Pink	G8MM
Mr G R Kelly	GM8MST
Mr M T Bland	RS24640

Donation

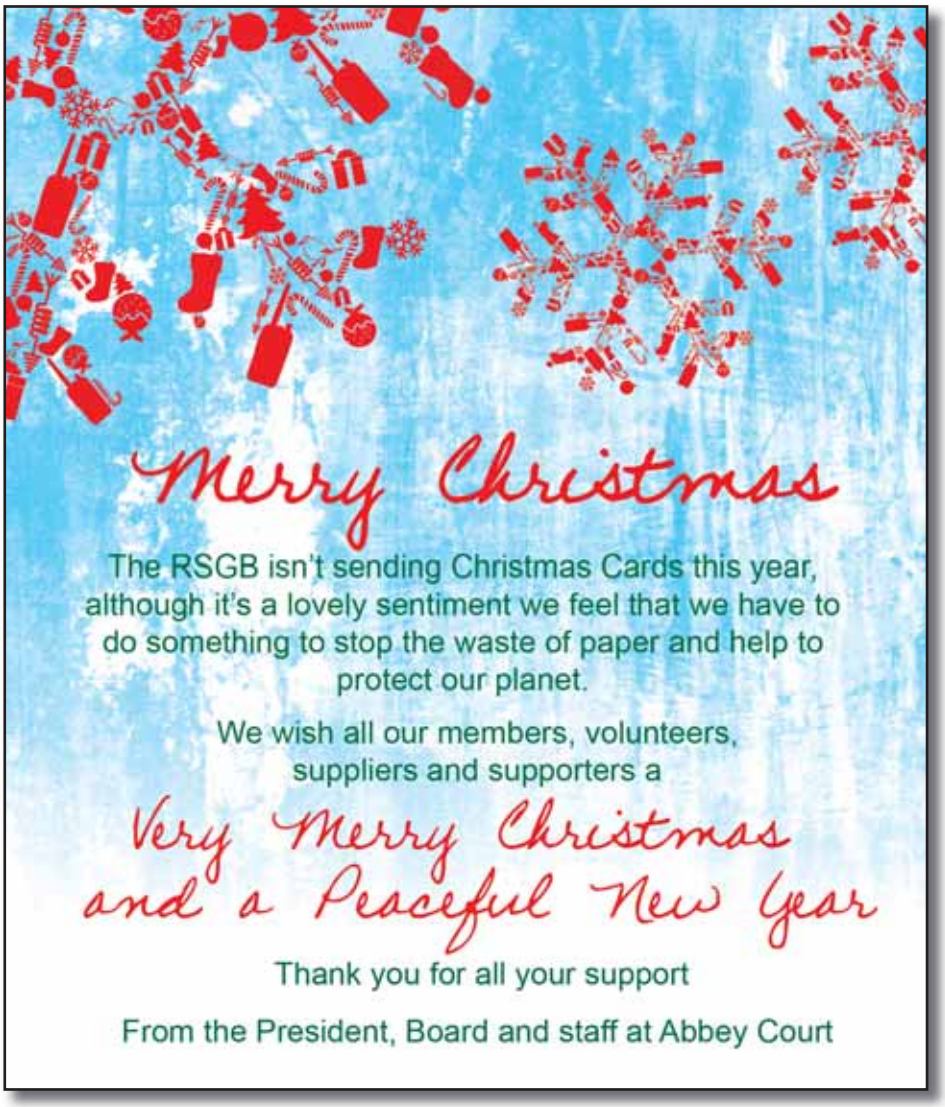
The RSGB received a cheque for £1000 for the Spectrum Defence Fund from Dorset RAYNET. The group work throughout the year on anything from charity runs to bike rides and even do some commercial safety work. With around 60 members they undertake more than 30 events a year. The money for the Spectrum Defence Fund was raised from the donations received from these events.

Dorset RAYNET is an active group with a wide-ranging membership. There are five groups within the county, the largest of which is attached to Christchurch ARS in southeast Dorset. They've got a good working relationship with the Emergency Planning authorities as well as the 'blue light' services within the county. Twelve county-wide Civic buildings house amateur radio equipment and three staff from the Dorchester Emergency Planning department have taken their Foundation exam. Dorset RAYNET is hoping that Christchurch will follow this lead shortly.

The cheque was handed over by Martin Clack, M0KZC (County Controller) and Brain Groom, G1WPG (County Treasurer) and was received on behalf of the Society by RSGB DRM Dorset 114, Peter Clifford, M0PTR.

QSL Matters

DESPATCHES. Last month we finally completed the latest round of deliveries to all UK sub managers with a total of 192,614 cards. We shipped 60kg to the following US call areas 1, 3, 4+1, 5, 6, 7, 8, & 9. 20kg went to Germany and 10kg boxes also went out to Austria, Croatia, Czech Republic, Italy, Norway, Sweden and Russia.



Welcome

The RSGB would like to welcome to the RSGB family the following new Members who have joined their voice to ours and are helping to keep the RSGB strong.

Mr G Randle	2E0BGR
Mr R Baines	2E0FFS
Mr I D Reeve	2E0IDR
Mr AC Blamires	2E0MBQ
Mr M Bowell	2E0MBX
Mr J R Morgan	2W0CCE
W Sznajder	3Z6AEF
Mr DM Collins	AD7JT
Mr PD Sanz	EA1HLV
Mr M S Raya	EA7EE
Mr JV Gavila Cardona-Jover	EB5AGV
Mr L Ferracci	F1JKJ
Mr A J Pearce	G0AZQ
Mr N Grice	G0MKP
Mr M Franklin	G0MNN
Mr Eaton	G0RTX
Mr M Hallard	G1TYV
Mr R N Hook	G3ZLM
Mr J Fell	G4TRP
Mr R Loomes	G4UDJ
Mr A Lord	G7HNG
A Pope	G7IBY
Mr R W Caddick	G7SVW
Mr P Vizy	HG1DUL
Mr M Marti	IV3XAZ
Mr N Sugii	JH1MLP
Mr J Wilson	K5ND
D Bruce	M0LNE
T Daskalov	M0NDZ
RT Jones	M1EEU
Ms CJ Carrington	M3CGW
Ms F Carrington	M3CVG
Mr A Clark	M3XYY
Mr M Rimicans	M3YNV
Mr S Norris	M3ZIX
Mr A Wooldridge	M3ZRU
Mr M J Crockford	M6OZZ
Mr J A O'Brien	M6AAJ
Mr PJ Carter	M6AFS
P Whitmore	M6AHA
Mr CJ Hobbs	M6CAO
Mr C Jackson	M6CRJ
Mr J Connell	M6DBC
Mr DO Davies	M6DDG
Mr R Taylor	M6EAP
DJ Sutherland	M6FOJ
Mrs J Martin	M6FOP
Mr J Rowan	M6JRZ
Mr L McGoughey	M6LSM
Miss L Simons	M6LTM
Mr G Cooper	m6okk
Mr P Boast	M6PEG
Mr D Ion	M6PLD
Mr P Hamilton	M6PLW
Miss RM Barthorpe	M6RMB
Mr R Brierley	M6RUZ
X Christofi	M6SNO
Ms T Robertson	M6TDR
Mr T Lord	M6TJW
Mr A Smith	M6TOW
Mr P Morgan	MD6IOM
AE Hamilton	MI6AGV
Mr C Robinson	MI6GRF
Mr DJ Henderson	MM60DB
Mr R J Renshaw	MM6AHK
Mr S Best	MW3XBE
Mr W Murphy	MW6BMM
Mr K Winograd	N1NEG
J Jacops	ON4CO
Mr MCE Bamber	RS203926
Mr R Macdonald	RS204513
Mr J G Hurst	RS206621
Mr A Garratt	RS206702
Mr B Baird	RS206707
Mr C Suttie	RS206729
Mr M Hall	RS206786
Mr GD Dodwell	RS206884
L Fletcher	RS206898
Mr BA Ansell	RS206943
Mr R Cable	RS206972
Ms LB Kellogg	RS206984
Mr G North	RS207019
Mr DJ Muggleton	RS207028
Mr I Giannarakis	SW1MNE
Mr EA Durrant	VK2ARE
Mr S Rapley	VK2RH
Mr C Dickson	VK3HE
Mr B Bolin	W4XTL
Mr D Fant	W5SWL
Mr R Sullivan	WB5FTF
Mr SJ Brown	RS206977

The RSGB would like to welcome back the following Members who have rejoined the Society.

Mr P Higginson	2E0DXO
Mr T H Huntriss	2E0FMB
Mr KE Elbourne	2E0KEE
Mr M Crownover	AD5A
Mr R Talbot	DG1YRT
Mr I Beltrami	DX0130
Mr T McHugh	EI-976
Mr R Baker	G0AIH
Mr L Parrott	G0AMU
Mr DVE Goulbourne	G0NPK
Mr N A Reddish	G0ORE
Mr PJH Bush	G0OWC
Mr R W Ravenscroft	G0RAV
Mr CJR Lawrence	G1JHB
Mr M A Palmer	G3KGP
Mr T Roeves	G3RKF
Mr R Bradshaw	G4DTD
Mr G G Brookes	G4IZL
Mr P D Allott	G7HGD
Mr M J O'Beirne	G8MOB
Mr D R Kellett	G8ZZB
Mr M G Butler	GW0MNP
Mr DA Robertson	M0RGO
Mr P G Howell	M1PGH
Mr B Morley-Pack	M3HZV
Mr SR Sawyer	M3NHR
Mr M A Manser	M3RIU
Mr M P Wills	M3XGV
Miss R Wadey	MI0RYL
Mr D Darren	MW3YDR
Mr K C Hopper	N9VV
Mr C J Goddard	RS174316
Mr R Bessette	W1DKY

Amateur Radio Survey

Have you taken part in the survey of UK amateur radio? Whether you are an RSGB Member, non-member, an active amateur or short wave listener, the RSGB is interested in your views. The survey runs until 31 December and can be filled in online at www.rsgb.org/survey. The survey takes between 10 and 20 minutes to complete and can be saved at any point and resumed later. No personal information is required. This is your chance to contribute to the future of amateur radio.

Repeater Support

Trevor Day, G3ZYY, chairman of the UK 6m Group presented a cheque for £185 to the chairman of the Mid Cornwall Beacon and Repeater Group. The money had been raised using a PayPal hot key on the 6m Group website, http://uksmg.org. Accepting the donation on behalf of the MCB&RG, Keith Holland, G3MCD (right) said the money would go a long way to keep the 6m beacon on air and thanked the UK 6m Group for their generosity. The MCB&RG activities can be found at www.mcbarg.co.uk where donations to defray the costs of running the beacons can be made using PayPal.

Stirling Work

Some of Stirling & DARS Foundation candidates nearly missed their moment of infamy when passing their Foundation RCE at the club. Pictured left to right are Robert, MM6VUV, Wullie, GM0MZB, John, MM6SKI and the one with his eyes closed is Jim, GM4VGR. Thanks to Jim, GM4VGR and Wullie, GM0MZB who held the exam and to Stirling District Amateur Radio Society for hosting the exam.

Air Cadets get on the Air

In October, four Cadets from 49F (Greenock) Squadron Glasgow and West of Scotland Wing Air Cadets sat and passed the Foundation licence examination. They are, from left to right, Squadron Radio Instructor Brian Burt, MM0GLX, Cadet Conor Barr, Cadet Ailie MacDougall, Cadet Scott McGougan and Cadet Colin Young. The Cadets were delighted that the hours spent in the radio shack had been worthwhile. Squadron Radio Instructor Brian Burt, MM0GLX said, "I hope this will be a start to a long and enjoyable hobby that will help them in the years ahead when it comes to career choices".

Lighthouses on the Air

In August, the Waterside New Forest Radio Club took part in Lighthouses on the Air activities by setting up a radio station at Lepe, a coastal area of the New Forest. The lighthouse in question is known as the Beaulieu River Millennium Beacon and is located in the grounds of Lepe House.

The radio station, GB0BMB, was set up and operated by Tim, G4YVY, Gordon, G1ZEC, Robin, G0OSG, Tony, G6MNL and Rod, G6LVJ, who took the photo. The equipment used was the club's FT-757 GX II HF transceiver into a G5RV aerial oriented roughly north – south. Weather during the weekend was often very wet, with heavy rain showers, but this did not prevent successful radio communication; over 120 contacts with other amateur radio stations were made. These stations will be receiving QSL cards to confirm their successful contact. The cards feature a picture of the Millennium Beacon reproduced from a watercolour by local artist Gervase A Gregory.

Christmas Island DXpedition

The Five Star DXers Association has announced its next DXpedition to Kiritimati (also known as Christmas Island, T32) that will take place in September/October 2011. Once again, Yaesu have kindly agreed to be Global Sponsor and will be providing sixteen FT-5000 transceivers along with a similar number of Quadra VL-1000 linears. UK amateur radio retailers Martyn Lynch & Sons and Nevada are also committed to sponsoring the operation. It is hoped that the callsign T32C will be allocated.

As with previous FSDXA DXpeditions, this will be a major effort, with a target of more than 150,000 QSOs. There will be up to sixteen stations on the air, using amplifiers along with monoband beams and vertical dipole arrays, 24 hours a day for almost four weeks, including four weekends, around the autumn equinox when DX propagation on all bands is typically at its best.

A large number of amateurs from 13 different DXCC entities have already signed up for T32C, some for half the overall period, some for the whole operation. There will be 30 operators on site at any one time. Operator numbers have been determined to ensure that a full complement of stations can be manned whenever bands are open. It is also planned to take a young amateur to gain valuable DXpedition experience and sponsorship is already on hand to make this possible.

At this time they are seeking contributions from sponsors to help defray the very significant logistics costs of this DXpedition. All team members will be covering their own travel costs and accommodation on the island and making a contribution to other costs, but there will still be a significant shortfall. Details of how to donate appear on the website www.t32c.com. All donations will be acknowledged.

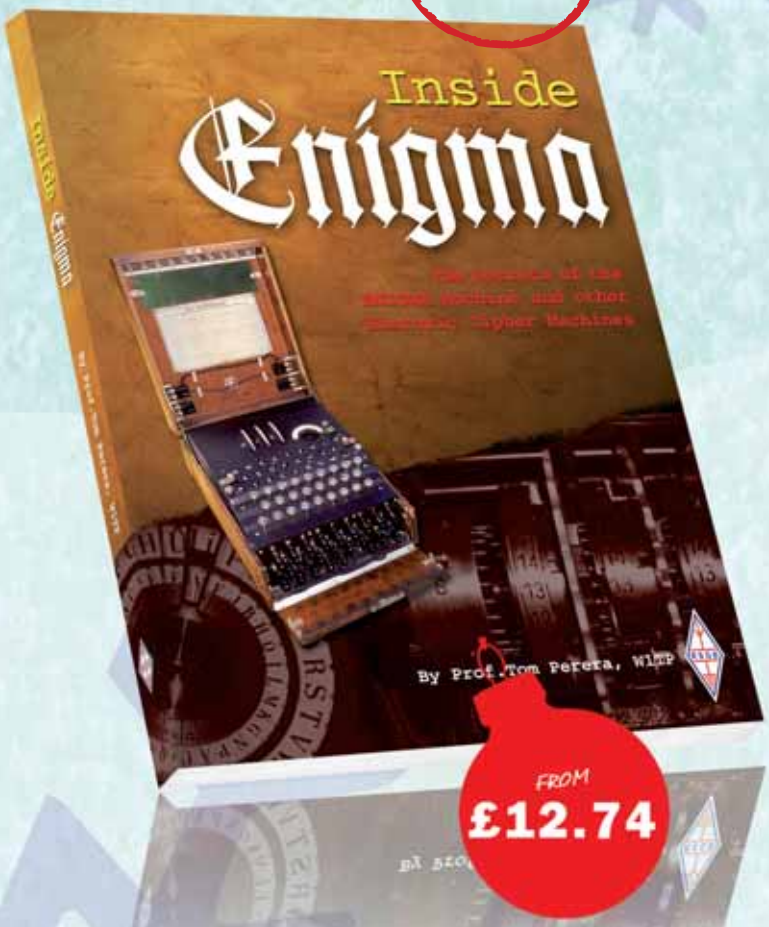
Ham Week Activity

Furness ARS started their activity for Ham Week with the erection of the Field Day station and a BBQ. Despite the time of year, a lovely sunny evening on 4 October, a variety of local meats and home baking meant a good time was had by all attending.

The first station worked using GX4ARF was VQ9LA on Diego Garcia and they didn't better that. Both GX4ARF and the permanent station GB2GW were operational throughout the week using HF. The location at Gleaston Watermill is surrounded by higher ground that precluded much successful VHF activity. Many stations were worked on HF and the week finished with a Foundation course in which all six entrants passed.

RSGB shop

NEW



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Cheshire Scouts International Jamboree

The first week of August saw the activation of the special event callsign GB2CS for the Cheshire Scouts International Jamboree 'Chamboree 2010'. The station was set up and operated by various licensed members of Cheshire county scouts, Arthur, G7BQY, Colin, G1NWA, David, G7GFC, Ricky, M3OBH, Graham, M3VUO, Graham, G6TDJ and Frank, G1GYJ station manager. The location was on the Cheshire County Agricultural Showground, Tabley, near Knutsford.

GB2CS was active on HF, VHF, D-Star and Echolink, running from a site Portakabin. The HF station used a Kenwood TS-2000 and a Yaesu FT-847 operating into a tri-band Yagi for 20, 15 and 10m on a 60ft lattice tower trailer mast. There was a full size G5RV for 80 and 40m.

The VHF/UHF and D-Star station comprised an Icom IC-E2820 into a Diamond tri-band vertical above the HF Yagi at 60ft plus. This station had many contacts on VHF simplex, as well as on the IRLP network using the GB3PZ repeater at Manchester and on D-Star via GB7WC at Warrington.

RSGB President, Dave Wilson, M0OBW, with Norwegian scout Anders Oust and operator David, G7GFC in the station cabin GB2CS.

Scouts group around the HF radio with G7GFC to listen in on a QSO.

A surprise HF contact on the first day was from SK0SAS/AM, a Boeing 737 out of Stockholm bound for Egypt. The captain, Eskil, was also a Scout Leader in Sweden, so contact details were exchanged and the group hope to meet him again during JOTA. That evening he e-mailed his photograph taken on the flight deck.

The radio station was quite popular with Scouts and Leaders alike; there was no shortage of volunteers wishing to send their greetings over the airwaves. The group were fortunate to have a visit on the Tuesday morning from the UK Chief Commissioner for Scouts, Wayne Bulpitt, who greeted everyone in the cabin with a cordial handshake and was promptly put on the air over the IRLP link to exchange greetings with a rather astonished Rolly, ZL4AU in Invercargill, South Island, New Zealand, who was in QSO with one of the operators at the time.

The station was also visited by the RSGB President, Dave Wilson, M0OBW, who is a member of the Cheshire Scouts radio team. During his visit the station made contact with Stig, LA9SPA in Norway. During the conversation, the operators realised there were some Norwegian Scouts in the cabin, so unable to resist the temptation, they asked one of them, Anders Oust, if he would like to greet his countryman, which he did in both English and Norwegian.

Many of the scouts passed their own messages as well. Two Girl Scouts in particular, Holly and Maddy, from a Warrington Scout group, had a very good message exchange with Tom, KB2NCI and his 11 year old daughter Amanda, in Rochester, New York state, over IRLP. Tom is a Scout Leader over there and the group has made contact before on previous Scouting events and keep in touch using e-mail. Many people commented afterwards how good the girls were on the air, on both sides, and how they had enjoyed listening to them.

Contact was also made with GG100GG, operator Richard, for the Girl Guides Centenary camp, at Harewood House, Leeds and with Bob, VP8LP in Port Stanley, Falkland Islands, which was quite notable.

Altogether over the week's operation, the station had 247 QSOs and contacted 22 countries. Eighteen Scout Communicator badges were gained and presented by the end of the week.

There were approximately 3,500 Scouts, Explorers and Leaders on camp with groups from all over the UK, plus groups from Northern Ireland, Eire, Germany, Russia, Sweden, Norway, USA, Kenya and Sierra Leone.

The operators would like to thank all the contacts, from home and abroad who made the event so enjoyable for everyone, not least the station operators themselves. Thanks should also to Ian, G4ZPZ and Stuart, G3SNA from Manchester for their assistance in making some of the IRLP contacts possible.

Furness Foundation

Furness ARS has been doing Foundation courses and exams for several years. More recently, Intermediate and Advanced courses and exams have been undertaken. They have a good success rate and their latest Foundation course was for six friends who did the course over a weekend in October. All six passed and all joined the club. The photo of the successful candidates shows Chris, M0TES, Paul, M6BLZ, Dave, M6AGY, Dave, M6DHV, Phil, M6MRN, Lee, M6LRA, Bill, Dave, G3VUS and Ivan, G3IZD.

Science Week 2011

Science Week 2011 will be held from 11 to 20 March. Full details can be found on the British Science Association website www.britishscienceassociation.org. The theme for this year is 'Communications', a subject that is dear to us all.

During the 2010 Science Year, James Bradfield Church of England (VC) Primary School in Stoke Ferry, Norfolk has put on an amateur station, GB2JBS, to involve the children in radio and various simple experiments. It was very successful. The children were able to talk to others all over the world. They all also had a turn at the Morse key, sending their names and, in some cases, whole sentences. Much fun was had by all.

They plan to repeat this activity during 2011. Are their any other amateurs operating during Science Week in their local schools and is there any interest in arranging an inter school net sometime during Science Week for the children? Please contact John Nicholas-Letch, G3PRU by e-mail to johnnl@hotmail.com.

Doncaster RAYNET

Would you be interested in restarting the RAYNET group in Doncaster? The local council is anxious to further contact with local amateurs to add to the help it already receives from the Sheffield and Rotherham group. Particularly welcome would be those with previous RAYNET experience, but anyone willing to take part would be welcome to discuss this further. If you're interested in finding out more, please e-mail your details to drm44@rsgb.org.uk.

FOC Straight Key Weekend

The FOC Straight Key Weekend will take place on 1 and 2 January 2011. The idea is not to have a contest but to be active using any mechanical keys such as the semi automatic bug, the side swiper or the pump straight key across all bands. Whilst many operators use the electronic keyer there are still a sizeable number who are proficient on the older style keys and FOC recognises the value of preserving these old yet valuable skills. Details appear on the website www.g4foc.org. There are no prescribed operating bands or times – just be active as band conditions permit. Please send your comments on contacts and working conditions to G3VTT by e-mail to g3vtt@aol.com or post to them to G3VTT, who is QTHR, before the end of January. A log is not needed but comments about the types of keys heard and the best 'fist' would make interesting reading.

Historic Visit

Members of the GB2RN - RNARS London (HMS Belfast) Group visited Chatham Historic Dockyard in October. The visit was arranged in order to deliver a Yaesu FT-767 transceiver and ATU that are being loaned on a long-term basis to the GB2CAV - HMS Cavalier Radio Group. Brian Lucas, G0TAR greeted the visitors and after the handover of the radio by the London Group Chairman, Alan Burnett-Provan, 2E0VAV, conducted a tour of *HMS Cavalier* culminating with a visit to the Bridge Wireless Office.

South Birmingham Students

In October, three members of the South Birmingham ARS passed their Intermediate examination. John, M6JWY, Malcolm, M3WQS and Paul, M6FLE will be starting the Advanced course soon. The instructor was Dave Murphy, G8OWL.

IoM Training Success

The Isle of Man Amateur Radio Society recently held a Foundation and Intermediate training course that resulted in seven students gaining a pass in September. One student even managed the Foundation and Intermediate on the same day. Congratulations from the club, they look forward to hearing the students on the air soon.

Those licensed so far include Dave, 2D0YLX, Henry, 2D0HEN, David, MD6LET, Darren, MD6AGB and Joe, 2D0JBE who passed both exams on the same day.

The instructors were John Butler, GD0NFN and Andy Morgan, GD1MIP. Other club members assisted in various capacities and the club are indebted to them W Morgan Griffiths, MD0DXW, Jeanie Hill, 2D0JEA, Steve Kelly, GD7DUZ and Stuart Hill, GD0OUD.

The pictures show the happy candidates.

Should anyone with an interest in radio wish to study for the exams or join the club then contact the club secretary Andy Morgan on 07624 412711 or via e-mail to GD1MIP@manx.net.

(Foundation from left to right) Darren Poplewell, Joe McCartney, John Kaighin and David Holohan.

(Intermediate from left to right) Andy Morgan, Dave Cain, Henry Dorman, John Butler and Joe McCartney.

Slow Morse

Steve Smith, G0TDJ is now undertaking GB2CW Slow Morse broadcasts from Crayford in North East Kent (near Dartford). The transmissions are one hour long from 1830UTC on Thursday evenings on 145.250MHz. At the beginning of each session, licensed radio amateurs are invited to call in and go on a list to be asked to read back practice passages. Speeds start at sub 5 words per minute and increase over the hour-long session.

Caithness Students

Caithness Amateur Radio Society recently held successful Foundation and Intermediate courses and exams. In the photograph, Instructor Jim Moar, GM4EFR can be seen handing over a pass certificate to Robert Renshaw, MM6AHK, who passed his Foundation exam. Robert is now studying for his intermediate exam. The second photo shows Colin Mair, Exam Secretary and Chief Invigilator GM7NUQ handing over pass certificates to two intermediate examinees John Dollemore, 2M0CDD and Hamish Duncan.

NEWS IN BRIEF

• Amy Louise Wright, MW3VML, suddenly and tragically passed away on 3 September 2010 aged 19 years. Amy was the daughter of Michelle and Ian Wright, GW1MVL and twin sister of Carys. Amy, MW3VML and Carys, MW3CAS became members of RSGB in 1992 aged 2 years having the RS numbers 95310 and 95311 respectively. At the time, they were the youngest ever members of the Society. Both girls passed their Foundation Licence in 2002.

Amy's funeral was held at Pentrebychan Crematorium near Wrexham and was attended by a large number of family and friends with the service relayed to the large number standing outside. Amy will be sadly missed by her family and friends.

• Caithness Amateur Radio Society has recently handed over a cheque for £91 to Wick RNLI station as a donation of monies raised as a result of a silent key sale. Jimmy Cormack GM4JUE had a lot of surplus equipment and it was donated to the club to dispose of by way of a sealed bid sale. His son, Mark Cormack, MM6DRJ, is a crew member of the lifeboat. Monies were equally split between the local branch of the RNLI and Caithness Amateur Radio Society.

Society Relaunch

Harlow & District Amateur Radio Society (club calls G6UT and G6BUT) has recently been relaunched and would welcome previous or new members to come along and get involved. The club has its own premises, a 60ft tower supporting a 3-ele HF tribander, 5-ele 6m Yagi, 21-ele 70cm Yagi and a 15-ele 2m Yagi, plus an HF vertical. There is an FT-1000MP, IC-746, FT-736, ACOM 1000 linear amplifier and lots more. There are two shacks and an area for socialising. The location is Mark Hall Barn, First Avenue, Harlow, Essex and meetings are held alternate Friday evenings from 8 to 10.30pm (December meetings are Friday 10th and, due to Christmas Eve, Thursday 23rd). Please contact Chairman Mark Haynes, M0DXR for further details by e-mail to mark.haynes@yahoo.co.uk or phone 07917 223870.

Awards For All Grant

The Wakefield & District Radio Society recently succeeded in obtaining a grant of £9,391 from the Awards for All programme of the National Lottery. The money will be spent on new equipment that will mainly be used to enhance the Society's existing work for charity, training and publicity for the hobby. The photo shows some of the committee presenting a cheque to Lee Marsh of LAM Communications. Pictured are (left to right) John Carter, G7JTH (Treasurer), Lee Marsh of LAM Communications, David Lockwood, G4CLI (Secretary), Ken Quinn, 2E0SSQ (Chairman) and Darryl Burden, 2E0DJB (Committee Member).

NEWS IN BRIEF

• Jersey Amateur Radio Society AGM means two new committee members, Peter, GJ8PVL and Steve, MJ6EDC taking over from Phil, GJ4CBQ and Phil, MJ0JER. The club gave their thanks to both for their efforts over the years and they will, of course, stay involved. Mike, GJ0PDJ gave a review of another successful year and thanked all members for their input.

• LAM Communications is pleased to announce being appointed an official dealer for Yaesu. They are able to offer all the usual dealer facilities. Check out their website at www.lamcommunications.net.

More Scottish Amateurs

Stirling District Amateur Radio Society has added more people to the growing amateur population in Central Scotland by helping five to pass their Foundation exam in Stirling. In the front row, pictured left to right, are John, Ed, David and Allan. Back row in the middle is Mike with Wullie, GM0MZB and Jim, GM4VGR. Thanks to Jim, GM4VGR and Wullie, GM0MZB who held the exam and Stirling District Amateur Radio Society for hosting the courses.

Thriving Club Scene

Building on a 350% membership increase that includes 26 new Foundation members, Lough Erne Amateur Radio Club's recent AGM elected three of them, including the Secretary, Ciaran, MI6OFN, to its seven strong Committee. Chairman, Michael MI5MTC declared "We are determined to involve, retain and to progress these valuable members". Plans include an Intermediate course in November, and a dozen people have already enrolled. Like most other club activities, this course will happen each Tuesday evening in the Share Centre, near Lisnaskea in County Fermanagh. Share will also be the venue for the Club's thirtieth rally and conference weekend on 16 & 17 April 2011, just before Easter. For more information, e-mail sec@learc.eu or check out the website at www.learc.eu.

Midand AGM

At the AGM of the Midland Amateur Radio Society, various awards were made. Ron Swinburne, M0WSN received the G2RQ award for the member who most enhanced the society. This was awarded for his film shows and vintage 16mm vintage cinematography. Stuart Granger, G4NSG received the G5LQ award for the best article in PROBE magazine.

Free Public Lecture at Bodleian Library

The first Douglas Byrne Marconi Lecture, to be delivered by Professor Peter Scott (University of Reading), will be held at the Museum of the History of Science, Broad Street, Oxford, on Tuesday 1 March 2011 at 5.30 to 6.30pm. The subject of the lecture will be, 'The sources of competitive advantage and innovation in the interwar British radio industry'. Entrance is free to the lecture and the reception following in the Bodleian Library. For further information send an e-mail to bookcentre@bodleian.ox.ac.uk.

The Fellowship was established to recognise the contribution made by Douglas Byrne, G3KPO to radio history as the Founder of the Wireless Museum on the Isle of Wight.

Bangor Students Sail Through

Bangor & District Amateur Radio Society held a Foundation Course in October in the newly refurbished Donaghadee Sailing Club. These premises are now rather palatial with state of the art facilities for teaching and catering. Ten students took part in the course, nine of whom are to be congratulated on passing, some with full marks. The tutors wish them well in their future amateur radio journey and hope that they will continue with their studies.

SOS Radio Week 2011

Every year the Royal National Lifeboat Institution organises a fund-raising day to enable people throughout the UK and Ireland to show their support for men and women of the RNLI. The next SOS Day will take place on Friday 28 January, 2011. The newly formed Lifeboat Amateur Radio Society will be organising SOS Radio Week to coincide with it, starting at midnight on Saturday 22 January and concluding at midnight on Sunday 30 January.

Taking part is easy. You simply register on the event website (www.sosradioweek.org.uk) and download the sponsorship paperwork. You get as many sponsors as possible and then work for as much time as you can spare during the event – there's no pressure. You can operate from anywhere you like; home, work, on top of a mountain, at a lifeboat station, or even out on a gas rig.

RSGB shop

25% off RRP

Merry Christmas

Images Across Space

The Electronic Imaging of Baird Television

By Dr. Douglas Brown

Written by Dr. Douglas Brown, a leading authority on TV, *Images Across Space* provides a unique and fascinating insight into the pioneers of television and in particular to Scottish inventor John Logie Baird. From the initial concept of television though to the patent for 3D TV that far surpasses that offered to modern consumers this book gives a fascinating insight into the man and his developments.

Lavishly illustrated *Images Across Space* not only provides the background to the development of TV but the story of the Baird Television Ltd. up to its demise and its continuation as Cinema Television Ltd. There are many previously unpublished photographs that illustrate the level of sophistication practiced by the Baird Television Ltd. and revealing photographs of the Baird cathode-ray tube facility, laboratories in the Crystal Palace and Rotunda outbuilding, equipment installed at Alexandra Palace. The book reveals the implications of the devastating fire that spectacularly razed the Crystal Palace to the ground in 1936, taking with it the Baird facilities and an analysis of the television systems on trial for the BBC at Alexandra Palace. Readers will find this book a mine of fascinating material with even a comprehensive listing of the British patents of Baird and his associates at Baird/Cinema Television.

John Logie Baird is remembered as the inventor of the first working system of television but *Images Across Space* shows that there was much more to the story. *Images Across Space* is a rare book of technical detail and an extraordinary story – thoroughly recommended reading.

Size 176x250 mm, 192 pages, ISBN 9781-8742-8921-0

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Radio Society of Great Britain
www.rsgbshop.org

New Antenna

Now available from Pro Antennas is the Dual Beam Pro. This is a rotatable HF multi-band dipole measuring only 5m overall. The highly efficient method of capacity hat end loading has provided an impressive reduction in overall size whilst retaining excellent performance. Price is £199.95 plus £9.95 UK P&P, specifications and details are available from www.proantennas.co.uk.

Spurn Point Lifeboat Bi-Centennial

GB2HLS, run by Humber Fortress DX ARC, was located at the end of Spurn Point, a 2.5 mile sand dune. The dune has a habit of moving over the years and, in bad winters, being breached entirely, stranding the lifeboat men and their families at the end of the point. It is because of these special conditions that the lifeboat men are the only fully paid RNLI lifeboat crewmen in the UK.

The equipment used during the event was an FT-1000 MK V and an FT-2000 on HF. They used a 12 section Clark SCAM mast with a TB3 tri band beam at 42ft and a Watson x 200 at 43ft then followed with 80 and 40m inverted dipoles. For VHF they used an FT-897 into a dual band collinear. Several JOTA stations from Europe were worked, with some of them able to speak to the lifeboat crew themselves.

250 guests attended the final event to the celebration year, a luncheon at the Country Park Inn, Hessle. To finish the event off, HFDX ARC made a presentation to the Spurn lifeboat coxswain Dave of a framed thank you letter and special events QSL card.

Training the Trainers

With ever increasing workloads, trying to share time with family and the other things that tend to take over, making a commitment to training new or existing amateurs through the three levels of the amateur radio exams can prove to be a problem. Phil, GJ4CBQ, Phil, MJ0JER and Mike, GJ0PDJ have given sterling service at Jersey ARS for a number of years. Mathieu Roche, MJ0ASP is currently teaching four club members Morse code. To provide training support and advice, RSGB Board Member Brian Reay, G8OSN visited the island to run a Train the Trainers course in October.

The event was well attended and five members are now registering with the RSGB to become new accredited trainers. Peter, GJ8PVL, Ian, GJ7DNJ, Michael, 2J0SZI, Claus-Dieter, MJ1CYD and Robert, MJ0RZD. Existing trainers Mike Turner, GJ0PDJ and Phil Daniels, GJ4CBQ are now TtT accredited and will continue as club trainers at the Jersey Amateur Radio Society.

Western HF 10

The Western HF 10 started as a retirement project for M0BZI. The starting point was a half size G5RV with two special wire wound induction coils to give the antenna its full length. Next came a special 4:1 ferrite rod balun that he wound as an impedance transformer, fitted to the bottom of a 15ft 3in length of 450Ω twin feeder. After a few adjustments and teething problems the antenna is finished. The Western HF 10 will tune all HF bands 160 to 6m when using an ATU giving a SWR reading of 1.1 or 1.2:1. For more information please read Steve Nichols' report at www.g0kya.blogspot.com (look under Antennas). The antenna sells for £72 plus P&P. Please contact M0BZI by e-mail to m0bzi@hotmail.co.uk for more information.

JOTA 2010

JOTA 2010 was another success. GB1ASG had a fun filled weekend and kept the cubs and scouts from Lilford District, Greater Manchester West entertained. As well as working the radios, the Scouts took part in archery, games and a Search and Rescue mission. The S&R mission combined radio operations with team work, first aid and map reading.

GB1ASG made contact with 87 UK and 18 non-UK radio stations. The furthest HF contact was Moscow and they made contacts using APRS as far away as Tasmania. Unfortunately, the number of contacts on HF was down on last year, largely due high levels of QRM. They did get slow scan TV operating late on Sunday and exchanged pictures with a Polish station, SQ3A.

The Radio Club worked from Friday lunchtime through to Sunday afternoon to set up the stations, kept everything running and then returned all the kit to the club location. So a big thank you Andy and all the West Manchester volunteers. JOTA would not happen without you.

The real stars of the weekend were the Scout radio instructors. They had four Scouts, two from 1st Astley and two from 5th Bolton who have recently passed their Foundation exams. They took over the running of radio stations, helped Scouts to learn radio theory, tested Scouts on the theory, helped run the S&R mission and really set a good example to all involved.

At the end of the weekend 6 Scouts and a Cub expressed interest in taking their radio licences.

Taster Sessions

Sheffield Amateur Radio Club runs regular courses for Foundation, Intermediate and Advanced licences. The next Foundation course starts on 24 January and begins with a two week general 'taster' session to introduce students to amateur radio and the club. The Taster is a prerequisite for the more formal course. After that, the actual course begins with the tutor, Tony Howard, G1TKX and his team. For further details and tutor contacts please e-mail the club chairman, Peter, G3PHO at sarc@g3pho.org.uk.

Six and Ten

The Six and Ten Reporting Club is an informal group of radio amateurs, mostly from the UK, who are interested in propagation studies at frequencies around the HF-VHF boundary (mainly the 6 and 10 metre amateur bands). The club produces a monthly newsletter (the Six and Ten Report) that includes analysis of 28MHz propagation based on beacon monitoring, analysis of 50MHz activity reports broken down by propagation mode, reports and discussions on unusual propagation events, compilations of solar and geomagnetic data, lists of activity world-wide, beacon news, and results of on-going experiments. The Report is usually published on this site about 5-6 weeks after the end of the month.

The Six and Ten Report is edited and produced by Steve Reed, G0AEV and Martin Harrison, G3USF and is an activity of the Radio Society of Great Britain's Propagation Studies Committee. The Committee's website carries a comprehensive set of links to introductions to propagation, near real-time current conditions, solar/geophysical information and propagation prediction programs.

Radio Society of Harrow

Following a Foundation course back in October, four successful students passed the Foundation exam with flying colours. The successful candidates included an Assistant Scout Leader. The exam invigilator, Brian, G3YKB presented the candidates with their certificates. The Society wishes the students well and hopes to hear them on the air soon and also encourages them to obtain their Full licence. RS Harrow also thanks Vince, G7LWN, GSL of the 17th Harrow Scouts for the use of their premises as an exam centre.

Transmission 2010 Results

Winner	Winning Results
Category – Individual	
Most contacts made	
Steven Webber, M3WRS	1263 contacts
Most money raised	
Jim Anderson, G4AUS	£215 raised
Category – Clubs	
Most contacts made	
Cray Valley Radio Society, GB2BF	741contacts
Most money raised	
Cray Valley Radio Society	£786.72 raised
Category – Under 18's	
Overall achievement	
Josh Wilkins, M6DMF	129 contacts & £85.82 raised
Total amount raised	***£3,059.24***

Dreamers Band Testing

On 3 November, Roger, G3XBM transmitted a QRSS3 beacon signal on 8.760kHz under the terms of his 'Dreamer's Band' NoV recently received. This may be a first in the UK, legally at least.

TX was 4W from a TDA2002 audio IC matched into earth electrodes 20m apart. The beacon message (callsign and QTH locator in QRSS3) was provided by a K1EL keyer chip and the frequency reference was an HF crystal divided down 512 times in a 4060 divider IC. Clear QRSS3 reception was possible 5.1km away from the transmitter location, detecting the signal with an 80cm loop fed into an E-field probe (Hi-Z input) into Spectran software. Marginal reception was just possible at 5.3km. Best reception was always with the loop flat on the ground, suggesting the main mode of propagation was utilities-assisted earth mode, as was the case at 838Hz back in the summer.

Comparing results on 8.76kHz with those carried out at 838Hz earlier in the summer in several locations from 1.5km out to 5.4km, Roger's first impressions are that signal l evels are at least 6dB weaker on 8.76kHz, but more careful tests will be needed. When he tried to look for any sign of radiated signals by aligning the loop vertically end-on to the TX location, no signals were detected, but with QRSS3 and receiving in the relatively wide bandwidth used, this would have been very optimistic with 4W from the transmitter into earth electrodes.

At some point in the near future Roger will do some extremely slow QRSS tests and let people know beforehand when the transmissions will take place. There is some chance that slightly more distant stations may be able to detect the signal, although he has not been able to measure his frequency with the precision really needed for this yet.

These tests are not at all in the same class as DK7FC's experiments (an amazing 1310km DX has been achieved at 8.97kHz using 550W to kite supported 100-300m long antennas) - but they are fun to do and he's learning all the time.

Morse proficiency

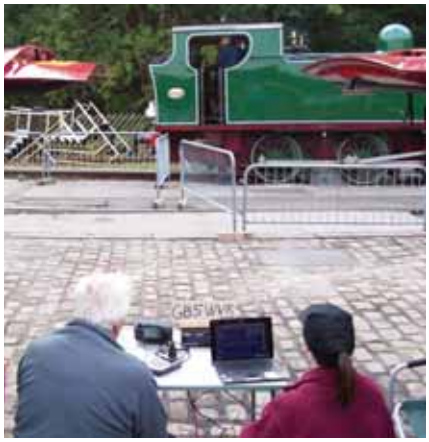
At the Llandudno rally in October, Martyn Jones, GW6ITJ (centre) sat a Morse proficiency test at 15wpm. The test was conducted by Tony Chalk, MW0BXJ (left). Tony complimented Martyn on his sending, saying that it was 'spot on'. RSGB President Dave Wilson, M0OBW made the presentation.

GB5WVR

In October, Jack, G0FQN, Mark, G1PIE and Pam, 2E1HQY ran a special event station, GB5WVR, from Ingrow station on the Worth Valley Railway in West Yorkshire. They were celebrating 40 years since the 1970 film *The Railway Children* was made there. Seven engines were in steam, including the *'Green Dragon'* from the film.

Operation was on 40m using an Icom IC-706 and homebrew dipole. Over 50 stations were worked with the sounds of all the steam locomotives heard in the background delighting many amateurs around the UK and beyond.

The railway was very busy and many members of the public got see amateur radio in action, which prompted a great deal interest.



NEWS IN BRIEF

• This year Kirklees Council is celebrating the International Day of Disabled People on 3 December. Kirklees Council covers quite a large area of West Yorkshire, the main towns being Huddersfield and Dewsbury. At the Queensgate Market Hall there will be a special event station run by David Evans, G0EVA and others to publicise this special day with the call sign GB0IDD. Watch out for them on the air between 10am and 4pm.

• The amateur radio humour book *Hogwash for Hamsters* is now available on Amazon, Barnes & Noble and Books on Board. It is also available to download to eBook readers.

Dawn to Dusk Challenge

Ten islands, nearly 700 nautical miles in under 17 hours

PHOTO 1: Dawn to Dusk QSL card.

BACKGROUND. In March 2010, a chance meeting with Hamish (an air traffic controller) found a common interest in Scottish Islands, lighthouses and adventure. Hamish, who owns a Cessna FR172F amphibious seaplane (callsign G-DRAM), explored an idea to activate amateur radio from several islands. If not difficult enough, Hamish suggested we could navigate using lighthouses and photograph them along the way. Later, a plan crystallised into entering the Dawn to Dusk aeronautical challenge. The objective of Dawn to Dusk is to encourage the most interesting employment of a flying machine involving a 'theme' in a day's flying [1]. A tentative date of 14 June was set.

PREPARATION. On previous DXpeditions, with weight not being too much of a concern, I have had the luxury of being able to bring almost any equipment. Using a seaplane as transport introduced a challenge as weight affected a lot of factors – safety, take-off/landing constraints and fuel burn to name but a few. Stories of landing on a Loch and being too heavy to get back out again required innovative thinking and a lot of self restraint on my part.

Robbie, GM0SEI kindly donated most of his shack to the cause including a rig, ATU and PSU, all an ideal size and weight for such a challenge. A suitable antenna had yet to be determined.

The rules stated we must be airborne for at least 8 hours. This limited the number of islands from which we could operate radio (circa 10), assuming 1 hour operating from each. My thoughts were of a swift station set-up/clear down with a rapidly deployable antenna. After some preliminary tests, it soon became clear that my 9m fibreglass pole antenna (bought years ago at a rally and never used) would be suitable.

With only an hour's operating time on each island, timing was pivotal. My garden became my training ground. Initially, I got the station set up and on air within 15 minutes. I reduced this to 8 minutes with a lot more practice and some time saving accessories. These included 20m of coax on a cable reel, plastic cable winders for guy ropes (to reduce tangling), 3 x 5m metal tape measures as ground planes, an ABS plastic instrument case to transport the main radio equipment and, of course, a rapidly deployable antenna.

GOING PUBLIC. Publicising our challenge started with a dedicated website [2]. This attracted attention, including that of BBC Radio Scotland, which resulted in two broadcast interviews. As we were going to be travelling to multiple islands, I had to work out how to let people know where we would be at any specific time. Publicising our route in advance was not adequate as it would be subject to weather, aircraft limitations and a whole host of other factors. So I started a blog [3]. This initially covered our preparations but later I used it for real-time updates using my mobile phone.

Wishing to make the amateur radio operation unique, I applied to Ofcom for the special event callsign GB4DTD. Orkney Crystal agreed to sponsor a specially commissioned engraved crystal trophy to present to the amateur radio operator who contacted GB4DTD on all or the most islands that we activated during the challenge.

DRY RUN. Next on our list was a dry run to demonstrate our preparations were adequate. For all our preparation, we never factored in an unpronounceable erupting volcano in Iceland, which changed air travel dramatically. Unperturbed, we tentatively chose a date in May for the dry run with the hope that Eyjafjallajoekull would be in a generous mood. During our dry run we traversed the West Coast of Scotland for 6 hours and were spotted by three YAKs (USSR WWII fighter aircraft) over Mull who used us for target practice. Low on fuel, we headed for Oban airport, which unfortunately had closed due to the ash cloud. With no option we landed and met up with the pilots of the YAKs that had such fun at our potential expense. Refuelled courtesy of Total Logistics Concepts, we were soon airborne. On the return journey Hamish practiced landing on two lochs at Islay and Jura, allowing me to practice operating from Jura. This practice was delayed a little after I fell into Loch Righ Mor. Top tip – invest £12 on a pair of rubberised surfboard shoes. Seaplane floats are slippery indeed.

PLANNING. This was left in the capable hands of Hamish. After around six iterations, I was presented with a meticulously calculated route. It included landings at 10 islands – Islay (Loch Finlaggan), Jura (Loch Righ Mor), Colonsay, Barra, Lewis, Rousay (Muckle Loch), Fair Isle, Papa Westray, Westray and Kirkwall (mainland Orkney Islands). In addition, Hamish included 28 lighthouses for photographing. The timing of our route was crucial and factored in that we had to be airborne for at least 8 hours. We had to take off at 4.30am local and finish by 9.30pm.

Then, with only days to go, Hamish dropped the bombshell question, "Could you revisit your radio kit weight as I now have an inflatable life raft to take?" After version six of the route plan, we agreed on adding a life raft to our already prudent safety measures of individual life jackets, personal locator beacon and flares. As it turned out, making the fighting weight was just achievable, but only at the expense of some radio contingency.

THE CHALLENGE. On 14 June, team G-DRAM departed Prestwick airport at 0430 with lots of sandwich-making ingredients, a flask of tea and other essential items. Hamish intentionally departed with the fuel tanks less than full to ensure that G-DRAM wasn't too heavy to take off from the lochs at Islay and Jura. It would have been a bit embarrassing if we couldn't get back into the air.

We arrived at Loch Finlaggan, Islay at 0537 and paddled ashore. The set-up was longer than I expected, however my rubberised shoes were great. Before long I was working 40m SSB. Minutes later I was visited by clouds of midges. I used Deet spray but this rendered my tea undrinkable, leaving an oily film mixed with significant numbers of expired midges. A bash on the key was necessary as I was now literally choking on midges. The radio kit functioned very well though and

PHOTO 2: G-DRAM over Loch Finlaggan.

PHOTO 3: Operating on Barra Beach with the Twin Otter aircraft in the background.

I worked into Europe with excellent reports.

After only a ten minute hop we splashed down on Loch Righ Mor, Jura. Once G-DRAM was tethered I was off setting up the kit and operating into Eastern Europe.

Colonsay is only 11 miles from Jura. A quick radio set-up there allowed me maximum time to operate. It was mostly UK stations on 40m, so I ventured up to 20m and was soon busy with Europe. A few locals visited and enjoyed a cup of tea interspersed with some radio/seaplane chat.

Following a fly-past of Dubh Artach lighthouse, we arrived at Oban airport for refuelling at 0934. After photographing more lighthouses, Hamish decided to change course, getting us into Barra six minutes early. This allowed us to beat the scheduled Flybe Twin Otter and beat the rush for the café.

Setting up the station, I introduced the gathering crowd to amateur radio. With mostly Europeans audible, Stateside made an appearance as if by magic to wow the curious crowd. It was however difficult to maintain interest in amateur radio as I had to compete with G-DRAM!

Our original route plan avoided the Hebrides missile range but we learned from ATC that the danger area was de-activated so we re-routed via the Monach Islands. After just 58 minutes from Barra we were over the Flannan Islands. This visit was only a few days before the proposed operation by MS0INT (see *RadCom* October).

Turning East, next stop was Stornoway for yet another island activation and re-fuel. Whilst transferring 95 litres to G-DRAM, I found the spot to set up. By now, getting on air was becoming easier and decidedly quicker. Operating 20m SSB, most activity was UK based from those actively following our adventure.

Our next leg included Cape Wrath, which was hampered by two danger areas, both active, with live bombing on Garvie Island. This presented a problem to our planned route. We had to head south and go around the obstacles. Passing Rubh an Tiumpain lighthouse we headed across the Minch. Having landed on Barra beach, Hamish was very keen to land on fresh water to wash off the sand and salt water.

The water landing at Heldale Water was a first for Hamish and required a few circuits to satisfy him that the Loch was deep enough for G-DRAM. I operated 20m SSB and CW from this unplanned and spontaneous location.

The island that I was looking forward to the most was Fair Isle. I had read about it and heard a lot from Hamish who had been there a few times. It has a hard airstrip that looks not too dissimilar to that of an aircraft carrier. A crowd was waiting on our arrival and many hands make for a quick equipment set-up. While the children played in G-DRAM, I engaged their parents to experience amateur radio. GM0SEI appeared on 20m SSB for a chat and so heard the radio that he had loaned me. Some time later, in the middle of a sizeable pile-up, Hamish gestured me to close down. In less than ten minutes I was packed up and waving goodbye.

To complete our required 8 hours airborne, our route plan scheduled a trip to the Shetland Isles that allowed some photographs of Sumburgh Head lighthouse. At only 6° south of the Arctic Circle we headed south west, increasing our flying time by about 90 minutes.

Touching down on Papa Westray we got the radio set up in record time – 8 minutes from touchdown to transmitting on 20m. Band conditions had deteriorated significantly and it was a struggle, working Europe only. After about 10 minutes operating, some visitors appeared and enjoyed a guided tour of G-DRAM then saw amateur radio. They'd heard the BBC Radio Scotland broadcast that morning. Airborne again, we made the gruelling 75 second flight to Westray with no time to bother with gear up and down. This journey is the shortest scheduled air route in the world!

Struggling on 20m, my final contact at Westray was with ON/M0OVL/M who had travelled to Belgium. Then it was on to the finish line – Kirkwall.

Having activated 9 of the planned 10 islands we decided to abandon the final operation from Kirkwall. We had, however, arranged for Stuart from Orkney Crystal to meet us on arrival and act as our witness to the landing time. True to his word, Stuart was waiting to greet us and also to present us with his generous gift of a stunning crystal challenge trophy. Interested in our adventure, we shared a drink with Stuart trying to summarise the last 17 hours before heading off for a hot meal and a well earned rest.

CONCLUSIONS. In just two months from an initial chat over coffee we had done what we set out to achieve. We had planned the entire trip, practised, sourced/modified radio equipment, created a website/mobile blog, obtained a special call from Ofcom, activated 9 individual islands, photographed 28 lighthouses, raised awareness of amateur radio/seaplanes and met many people during our adventure. We are already considering this as an annual event.

Congratulations to the well deserved winner of the Orkney Crystal trophy who was Jon, M0OVL/M for contacting us whilst mobile on 5 different islands – Islay, Jura, Colonsay, Papa Westray and Westray.

THANKS. Sincere thanks to our spouses, sponsors, Ofcom, Robbie, GM0SEI, Azeem, GM8KWQ, Marty, GM0LHK and many others. A full photographic account of our Dawn to Dusk Challenge can be found at http://picasaweb.google.com/latinlick/DawnToDuskGB4DTD#. Hope you enjoy it.

Statistics

9 islands activated on HF radio (SSB/CW)
15 different DXCC countries contacted
28 lighthouses photographed
8 hours 36 minutes airborne
16 hours 56 minutes total duration
692.5 nautical miles covered
351 litres of Avgas used
1 can of DEET spray used
10 cups of tea consumed

WEBSEARCH

[1] www.automatic-button.com/d2d/index.htm
[2] www.gdram.com
[3] www.g-dram.blogspot.com

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Homebrew

We start building a HF transceiver

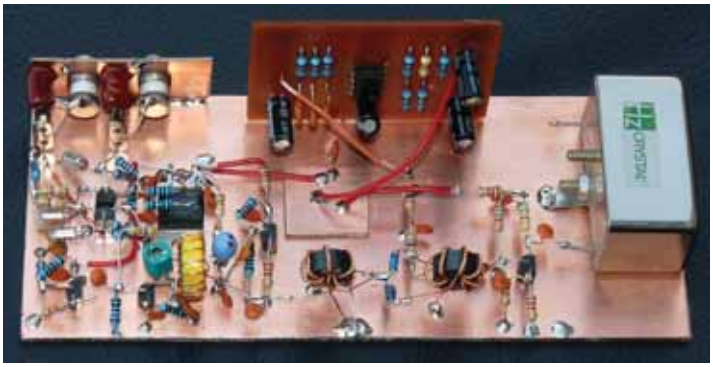


PHOTO 1: The SSB exciter that we build this month. The oscillator section is on the left, balanced modulator bottom-centre and the crystal filter on the right. The PCB at the top is the mic amplifier.

LONG IN THE TOOTH. After more than eighteen years of service, my old homebrew HF transceiver is well past its sell-by date. All the electronic bits are still in good order, but some of the mechanical components are completely worn out. The 6:1 reduction drive for the VFO and the band selector switch are in very poor condition. Some of the components in this transceiver were recovered from scrap equipment that had probably seen many years of wear and tear before it ended up in my junkbox.

The conventional wisdom is that a home made rig is easy to repair: if you make it yourself, you should be able to fix it yourself. This is not necessarily true in every case. My old rig is completely undocumented. As it wasn't built from a published design, there were no schematics available at the time of construction. Building the rig was an evolutionary process. Each stage was built as a separate module. If I wasn't satisfied with the performance of any individual module, it was ripped out and replaced by something else. The end result was a working transceiver that had everything I might need, except for a service manual or even a set of schematics. I will probably repair it at some time in the distant future but, first, I will have to build a replacement rig so that I am not left without a backup transceiver in the very likely event that it all goes horribly wrong!

A relatively complicated project like an HF transceiver will take several months to complete. Each module will be built and tested over the next few months. *Note that this is not a description of a finished project. This is very much a work in progress.* At the time of writing, I have only built the SSB exciter unit. This, and each of the following modules, will be described in cookbook fashion. The constructor may choose to build a transceiver based very closely on my design or you may prefer to mix and match by using parts of this design and integrating them into a completely different project.

A SIMPLE SSB EXCITER. I will need at least three exciter units, each with a different intermediate frequency. One for the new HF transceiver, one for a new 10m transceiver project and one to be used to make a 2m transceiver out of our recent VHF synthesiser/receiver project. I have tried to make this unit as generic as possible; it will work with any of the standard intermediate frequencies between 7.8 and 12MHz. This frequency range allows the constructor to use the most commonly available IF filters with a centre frequency of 10.7, 10.695, 9 and 7.8MHz. If a suitable IF filter is not available, you can use a home-made crystal ladder filter instead. 8, 10 and 12MHz crystals are cheap and readily available.

There are many different methods of generating an SSB signal. Our last SSB transmitter project (March-May 2009) used the phasing method of SSB generation. This month's project is a conventional filter method SSB generator.

Photo 1 shows the prototype SSB exciter and **Figure 1** a simplified block diagram. The carrier is generated by a crystal oscillator. A couple of buffer amplifiers increase the carrier signal to a level that is suitable for driving a simple diode double-balanced modulator (mixer). The AF signal from the microphone is amplified by a simple opamp-based amplifier/LPF and then applied to the other input port of the balanced modulator (BM). The balanced modulator is a modulator that suppresses both the carrier and the AF input from the microphone amplifier, leaving only the sum and difference frequencies at its output. These are the upper sideband (USB) and lower sideband (LSB) signals. This double-sideband signal is passed through a very selective IF filter that removes the unwanted sideband. The IF filter further attenuates the carrier that was suppressed in the BM.

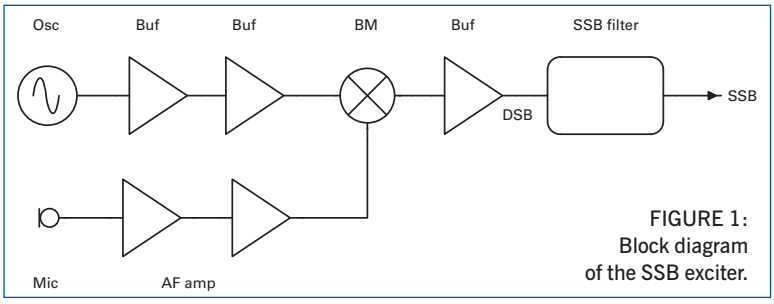


FIGURE 1: Block diagram of the SSB exciter.

OSCILLATORS AND BUFFER AMPLIFIERS. Due to the worn out reduction drive in the tuning mechanism of my old rig, I have been using the PIC controlled DDS signal generator (March 2010) as an external VFO for the last few months. As this DDS VFO uses an oven controlled crystal oscillator for the DDS clock, it has extremely good frequency accuracy and stability. I can depend on the DDS to produce a HF local oscillator signal accurate to within 1Hz. This impressive performance is not matched by the relatively poor stability of the LSB and USB carrier oscillators. These oscillators have long term stability of no better than 20-50Hz over a period of a few weeks and perhaps as much as 100Hz from the hottest day of summer to the coldest day of winter. I find that it is necessary to re-calibrate the carrier oscillators at least twice a year to maintain good frequency accuracy. Hopefully the oscillators in the new rig will not require such frequent attention.

To keep USB/LSB switching as simple as possible, I used two separate crystal oscillators to generate the LSB and USB carriers. It would have been possible to use a single oscillator and a simple electronic switch or a relay to select the correct crystal for the required sideband mode. The extra cost and complexity of the dual oscillator configuration is easily justified by the greatly simplified USB/LSB switching and fact that no extra transistors, PIN diodes, MOS switches or other temperature sensitive components will be placed in circuit with the crystal resonators. This scheme is easily extended to accommodate a third oscillator with a suitable offset for CW reception if this is required.

The oscillators were designed with good frequency stability as a primary consideration. The oscillator and first buffer amplifier are powered from

$$X_{C1} = \frac{R1}{Q_L}$$

$$X_{C2} = R_L \sqrt{\frac{\frac{R_1}{R_L}}{(Q_L^2 + 1) - \frac{R_1}{R_L}}}$$

$$X_{L1} = \frac{Q_L R_1 + \frac{R_1 R_L}{X_{C2}}}{Q_L^2 + 1}$$

FIGURE 2: Standard handbook formula for determining the oscillator output filter network.

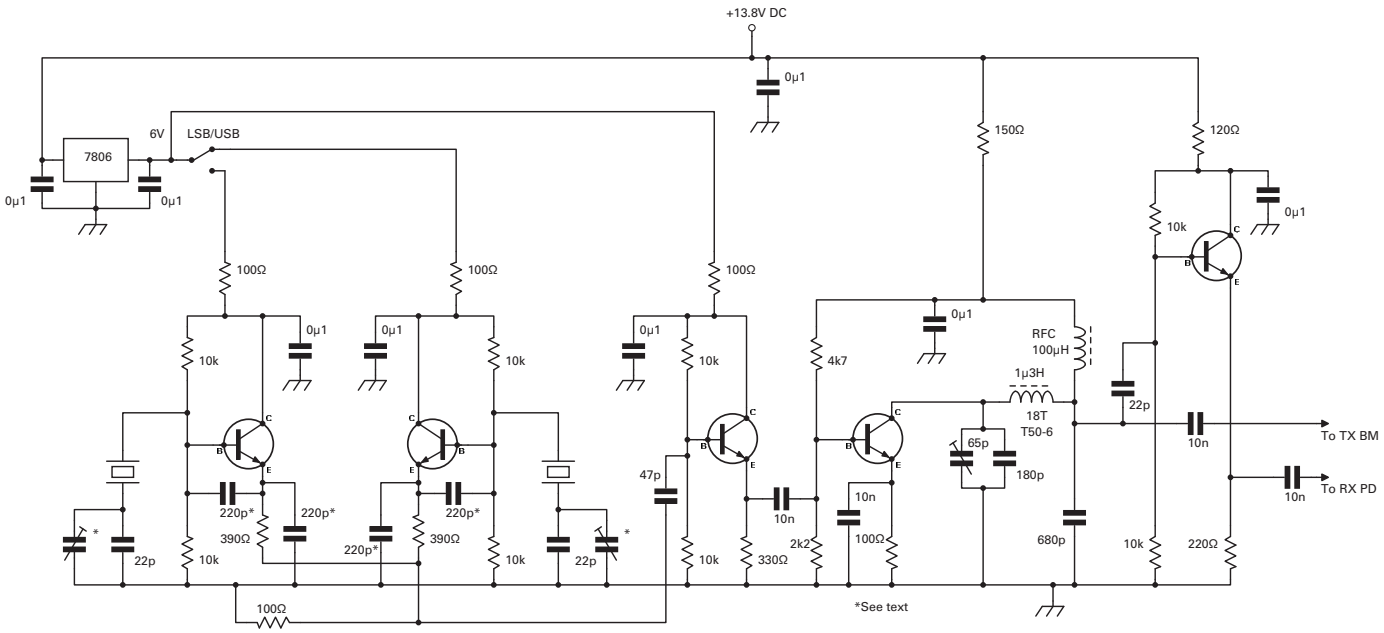
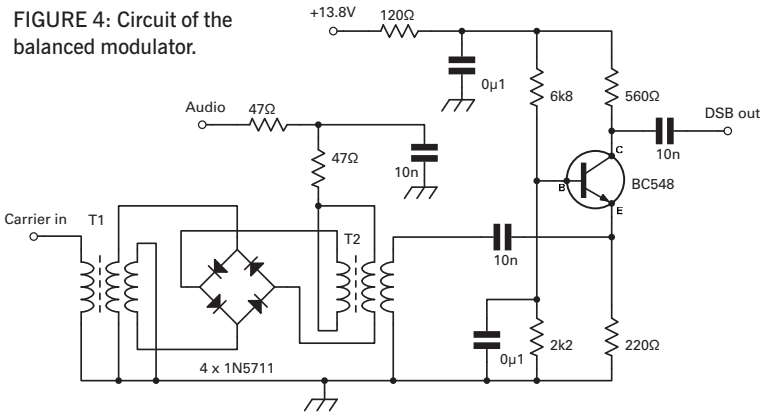


FIGURE 3: Circuit diagram of the SSB exciter oscillator section.

a 6V stabilised DC supply. The capacitors in the frequency-determining parts of the oscillators are high stability polystyrene types. Silvered mica or NPO type ceramic capacitors should also perform well in this circuit. The oscillator output is buffered by an emitter follower (common-collector) amplifier. This has no voltage gain, but it provides good isolation between the oscillators and the final carrier amplifier. The final amplifier is a simple common-emitter amplifier. This is followed by a simple pi low-pass filter network designed for a collector load impedance of 450Ω, output impedance of 50Ω and a loaded Q of 7. The standard handbook formula **[1]** for designing this network is shown in **Figure 2**. Using R1 = 450Ω, R2 = 50Ω, QL = 7, f = 10.7MHz gives us reactance values of XC1 = 64.285 (231pF), XC2 = 23.426 (635pF) and XL2 = 82.209 (1.223µH). These values were tweaked slightly to fit the nearest available component values. The oscillator section schematic is shown in **Figure 3**.

exact value of this capacitance will depend on the characteristics of the crystals used. A value of around 30pF is typical. I used a 22pF silvered mica capacitor in parallel with a high quality 12pF air dielectric trimmer capacitor. You may need different values to match your crystals. The four 220pF feedback capacitors in the emitter circuits of the oscillators are polystyrene types. A 7806 voltage regulator provides the 6V DC supply for the oscillators and the first buffer amplifier. As the current drawn by the oscillator and first buffer is only a few mA, it is not necessary to provide a heat sink for the regulator IC. The 100nF decoupling capacitors are ordinary disc ceramic types.

FIGURE 4: Circuit of the balanced modulator.



High quality components and good VHF construction methods will help you to achieve the best possible oscillator stability. The choice of components for the buffer amplifiers is not as critical. Ordinary ceramic capacitors can be used in these stages. The 1.3µH inductor in the output network is 18 turns of 0.375mm enamelled wire (see below) on a T50-6 (yellow) powdered iron toroid. A 65pF trimmer capacitor (Philips yellow or similar) is used as part of C1 in the pi network. The 100µH RFC is a miniature moulded type. The value of this component is not critical; any RFC with a value of 22µH to 220µH would make a suitable replacement.

Note that the oscillator section has a high level output to the balanced modulator and a separate carrier output via an emitter-follower buffer amplifier. This output can be used to provide a beat frequency oscillator / carrier injection oscillator (BFO/CIO) signal for the receive section of a transceiver. This stage is optional and it can be omitted if you are just building a transmitter.

Photo 2 shows the oscillator section of the exciter. The circuit might look like a bit of a rat's nest, but it is electrically and mechanically very stable. At the left side of the photo you can see how the crystals and their trimmer capacitors are mounted on a small strip of double sided PCB that is soldered to the main PCB ground plane. Both crystals were pre-tinned with solder at one top corner and then soldered to the vertical PCB. If you decide to use the same approach, don't apply the iron to the crystal mounting can for more than a few seconds or you may cause damage, including melting the can's soldered hermetic seal.

OSCILLATOR CONSTRUCTION. The exciter was built on a strip of copper PCB laminate. All five transistors in the oscillator section are BC548 or similar general purpose NPN types. I used a 10.7MHz IF for testing the exciter. This is not necessarily my final choice of IF for the HF transceiver. The centre frequency of my IF filter is 10.6985MHz. The USB carrier oscillator is 1.5kHz lower at 10.697MHz and the LSB carrier oscillator is at exactly 10.700MHz. Each crystal is tuned to resonance by a series capacitance. The

OSCILLATOR TESTING. The oscillator output was terminated with a 50Ω resistor and an oscilloscope was used to measure the output voltage. The 65pF trimmer in the output network was adjusted for maximum voltage across the output load. The two oscillators

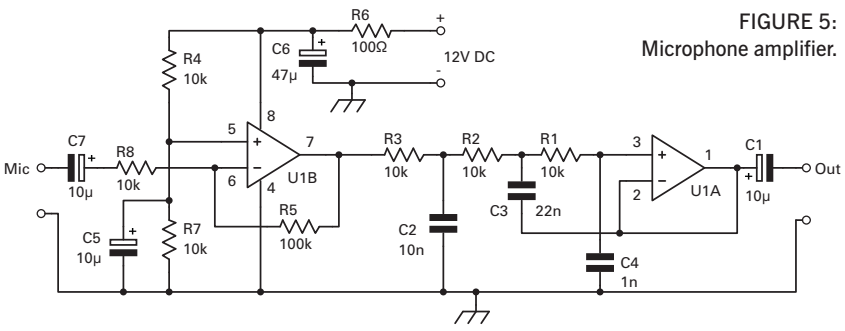


FIGURE 5: Microphone amplifier.

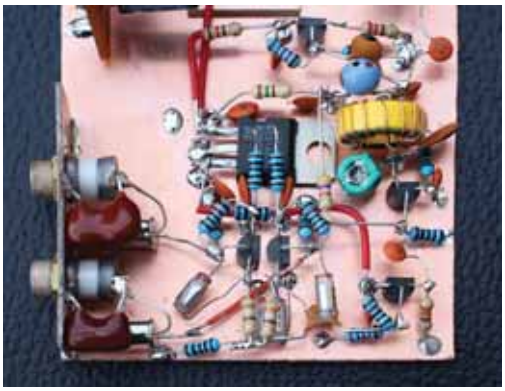


PHOTO 2: Oscillator section of the exciter.

were adjusted to the correct frequencies of 10.697MHz and 10.7MHz using a frequency counter. Once final testing is complete, the oscillator frequency can be set to the exact value required after a suitable warm-up period. There was a slight difference in output level between the two oscillators, but the measured output was between 2.2Vp (4.4Vp-p) and 2.5Vp (5Vp-p) for both oscillators. This is around 50-60mW (or +17dBm), which is an ideal level for driving the LO port of a high level diode double-balanced mixer (DBM). Frequency stability seems to be excellent. The measured drift is within 1Hz per hour after a few minutes warm-up. The greatest frequency error measured over a period of a few days was less than 10Hz. This shows medium to long term stability of 1ppm, which is about as much as can be achieved by a simple crystal oscillator. It seems that the carrier oscillators are significantly more stable than the oscillators in my old rig. I will have to wait for a few cold winter mornings for the final stability tests. The output signal from the oscillator is a nice, clean and symmetrical sine wave. Measured second harmonic output is -45dBc. No other spurious outputs were detectable.

BALANCED MODULATOR. After considering the various options available, I decided to use a simple diode DBM as the balanced modulator. This simple device offers much better performance than any of the commonly available balanced mixer/modulator ICs like the NE602/612, SA602/612 etc. High level mixer/modulator ICs are available, but they are not that easy to find and they are usually quite expensive. Such devices offer performance that is almost as good as, but certainly not better than the humble diode mixer. The disadvantages of the diode mixer are the requirement for a high level of local oscillator injection (carrier oscillator in this case) and a small conversion loss instead of the conversion gain of a typical active mixer. The high LO injection level requirement is easily met by our new carrier oscillator unit. A simple transistor amplifier will compensate for the mixer conversion loss. The price/performance ratio of the diode mixer/modulator is absolutely unbeatable. Four diodes will cost between 4p and 40p depending on diode type. Junkbox toroids usually come at zero cost. The ferrite 'cups' from Toko and similar types of 10mm RF/IF transformers make excellent toroid cores. Even if you buy a pair of FT37-43 toroids, you can make a high performance BM for well under £1.

For many years, it was normal practice to tolerate a fairly high level of distortion of the signal from the balanced modulator. All out-of-passband spurious signals caused by harmonics of the AF signal from the microphone amplifier and odd-order IMD products (which are the most common cause of 'splatter') are very effectively removed by the SSB filter. Many SSB exciters use AF compression and/or clipping of the modulation signal, RF/IF compression and/or clipping of the IF signal from the balanced modulator and non-linear variable-gain IF amplifiers or attenuators as a method of applying ALC (automatic level control). The distortion generated by these various devices will affect the quality of signals within the SSB filter passband, but should not cause a significant increase in spurious signals outside the filter passband. In some cases, a small amount of clipping and/or compression might be considered desirable because it increases the average output power of the transmitter.

Modern trends call for improved linearity of the transmit AF and IF systems. Improved SSB quality will result in cleaner signals and less splatter on the bands. The proliferation of narrow bandwidth modes like PSK31 places greater emphasis on transmitter linearity. As it is possible to fit more than a dozen PSK31 signals within the passband of a typical SSB filter, it will be obvious that poor in-passband linearity that does not produce splatter outside the SSB filter passband could still cause severe interference to other PSK31 stations on adjacent frequencies.

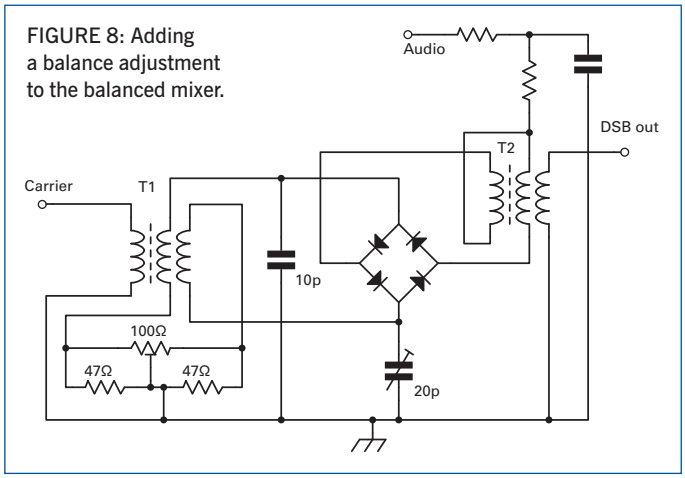


FIGURE 8: Adding a balance adjustment to the balanced mixer.

BALANCED MODULATOR CONSTRUCTION. Figure 4 shows the schematic of the balanced modulator and amplifier. The modulator is a standard diode mixer based on a ring of 1N5711 Schottky diodes. T1 and T2 are each 7 turns of trifilar wound 0.375mm enamelled copper wire (Maplin YN86T or similar). Any enamelled wire with a diameter of 0.3-0.5mm should be equally suitable. The toroid cores are FT37-43 or similar medium to high permeability ferrite toroids. I have built several similar mixers for some of our previous projects and found that all of them have very high LO to RF port

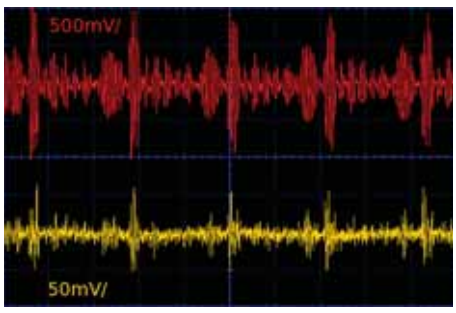


FIGURE 6: SSB exciter input (yellow, 50mV/div) and output (red, 500mV/div).

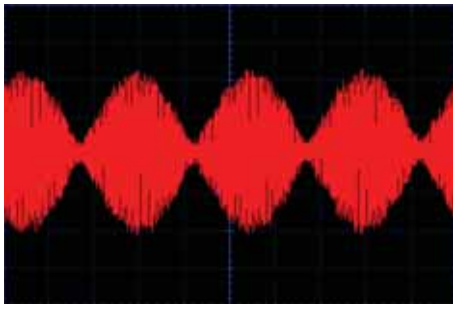


FIGURE 7: Two tone test signal output from the exciter.

isolation of around 50dB, so I have not included any carrier balance adjustment in my prototype circuit. More about this later...

The BM is followed by a simple common-base transistor amplifier. This amplifier acts as a buffer between the mixer output port and the highly reactive input impedance of the crystal SSB filter. The amplifier also provides the required impedance transformation from the 50Ω mixer output port up to several hundred ohms at the input of the SSB filter.

When a DBM is used as a balanced modulator, the ports are configured so that the IF port becomes the AF input and the RF port becomes the IF output port. The mixer IF port provides the only input that can operate at frequencies from VHF all the way down to DC. The simple RC network at the mixer IF port provides a proper termination for RF signals. I used 47Ω resistors because this was the nearest available standard value to 50Ω. You can, of course, use 51Ω resistors if they are available, or simply put two 100Ω resistors in parallel. The 1N5711 diodes were matched for forward voltage drop using a digital multimeter. Other Schottky diodes like the BAT43 (Maplin VR19V) should also work well in this circuit. I haven't tried using ordinary switching diodes like the 1N914 or 1N4148 in this circuit, but I would expect them to work well. **Photo 3** shows the balanced modulator. Note how T1 and T2 are made. The 7 trifilar turns are evenly spaced around the toroid core. The three strands of enamelled copper wire are twisted tightly together so that the three windings are physically and electrically identical. The four diodes are formed into a diamond shape with the leads twisted together and then soldered. This uncharacteristically neat, tidy and symmetrical construction gives my prototype remarkably good carrier suppression. I used a BC548 transistor for the common-base amplifier.

PHOTO 3: The balanced modulator.

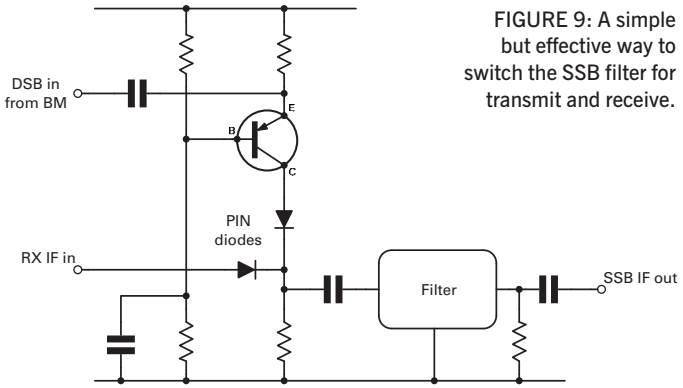


FIGURE 9: A simple but effective way to switch the SSB filter for transmit and receive.

MICROPHONE AMPLIFIER. The microphone amplifier of **Figure 5** was first described in the August 2006 Homebrew. It can be built dead-bug style like the other stages, or if you prefer to make a PCB, the artwork can be found at http://tinyurl.com/2wb7aut. The microphone amplifier has a voltage gain of approximately 10, taking the 10mV output from a typical microphone up to about 100mV. The gain is easily modified by changing the 100k feedback resistor; if variable gain is required, this can be replaced by a 220k or 470k pot.

EXCITER TESTING. Testing and alignment of the SSB exciter turned out to be a very easy job. The oscillator unit has already been aligned and tested and there are no other adjustable components in the exciter. The finished exciter unit is shown in Photo 1. The oscillator section is on the left, the microphone amplifier PCB is at the top-centre, the balanced modulator is at bottom-centre and the 10.7MHz crystal filter used for the tests is shown on the right. Note the small square piece of single-sided PCB which is super-glued to the centre of the board. This is used as a distribution point for the 13.8V DC supply.

I used my desk microphone for the initial tests. At a normal speaking level, this microphone produces an output of about 10-20mV p-p. The microphone amplifier increases this to 100-200mV p-p (or 70.7mV RMS). This is -10dBm, or 100 microwatts into 50Ω. Applying a few well-proven rules of thumb tells us that the mixer/modulator output third order intercept point will be approximately the same as the oscillator injection level of +17dBm. The input IP3 will be about 6dB higher at +23dBm, 33dB above the modulation audio level. This should result in a very clean SSB signal with third-order IMD some 66dB below the desired output for in-band IMD. Distortion products outside the SSB filter passband should be so low as to be unmeasurable.

The measured voltage gain of the common-base base amplifier at 10.7MHz is 18-20x. At first glance, this would seem to indicate a gain of 26dB. The real power gain is much less because the amplifier output load impedance is higher than the input impedance. However, the overall circuit has considerable gain. 10mV at the microphone input produces several hundred mV of SSB at the filter output. **Figure 6** shows oscilloscope measurements of the input (yellow at 50mV/div) and output (red at 500mV/div) of the common-base amplifier. **Figure 7** shows the output signal during a two-tone test. An audio sample of the first test can be found at http://homepage.eircom.net/~ei9gq/exc_test.mp3. The audio quality seems quite good, although I find it a little too bassy. This is probably due to the characteristics of the microphone. As expected, carrier suppression at the output of the common-base amp is better than 50dB and more than 60dB below peak output when measured at the output terminal of the SSB filter.

A FEW TIPS. It is possible to add carrier balance adjustment to a diode DBM. Home made mixers have an advantage over pre-packaged mixers in this regard. It is a lot easier to add the balancing components when the mixer is not hidden in a tin can. **Figure 8** shows how a carrier balance pot can be added to the BM. Ideally the resistance of the potentiometer should be quite low relative to the mixer termination impedance of 50Ω. As low value pots are not easy to find, I used a potentiometer made from a combination of one variable pot and two fixed resistors. This circuit also includes a pair of low value capacitors which can be used to tune out any imbalance due to stray reactances in the circuit.

Figure 9 shows a simple but effective switching method that allows the same SSB filter to be used for transmitting and reception. This is achieved by using a PNP transistor in the common-base amplifier so that the circuit is effectively turned upside-down. The filter termination resistor becomes the collector load resistance. A PIN diode switch disconnects the amplifier from the filter when the switch is biased for receive operation. Be careful when you are experimenting with DC bias currents for diode switching. DC current applied to the I/O pins of a crystal filter could easily burn out the very thin wire used for the internal transformers.

Next month we'll look at the transmit mixer and bandpass filters.

REFERENCE:

[1] *ARRL Electronics Data Book*, ARRL 1976

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VHF NFD

The Big Question: What decided VHFNFD 2010? Was it weather, station performance or both?

Wexford CG EI9E/P: Tom EI5ASB & John EI2FG assemble the 70 & 23cm antennas. (Photo: G4CLA).

VHF NFD. There will be some entrants to the 2010 VHF highlight contest who attribute their team's overall performance more to the weather than to propagation, operating rigour or equipment reliability. As the soapbox comments attest, some were unperturbed throughout, some were visited by every awfulness imaginable and many *enjoyed* experiences somewhere in between.

RULES. Some rule changes were made this year. Unchanged is the principle of a four-section multi-band portable contest, comprising Open, Restricted, Low Power and Mix & Match. New power limits were introduced for 70MHz Restricted and Low Power sections, at 40W & 10W respectively, to align better with the Open section full legal power of 160W. The Fixed Sweepers element had two sections this time: Open, all band full legal power & unlimited antennas and Restricted, 100W maximum power on all bands except 70MHz (40W) and only one antenna per band. Fixed Sweepers were required to establish QSOs only by replying to a station calling CQ.

ENTRIES. *Portable.* 204 station logs were submitted. 218 stations were registered. Band distribution: 50MHz: 55, 70MHz: 37, 144MHz: 52, 432MHz: 42, 1296MHz:18. Group entries by section: Open: 15, Restricted: 15, Low Power: 13, Mix & Match: 18. 29 registered stations made only a token appearance or did not get on the air at all.

Fixed Sweepers. 9 logs were submitted for the Open section FSO. Band distribution: 50MHz: 1, 70MHz: 1, 144MHz: 3, 432MHz: 2, 1296MHz: 2. The Restricted section FSR attracted 47 logs. Band distribution: 50MHz: 12, 70MHz: 6, 144MHz: 16, 432MHz: 9, 1296MHz: 4. There was one disqualification on 50MHz for non-compliance with the rule requiring that contacts in FS may only be made in response to CQ calls, that is by Search and Pounce.

The tabulated results for all entrants – portable & sweeper – and a fuller commentary can be found on the RSGB Contest Committee website www.rsgbcc.org/vhf/results/10/VHFNFD1.html.

PORTABLE RESULTS. *Open section.* Wexford VHF Group appears at the top of the table in #1 position with an overall score of 4746 points. Only UK-based entrants are eligible for Awards and band-scores are normalised against the highest scoring UK-based station. Thus Wexford's normalised scores on both 50MHz and 70MHz exceed 1000 points.

In official 1st place lies Colchester RA with 3929 points. They regain 1st place – coming 4th last year following 5 previous years at the top. They receive the Surrey Trophy. In 2nd place lies Reigate ATS & Crawley ARC with 3436 points – dropping down from 1st last year and pushing Windmill CG down from 2nd last year to 3rd with 3055 points. The highest placed Scottish group, at 5th, is Aberdeen VHFG, seizing the Tartan Trophy from Cockenzie & Port Seton ARC, who are placed 6th this year. Placed at #2 is F/G4FZN/P – for the first time a second overseas station has competed and is welcomed.

Restricted section. 1st place goes to South Birmingham RS with 3111 points, leapfrogging from 3rd last year. They receive the Martlesham Trophy. In 2nd place lies Newbury & DARS with 2996 points, up from 4th last year and nudging N E Surrey down to 3rd place with 2892 points. Last year's winner, Cray Valley RS, lies 4th this year with 2564 points. The highest placed Scottish group is Lothians RS, at 5th with 2089 points – retaining the Cockenzie Quaich for a third year.

Low Power section. 1st place, for the 4th year running, goes to Warrington CG with 3000 points. They retain the Arthur Watts Trophy. Again in 2nd place lies Lagan Valley ARS with 2266 points. Jim Martin MM0BQI/P, in 3rd place with 1913 points, takes the Scottish Trophy, as the highest placed Scottish station – pushing Loch Fyne Kippers into 4th place with 1834 points.

Mix & Match section. 1st place goes to Rochdale & DARS with 3204 points. They are awarded the G5BY Trophy. In 2nd place is Telford & DARS with 2930 points. 2009 winner, Trowbridge & DARC, drops down to 3rd place with 2676 points. Down from 2nd last year to 5th with 2296 points, Mid-Lanark ARS remains the highest placed Scottish station.

Certificates. In addition to the Awards mentioned above, Certificates will be awarded to all registered portable stations in the winners and runners-up position in all overall sections and bands and to the leading stations in each UK country. Additionally, Wexford VHF Group is awarded a Certificate as the leading overseas Group entry.

FIXED SWEEPERS RESULTS. Certificates are awarded for each band as follows: Band Leader and Gold, Silver and Bronze Awards for contacting 90%, 75% and 50%, respectively, of Registered VHF NFD stations.

50MHz:	FSO Leader: G3TXF
	FSO Bronze Award: G3TXF
	FSR Leader: G3XNO
	FSO Bronze Award: G8LZE
70MHz:	FSO Leader: G6UBM
	FSR Leader: GW8ASD
	FSR Bronze Award: GW8ASD, G8CUL
144MHz:	FSO Leader: G0JJG
	FSO Bronze Award: G0JJG, M0DJW
	FSR Leader: G6NHU
	FSR Silver Award: G6NHU, G0XDI
	FSR Bronze Award: G4PDS, M5FUN, G3PIA, G8DOH, G8LGS, G3XNO, G4VPD
432MHz:	FSO Leader: G3XDY
	FSR Leader: G0XDI
	FSR Bronze Award: G8DOH, G3PIA
1296MHz:	FSO Leader: G3XDY
	FSO Bronze Award: G3XDY, G0JJG
	FSR Leader: GW8ASD

TABLE 1: Nations and numbers of individual callsigns worked.

Country	50MHz	70MHz	144MHz	432MHz	1296MHz
4O Montenegro	1				
5B	2				
9A Croatia	7	3			
9H	1				
CT	1	2			
DL	95		178	56	24
E7 Bosnia – Herzegovina	2				
EA Mainland	10		12	3	1
EA6 Mallorca	1				
EI	11	1	15	4	1
ES	1				
F	20		164	37	9
G	325	122	760	219	80
GD	4	1	6	2	1
GI	8		18	6	
GJ	1		2		
GM	34	7	54	12	4
GU		2	3	1	1
GW	29	14	65	13	5
HA	4				
HB	13		17	4	
HB0 Liechtenstein	1		1		
I Mainland	54	17			
IS Sardinia	1	1			
LX	1	1	1	1	
LY Lithuania	6				
LZ	4				
OE	10		1		
OK	29	1	3	4	1
OM	5				
ON	25	5	61	10	3
OZ	13		2	1	1
PA	16		65	17	18
S5 Slovenia	9	5			
SM	7				
SP	29		1		
SV mainland/minor is	19	2			
SV5 Rhodes	1				
SV9 Crete	6				
TA	1				
UW Ukraine	2				
YL Latvia	4				
YU	2				

CHECK LOGS. Check Logs are gratefully acknowledged from Bryn, G4DEZ, Philip, G1TST, Sergio, EA3DU, Graham, G3TCT, Ivan, S51DI, Bob, G0ADH, Dave, G3YMC and Alun, G4WGE.

BAND REPORTS. In Table 1, a convention is adopted so that G, for example, means all English prefixes: G, M and 2E; GM means all Scottish prefixes: GM, MM and 2M; DL means all German prefixes and so on. Here and there a little more detail is given.

50MHz. In total 819 callsigns were worked (801 in 2009). In comparison with 2009, the 'worked footprint' was much reduced. Nothing is recorded as having been worked beyond Europe plus the singleton TA/G4IJD near Olu Deniz in Asia, close to the east Mediterranean sea.

The greatest number of QSOs, 239, was netted by Wexford VHFG (IO62) in Open section. The maximum number of QSOs by a UK station, 196, went to Rochdale & DARS (IO83) also in Open section. Last year, the QSO leader (Wexford VHFG also) netted 218 QSOs.

Wexford VHFCG (IO62) kicks off the soapbox comments: "Although the 6 metre contest in EI lasts for the full 24 hours, we decided that we would close down the 6 metre station on Saturday night, allowing us to share the mast with 4 metres. This was a good idea until we were hit by overnight gale force winds. Despite that, we found good conditions again this year with some nice Es openings and lots of UK activity. Verulam ARC (IO91) enjoyed very different weather, finding it superb – sunny all the time and a gentle breeze on the Sunday. They noted the Es but thought it down on that which existed a fortnight earlier. FS operator G4VPD (IO92) did not find much UK activity and G3TXF (IO91) found little or no Es. G0KYS (IO80) remarked upon the good Es early on. Trowbridge & DARC (IO81) sought to roll out their GS35 amplifier, completed just in time for the contest. Unfortunately it did not perform correctly with their generator. They report some excellent Es and found the contest interesting and thoroughly enjoyable. The Bristol Four to 70cm CG thought it a shame that the 50MHz session did not last the full 24 hours!

Band leaders: Open: EI9E/P Wexford VHFCG (IO62), Restricted: GM3HAM/P Lothians RS (IO74), Low Power: GI0RQK Lagan Valley ARS (IO74), FSO: G3TXF (IO91), FSR: G3XNO (IO93).

ODX achievements: Open: MM0CPS/P Cockenzie & Port Seton ARC (IO84) with 5B4AIF (KM64 SW Cyprus) at 3566km. Restricted: MI0SMK/P (IO74) with 5B4AIF at 3672km. Low Power: GM3SHK/P Loch Fyne Kippers (IO75) with 5B4AIF at 3670km. FSO: G3TXF (IO91) with Aberdeen VHFG, GM0FRT/P (IO86) at 636km. FSR: G3NXO (IO93) with 5B4AIFat 3398km.

70MHz. In total 184 callsigns were worked (155 in 2009). Activity showed an increase of around 20%. The most significant change from last year comes from the continuing roll-out of amateur permanent or renewed-temporary band allocations across Europe (and beyond). Sadly, no contact was recorded with Spain, Scandinavia or the Baltic states, but scores and ODX reflect the greater opportunities to work stations more remote from the British Isles.

The greatest number of QSOs, 126, was netted by Wexford VHFG (IO62) in Open section. The maximum number of QSOs by a UK station, 111, went to Bracknell ARC & Flight Refuelling ARS (IO80) also in Open section. Last year the QSO leader (BARC & FRARS) netted 103 QSOs.

Warrington CG (IO93) made 60% of their contacts in the first two hours. They enjoyed the Es to I / 9A / S5, but failed, with their low power, to break through the pile-up in order to bag SV. Telford & DARS (IO82) thought that the Es to Europe made the later hours of the contest much more enjoyable and ran up a local 70MHz record of 12 EU stations in a VHF NFD. Trowbridge & DARC (IO91) reported that a new RX preamp arrived just in time to fit on site but it failed to cure their FT-847's deafness. They resorted to a PW Meon with a 2m IF plus a PA. Newquay & DARS (IO70) blew up their linear again, but were pleased with their return with 30W in Open. Newbury & DARS (IO91) suffered a similar fate, shortly after the session started, but their output was reduced to a mere 2W. On balance, most folk enjoyed operation on 4m this year.

Band leaders: Open: EI9E/P Wexford VHFCG (IO62), Restricted: G0OLE/P Goole R&ES (IO93), Low Power: G3CKR/P Warrington CG (IO93), FSO: G6UBM (JO01), FSR: GW8ASD (IO83).

ODX achievements: Open: EI9E/P Wexford VHFG (IO62) with SV1OH (KM27 nr Athens, Greece) at 2853km. Restricted: G8LED/P Northampton RC (IO92) with SV1DH (KM18 nr Athens, Greece) at 2507km. Low Power: a tie at 2019km between G3CKR/P Warrington CG (IO93) with IF9/I2ADN (JM67 Egadi Is, to the W of Sicily) and Lagan Valley ARS (IO74) with 9A6R (JN83 Split, Croatia). FSO: G6UBM (JO01) with Warrington CG, G3CKR (IO93) at 264km. FSR: GW8ASD (IO83) with 9A6R at 1782km.

144MHz. In total 1429 callsigns were worked (1616 in 2009). In comparison with 2009, the worked footprint contracted by many hundreds of km to the south. Contacts with Spain were confined to its north coast. Interestingly, the UK callsigns on the air fell by 141.

The greatest number of QSOs, 443, was netted by the same group as last year, Reigate ATS & Crawley ARC (JO01) in Open section. Last year, they secured 439 QSOs.

Goole R & ES (IO93) commented: "Contest

Lothians RS GM3HAM/P: Brian, GM8BJF still working them on 70cm. Photo: Lothians RS website.

abandoned on the Sunday because of high winds!". FS Op G0XDI (IO91) found the going slow and frustrating but at least captured some EAs in the log. Conversely, FS Op G0JJG (JO02) noted some nice Es and added a smiley face. North Bedfordshire Gentlemen's CG (IO92) found good conditions for the most part, but had to finish early when the operating tent blew away. West Bromwich Central RC (IO92), true to form in their permanent oasis, enjoyed weather which was dry, bright and sunny! Bittern DXG (JO02) found conditions average, but problems with their linear amplifier reduced the power output to 25W in Restricted section. Weston-super-Mare RS (IO81) suffered a fault with their antenna/feeder, which severely limited their performance. Suffering like others, the wind destroyed their tent on Sunday morning. They hope for more operators next year (if only to hold the new tent down). Lothians RS (IO74) found Saturday to be good. At 1330 one operator remarked: "Great. Nothing has gone wrong". At 0730 on Sunday, the operating tent was decimated by gales gusting 60mph. They then spent 3 miserable hours in driving rain rescuing equipment and packing up. They do not report the fate of the rashly-commenting operator. Cockenzie & Port Seton ARC (IO84) reported: "What started good, ended bad. We left the two 70cm beams at home and the 4m elements. Our logging PC went faulty. Once up and running, all was going fine and then the wind hit us. Force 10. Our tents suffered damage and our 2m array on the tower, although well guyed, was not looking stable. The safety option then came in and we abandoned the contest. At the end of the day, everyone's safety is far more important".

Band leaders: Open: G5LK/P Reigate ATS & Crawley ARC (JO01), Restricted: Telford & DARS G3ZME/P (IO82), Low Power: Warrington CG G3CKR/P (IO93), FSO: G0JJG (JO02), FSR: G6NHU (JO01).

ODX achievements: Open: GM3ZUK/P Aberdeen VHFG (IO86) with EB1RL/P (IN83 S of Santander, Spain) at 1536km. Restricted: G0OLE/P Goole RS (IO93) with EB1RL/P at 1223km. Low Power: G3CKR/P Warrington CG (IO93) with F6FZS/P (IB93 SW of Pau, French Pyrenees) 1130km. FSO: G0JJG (JO02) with EB1RL/P at 1060km. FSR: G4UPD (IO92) with EB1RL/P at 1037km.

432MHz. A total of 390 callsigns were worked (448 in 2009). The worked footprint is remarkably similar to that for 144MHz, but with only 25% of its station population. This was true last year too. The UK numbers are down on last year by about 70 stations, but the French contribution has tripled. Conditions were flattish throughout and overnight operation did not prove to be particularly fruitful – again, just like in 2009.

The greatest number of QSOs, 163, was netted by Reigate ATS & Crawley ARC (JO01) in Open section. Last year, the QSO leader (Colchester RA) netted 153 QSOs.

Windmill CG (JO01) thought that propagation was OK, but that there was a lack of continental activity. Rochdale & DARS (IO83) bemoan that they were only able to operate for 5 hours, since their 70cm tent was blown away on the Saturday evening. NE Surrey CG (IO91) was buoyed by contacts with Scottish stations early in the contest. Sunday brought some real surprises: EB1RL/P coming back to a CQ call – and the arrival of Force 6 gales. Mid-Lanark ARS had an unhappy weekend, reporting: "Problems on the Saturday from our 2m station. Re-sited 70cm antenna, which hugely improved the situation, but QRM from another local station made a large part of the band unusable for us. We had to pull down the tent on Sunday morning as it was being destroyed in a storm". Moray Firth ARS (IO87) found very poor propagation for much of the contest, although improving very late on Sunday. Camb-Hams (JO02) suffered a fire in their linear amplifier just before contest start, so ran barefoot (75 watts in Open section) throughout. It took some while to get the smell of burned PCB out of the operating van.

Band leaders: Open: G0VHF/P Colchester RA (JO01), Restricted: G3SRC NE Surrey CG (IO91), Low Power: G8LED/P Northampton RC (IO92), FSO: G3XDY (JO02), FSR: G3XDI (IO91).

ODX achievements: Open: G0FBB/P Windmill CG (JO01) with EA1FO/P (IN 62 SW of Oviedo, Asturias, Spain) at 1089km. Restricted: G0OLE/P Goole RS (IO93) EB1RL/P (IN83 SW of Santander, Spain) at 1223km. Low Power: G5RV/P Mid-Sussex ARC (IO90) with EB1RL/P at 900km. FSO: G3XDY (JO02) with EB1RL/P at 1053km. FSR: G0XDI (IO91) with DL0GTH (JO50 Gotha, Thuringia, Germany) at 798km.

1296MHz. A total of 144 callsigns were worked (141 last year). The worked footprint is almost identical to that of 2009 but with the addition of 1 station in Denmark and conditions were unremarkable – in a positive sense.

The greatest number of QSOs, 76, was netted by Colchester RA (JO01) in Open section. Last year, the QSO leader Reigate ATS & Crawley ARC (JO01) netted 74 QSOs.

Sheffield ARC (IO93) wondered: "Where are all the UK home stations and portables?". Adding the comment: "Support for this band is well down on Tuesday night Activity Contests when similar scores can be made in a couple of hours, compared to a weekend at VHF NFD." Telford & DARS found scores well up on last year's results and were helped quite a lot by the use of 'KST'. Reigate ATS & Crawley ARC (JO01) commented that a possible 1000 (normalised) points for 24 hours of operating is poor reward compared to a possible 1000 points for only 6 hours operating on 4m. Moray Firth ARS reported: "Foul, horrible and miserable" and asked when southern stations will learn to point their beams north? Overall, there were not a lot of happy bunnies on this band.

CambHams G3PYE/P: All-band Antenna Farm. Photo: G1SAA.

NE Surrey CG G3SRC/P: Peter, G7PWV making the winning contact on 70cm. Photo: G7PWV.

Band leaders: Open: G0VHF/P Colchester RA (JO01), Restricted: G3OHM/P South Birmingham RS (IO92), Low Power: G3CKR/P Warrington CG, (IO93), FSO: G3XDY (JO02), FSR: GW8ASD (IO83).

ODX achievements: Open: G0VHF/P Colchester RA (JO01) with EB1RL/P at 1034km. Restricted: G2BQY/P Trowbridge RS (IO81) with DF0OL at 739km. Low Power: G3CKR/P Warrington CG (IO93) with EB1RL/P at 1119km. FSO: G3XDY (JO02) with EB1RL/P at 1053km. FSR: GW8ASD (IO83) with PA6NL at 500km.

SIGN OFF. Congratulations to all those who have been awarded Trophies and Certificates and to all participants on behalf of Band & Overall Adjudicators: Ian Pawson, G0FCT, Bob Edgar, G0KYS, Roger Dixon, G4BVY, Richard Cooper, G4WFR and Commentator: John Simkins, G8IYS.

Many thanks to all the entrants who sent in photographs.

Data

More on standalone radio data terminals

PHOTO 1: Component side of the PS/2 keyboard to RTTY adapter module.

NUE-PSK TERMINAL. I mentioned this standalone PSK31 and RTTY modem last time and how it can take the place of a PC for lightweight, low power consumption portable operation. Since writing that I purchased a kit, built it and now have a fully operational unit. The kit version is not for the faint-hearted constructor. While most of the components are of standard surface mount type with a few through-hole parts, there are three ICs in the tiny TSSOP package with its 0.65mm pin spacing. These are the DSPic processor chip itself and two level converters. The kit instructions give very clear advice on the best way to mount these chips and, if followed precisely, most experienced homebrewers shouldn't come to grief. The NUE-PSK Yahoo user group **[1]** has some particularly helpful and experienced members, including the kit designers themselves who will answer all your questions, almost by return of e-mail it seemed!

It really is a novelty being able to receive and transmit PSK31 and RTTY without having to have a PC or laptop on at the same time. There is something very satisfying in just using a transceiver and small box to communicate.

Steve, G1KQH was slightly critical of the NUE-PSK modem, saying "I noted your article about the NUE PSK31 terminal, I have tested this before. Although useful, in today's tight world of money I do find it expensive! Especially when it only supports PSK stuff *[it also does RTTY – 'JNT]*. There are new netbooks now available on eBay and I have seen them in some shops for about £60. Using the Arm 300MHz processor, they run WinCE 5 or 6. I can't understand why the amateur software writers are not supporting them. I have heard there is talk of getting Debian Linux to run on them, but again very little info is available at the moment. These cheap PCs would be ideal for PSK31 and APRS, plus log keeping and a lot more if they were supported!" See **[2]** for more details.

RTTY KEYBOARD ADAPTER. Last time we discussed the problem of finding RTTY software to give a raw data output for direct FSK modulation rather than upconverting from audio tones. Even the NUE-PSK box will only generate audio. As a quick fix for driving a simple QRP transmitter, a code converter module like the one on my website **[3]** can do the job. Using a 16F627 PIC, it reads the data from a PS/2 type PC keyboard and converts this to a logic level 45 Baud RTTY data line for direct connection to the input of a suitable transmitter, such as the driver module in October's Design Notes. The two photographs show top and bottom views of the prototype. Full details, including a PCB layout and PIC code for building your own, can be found at [3]. If you have problems getting hold of a PS/2 keyboard – the sort with a 6 pin mini-DIN plug as its connector – a modern USB type with a USB to PS/2 converter will work. These converters are not as common as the reverse kind for using a PS/2 keyboard with a USB connection, but several suppliers can be found with a bit of searching. PS/2 keyboards frequently show up at rallies and can still be found in the computer shops.

NEW MODES AND SOFTWARE. Several new data modes have been announced recently. Dave Rowe, VK5DGR has just released an open source speech codec that could potentially be used in such digital voice applications as FDMDV (Frequency Division Multiplex Digital Voice, by N1SU). Dave says that his new *CODEC2* needs work, but the speech quality of the alpha release is pretty good. On his website **[4]** he has a few audio samples of *CODEC2* and some from the proprietary codec *MELP* for comparison. Digital voice developers ran into problems recently when the owners of the intellectual property rights for the *MELP* coding scheme objected to its semi-commercialised use by amateurs. The new *CODEC2* should overcome these issues and reintroduce a purely amateur-designed open source digital voice system that does not rely on proprietary hardware in the way that D-Star does.

V4 or *V4CHAT* is a new HF digital mode coming in a few months. It promises better weak signal performance (5 to 10 dB below the noise) in a relatively narrow bandwidth. It uses multiple tones like Olivia but is not as wide. It has been written by Rick Muething, KN6KB.

Winmor is a radio transmission protocol intended to be used in the *Winlink 2000* global radio e-mail system by amateur radio operators, marine radio stations and radio stations in isolated areas. It will complement PacTOR in the HF portion of the *Winlink* system. *Winmor* was also written by Rick Muething, KN6KB and was introduced at the 2008 ARRL / TAPR Digital Communications Conference. Unlike PacTOR, only a simple computer soundcard-to-radio interface is required. It has two modes, either 500 or 1600Hz in bandwidth, and provides ARQ speeds ranging from 67 to at least 1300 bits/s, similar to the various modes of PacTOR. It is fully documented and without restrictions or license issues preventing anyone from using the protocol in other software. *Winmor* supports both connected (ARQ) and FEC (broadcast) modes.

A new version of WSPR is currently under development for IQ equipment such as Softrock receivers. Handing the I/Q input and output for direct conversion, at the time of writing the software is still at the beta testing stage. It should solve the need for a separate I/Q phasing network like those presented recently in this column. At the time of writing, WSPR 2.1 is just about to be made generally available.

A Beginners Guide to the comprehensive *FLDIGI* datamode package has been posted in pdf format at **[5]**.

PHOTO 2: Top side of the PS/2 keyboard to RTTY adapter module.

REFERENCES

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[3] Keyboard-RTTY Module: www.g4jnt.com/projects.htm

[4] Digital Voice Code: www.rowetel.com/blog/?page_id=452

[5] FLDI Beginners Guide: www.w1hkj. com/downloads/ fldigi/ fldigi- beginners- 3.20.pdf

Kenwood TS-590S first impressions

After just a couple of days G3SJX gives his initial views on this new radio

The Kenwood TS-590S HF and 50MHz radio.

INTRODUCTION. It is seven years since Kenwood launched their previous HF transceiver and their latest model, the TS-590S, has been awaited with eager anticipation. First deliveries arrived in the UK at the beginning of November and I immediately obtained a unit for review. With just 3 days before the *RadCom* December deadline, this "taster" is just to give you my first impressions. I'm working on a full review that will appear in the January *RadCom*.

THE BASICS. The TS-590S is a mid-sized radio requiring a 13.8V supply. It is sufficiently small and light to be easily transportable but of a sufficient size to be comfortable to operate and allow most functions to be accessed directly from the front panel controls. Covering the HF and 50MHz bands at 100W transmit output power, the receiver tunes from 30kHz to 60MHz. A low-level output (about 1mW) provides a transmit signal on the 136kHz band as well as transverter drive from any of the HF bands. The low-level LF transmit range can be extended to 522kHz with a dealer modification, a first for any amateur transceiver to my knowledge.

RECEIVER ARCHITECTURE. The radio uses a single receiver with a rather novel configuration. Over most of the tuning range it is a triple conversion superhet, up-converting to a first IF of 73MHz, then to 10.7MHz and 24kHz. On certain amateur bands (160, 80, 40, 20 and 15m) and with bandwidths less than 2.7kHz, a separate first mixer down-converts directly to the second IF, now at 11.374MHz, bypassing the up-conversion process. Narrow roofing filters of 2.7kHz or 500Hz bandwidth are selected automatically in the down-conversion path, yielding much better close-in performance compared to the up-conversion path that uses a 15kHz bandwidth roofing filter.

USEFUL FUNCTIONS. The functions provided with the TS-590S are extensive, similar to most modern high-end radios and will be covered in detail in the full review. There are some interesting new and enhanced features that I will briefly describe here. A USB port is fitted and this can be used to provide PC control of the radio and for passing audio to and from external applications. This is in addition to the COM port and normal audio interfacing lines which are also provided. Software and port drivers are available from the Kenwood website. There are dual antenna connectors and a separate receiver only antenna input, and separate CW key jacks (on the rear panel) for paddle and external keying.

A voice guide and message store is an optional extra, providing voice readout of button presses and contest message stores with the ability to record and playback the last 30 seconds of receiver audio.

The menu system is very comprehensive, easy to access and set with scrolling display annotation. Two entirely separate sets of parameters may be stored, menu A or menu B. This can be useful for optimising different operating environments such as contesting and local rag-chewing or for field day operation where two operators have different preferences for the way the radio is set up. Four different notch circuits are included, an adjustable manual and an auto notch at IF (auto notch is normally an audio function) and two beat cancellation filters at AF. All were extremely effective. One useful feature is the ability to select automatically CW mode when the key is pressed. Imagine this situation - you are tuning down the band on SSB and move into the CW sector. You hear some choice DX which you need calling CQ with no takers. At the end of his call you go for the key but nothing happens. You curse and select CW but by now the rest of the world is calling. Not any more with this menu option selected.

ON THE AIR. A brief checkout on air during the Ukranian DX Contest showed that the receiver is very sensitive and lively on the quieter bands and coped very well picking out weak signals amongst strong signals and QRM on the lower bands. It takes a little while with the manual to get used to the control placements but overall I found the radio friendly, intuitive and easy to use. I am pleased that separate buttons are used for band and mode selection rather than scrolling keys used on some other radios. I found the dual concentric rotaries a bit small and fiddly, in particular the filter selection, which shows no permanent display of bandwidth. The display is functional; clear and bright and easy to read in sunlight or bright lighting, more so than many of the multi-coloured offerings on some other radios. On transmit the voice quality seemed good with the supplied stock microphone and CW break-in was well behaved.

The full review and measured performance will be published next month and the price, at around £1489, looks good value.

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Kenwood TH-K4E Single band 70cm **£159.95**

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Kenwood TM-D710E Dual band 2/70cm with APRS RX 118-524MHz & 800-1300MHz, 50 Watts **£429.95**

Kenwood TM-V71E Dual band 2/70cm with EchoLink RX 118-524MHz & 800-1300MHz, 50 Watts **£289.95**

Kenwood TM-271E Single band 2m, 60 Watts **£165.95**

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Yaesu VX-7R Tri band 50/144/430MHz RX 0.5- 900MHz, 5 Watts outut **£279.95**

Yaesu VX-6E Dual band 2/70cm RX 1.8-222/420-998MHz, 5 Watts output **£229.95**

Yaesu FT-60E Dual band 2/70cm RX 108-520/700-999.99MHz, 5 Watts output **£169.95**

Yaesu VX-3E Dual band 2/70cm RX 0.5-999MHz, 3 Watts output **£149.95**

Yaesu VX-170E Single band 2m, 16 digit keypad, 5 Watts output **£99.95**

Yaesu FT-270E Single band 2m, 144-146MHz, 137-174MHz Rx **£99.95**

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Yaesu FT-857D All mode HF/VHF/UHF 1.8-430MHz, 100 Watts output **£659.95**

Yaesu FT-350E Dual band with Bluetooth, GPS & APRS **£469.95**

Yaesu FT-8900R Quad band 10/6/2/70cm 28-430MHz, 50 Watts output **£359.95**

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Yaesu FT-7900E Dual band 2/70cm 50/40 Watts with wideband RX **£229.95**

Yaesu FT-2900E Single band 2m 75 Watt heavy duty transceiver **£139.95**

Yaesu FT-1900E Single band 2m 55 Watt high performance transceiver **£129.95**

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Yaesu FT-897D HF/VHF/UHF Base/Portable transceiver 1.8-430MHz 100 Watts HF+6, 50 Watts 2M, 20 Watts 70cm **£759.95**

Yaesu FT-817ND HF/VHF/UHF Backpack Transceiver RX 100kHz – 56MHz 76-154MHz 420-470MHz 5 Watts.. **£499.95**

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Yaesu FT-2000D HF/6m All mode 200 Watts transceiver RX: 30kHz – 60MHz **£2,899.95**

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Yaesu FT-950 HF/6m 100 watt transceiver with DSP & ATU RX 30kHz – 56MHz **£1,289.95**

Yaesu FT-450AT Compact transceiver with IF DSP and built in ATU, HF+6m 1.8-54MHz, 100 Watts output **£699.95**

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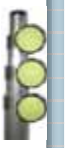

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ALL PICTURES ARE FOR REFERENCE ONLY

Vehicle RF interference suppressor

With increasingly complex vehicle electronics it makes sense to keep RF out of your car's electrical system

PHOTO 1: The completed filter sits neatly in its diecast box. A piece of foam rubber (not shown) prevents things rattling around while mobile.

CAR COMPLEXITY. Within the last twenty or so years we have seen an increase in the use of electronics used in motor vehicles. Back in 1975, when I started driving, the most sophisticated instrument in the car was a MW/LW radio on the dashboard. The car's electrical system was a mass of wire, switches, various coils and bulbs and very little else. These days, the amount of electronics used in a car has increased significantly. There may be a single 'black box' to control the engine, or there may be literally dozens of processors and systems in separate enclosures controlling everything from the GPS to the brakes. Many systems are now linked by local area networks within the vehicle. Some even come with Bluetooth connectivity that allows the user to integrate other instruments into the car.

As radio amateurs we are aware that high RF fields close to such units can cause problems. Black box modules can be susceptible to malfunction, and resetting or replacing the unit can be a costly experience. Although they are designed to cope with some levels of RF fields, running 100W mobile on HF might cause problems with some of the units. RFID key devices used on some vehicles keys run on 13.5MHz; Ford, for example, use these.

Careful siting and mounting of any antenna on a vehicle is important and determines the radiation pattern achieved. Feeder run and DC power connection to the vehicle power source also has to be considered if, as is likely, the vehicle electrical system will be used to provide power. Bearing in mind the strength of the RF field that can be within a few feet of a black box, a means to reduce any RF signal being conducted along the power lines to or from the radio should be considered. This is what I decided to tackle.

DC POWER FILTER. I decided that it would be a good idea to include DC filtering in my own mobile installation. I analysed a commercially available filter that was intended for VHF PMR equipment and based my design on that, with modifications to improve its performance at HF.

I tested the commercial filter and found it offered just over 20dB of attenuation on HF, 6m and 4m. The attenuation at 2m was 35dB; at 70cm it managed 27dB. I wanted my design to give at least 30dB on all bands up to and including 70cm.

CIRCUIT. The design presented here is basically a two stage pi filter. L1 has a considerable effect on the attenuation of the lower frequencies (up to 60MHz). L2 extends this attenuation to 70cm and beyond.

CONSTRUCTION. I used parts from my junkbox but of course new parts are equally suitable. In order to provide good screening I decided to house the filter in a diecast box. The input is via flying leads; output connections are made via 3-pin XLR sockets. My prototype includes a 30A circuit breaker that I rescued from a defunct uninterruptible power supply. An off-the-shelf fuse would provide similar protection.

The two inductors are wound on toroid cores. L1 is made from a length of 2.5mm^2 PVC insulated single core wire stripped from an old piece of twin and earth mains cable. This should be more adequate to up to 30A for an HF, VHF or UHF rig. There are twelve and a half turns tightly wound onto the core, which is an F140-61 from Palomar Engineers, California. A Micrometals T200-2 core would also be suitable. The second inductor (L2) is one and a half turns of similar wire on a Micrometals T50-52 core.

Wiring is point-to-point and straightforward if you follow the circuit diagram. Note that all earths go to a central chassis or earth connection via solder tags.

For all of my radio equipment in the shack and the car I have adopted a common supply arrangement. Low voltage supplies for radios of nominally 12V are supplied via 3-pin XLR

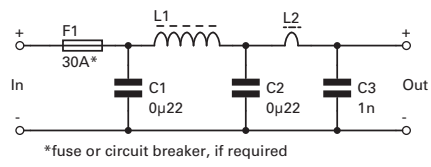


FIGURE 1: Circuit diagram of the filter.

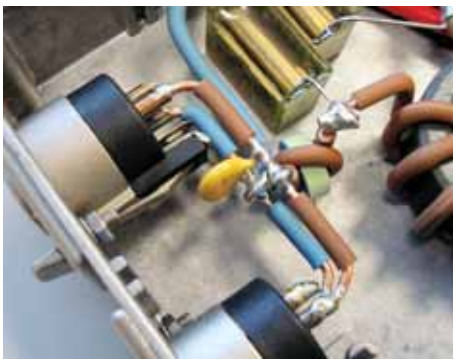


PHOTO 2: Position of C3 within the filter. Note L2 to the right of C3.

connectors. These connectors are rated at around 15A and will supply the current needed for most radios, HF, VHF or UHF. Pin 1 is the negative (or ground) connection and pin 2 is the positive supply. Pin 3 is not currently used.

Bearing in mind that it is to be used in a vehicle, there will be a fair amount of vibration experienced by the unit. A piece of rigid foam was placed in the unit to ensure the inductors and the capacitors would not vibrate too much and cause a fracture of the wiring. XLR connectors have a positive latch, so there should never be a problem with these coming out unexpectedly.

MOUNTING THE FILTER. The unit is mounted out of sight either behind the dash, or if possible under one of the front seats. The supply to the unit is derived from the positive and negative terminals of the vehicle battery. Heavy duty cable should be used to connect the filter to the vehicle battery; I used 30A cable.

The casing was earthed at a suitable point; I recommend limiting this additional earthing wire no more than 30cm in length and suggest using heavy duty (30A) cable.

ATTENUATION FIGURES. The desired effect in this unit was to improve on the HF attenuation of the commercial filter between 1MHz to 30MHz. Overall, I measured the attenuation of my prototype as not less than 35dB over the whole HF band. At 50MHz it was 37dB, at 70MHz, 34dB, 145MHz, 35dB and at 435MHz the attenuation was 35dB. This result is gratifying, as it is significantly better than the commercial filter at HF.

PHOTO 3: Common earthing point using solder tags for different connections.

COMPONENTS. I used the following components from my junkbox. You can safely substitute lower grade capacitors for C1 and C2; I recommend a minimum rating of 25V and preferably 50V. Electrolytics are not suitable. The voltage rating of C3 can be similar to that of C1 and C2.

C1, C2 220nF metallised paper X2 suppression capacitor, 275V AC. RS stock no 210-522

C3 1nF ceramic disc 2kV RS stock no: 473-0424

L1 12.5 turns of 2.5mm² PVC insulated wire on F140-61 core (Palomar Engineers)

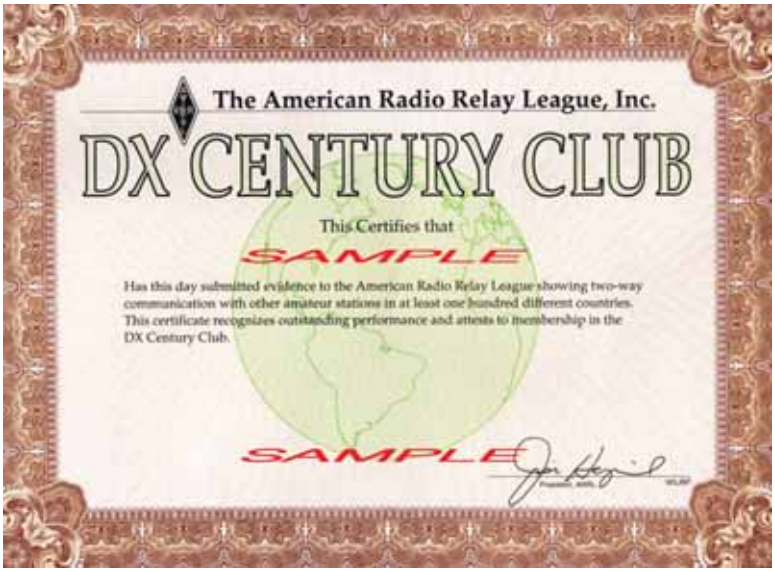
L2 1.5 turns of 2.5mm² PVC insulated wire on T50-52 core (Micrometals)

Miscellaneous: diecast box, 2.5mm² (30A) wire, fuse and fuse holder or circuit breaker, solder tags, XLR chassis sockets, XLR plus etc.

The T50-52 toriod (L2) is available from the author; enquire by e-mail to ken.ginn@btinternet.com.

Start Here

The DX Century Club (DXCC) Award



The DXCC Certificate (courtesy ARRL).

100 COUNTRIES. The ARRL's DX Century Club (DXCC) award is based on making confirmed contact with at least 100 'countries' around the world. Before getting into the details of going about successfully reaching this goal, we have to look at what exactly qualifies in radio-speak as a country.

As you no doubt have noticed, amateur radio counts countries rather differently from many other places. Obviously, places such as the USA, England, Brazil, etc all count as countries. However, places like Palestine are not so easy to categorise. Luckily for us, the ARRL has provided with an outline for what counts as a country (also known as a DXCC entity). The original concept has come a long way from its roots in 1935 *QST* article "How to Count Countries Worked, A New DX Scoring System" by Clinton B DeSoto, W1CBD. The popularity of this prestigious award shows no sign of declining yet.

POLITICAL ENTITIES. The first category we look at is the easiest: countries that are political entities. These are ones like England, France, Germany, Japan, etc. United Nations (UN) member countries automatically count and get a prefix (allocated by the International Telecommunications Union). This also includes groups that are located more than 800km from the parent country and have a permanent population. These are often known as called non-self-governing territories. Examples of this type include American Samoa and Antigua.

SPLIT COUNTRIES. The second case for being considered a DXCC entity is when a country is split up into two or more parts. This might allow each section to count as a separate area. However, there are some criteria that have to be met for this happen; in particular the type of separation matters. For example, if it's separated by 100km by land, or 350km by water, then the entity is counted separately. An interesting example of this is Macquarie Island (VK0), which is governed by the Australian state of Tasmania (VK7) but is separated by over 350km of water and so counts as a separate DXCC.

SPECIAL AREAS. You can also get your own prefix and DXCC entity by being known as a 'special area'. They don't count as the parent state they exist in (like England). These are special in that they may be a building or a location within a country. An example of these is the United Nations itself (4U1UN – located in New York, USA) or the Sovereign Military Order of Malta (1A0).

NOT ALLOWED. The ARRL will refuse to give a prefix if the political conditions in the area are indeterminate. An example is Yemen where 7O operations are rarely accredited, as Yemen does not permit its citizens to become radio amateurs. If the territory is in dispute, then no single callsign will be issued for it, simply to avoid conflict. A good example is the Western Sahara. The area is disputed between Morocco and the local inhabitants. In order to avoid inadvertently touching off a conflict, no callsign has been given to the area by the International Telecommunications Union (ITU); S0 is an unofficial prefix that has been used previously by expeditions that the ARRL recognised.

WHICH ONES COUNT? So we now understand what counts as a country; however, for the DXCC award, only certain ones count. Not every station contacted can go towards your total in other words. For example, demilitarised zones, such as the North-South Korean border do not count towards DXCC. While these locations may add a nice QSL card to your collection, they will not help you get the DXCC certificate on your wall.

VARIATIONS. Now we have a better grip on what counts towards the DXCC award, we can look at it a bit closer. The award is quite accessible as there are a number of ways to qualify for it. It is not restricted to only one mode; in fact it is open any mode of contact. There are several different variations of the award, which we'll go over briefly now.

The DXCC award is issued initially for confirming contact with at least 100 of the DXCC entities. This award can be claimed in a variety of band and mode combinations, including 160m, 6m, 2m and satellite. As you confirm contact with more and more countries, you receive endorsements (stickers for your certificate) as you progress towards having worked every current entity (338 at the moment). You can also progress towards what is known as 5BDXCC, working at least 100 entities on each of 80, 40, 20, 15 and 10m with additional credit for extra bands.

Perhaps somewhat debatably, the pinnacle of amateur radio achievement could be considered as attaining (#1) DXCC Honour Roll. This recognises that you have made confirmed contact to within 10 DXCC (all) entries of the overall listing. If you reach this level, you will receive mention on the ARRL DXCC web page, and in the *QST* magazine. In addition to this, you will get a special sticker to place on your certificate and are eligible for commemorative pin and a plaque noting the milestone.

LONG TERM TARGET. So there you have the basic outline for the DXCC award. Rather than only having a weekend or day to complete it, it allows you a more leisurely pace to reaching an award that is steeped in radio history. Attaining Honour Roll status is no mean feat, often requiring at least a decade before all entities have been activated while you're chasing them. This is not only a worthy goal as an amateur but in the process of hunting down those elusive entities you'll learn a wealth of information about the geopolitical world that you can share.

WEBSEARCH
ARRL DXCC program: www.arrl.org/dxcc

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IC-7200 HF Transceiver £649.00
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Alinco DX-77E HF Transceiver £399.00
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extension speaker £9.99
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Host Master II £20.00
Eton S-350 Field Radio £65.00
CX-401 £35.00
CSC-88 Soft Case for VX-7R £10.00
Bremi BRL-5 - 3-way switch with 5Watt dummy load (52 £20.00
JD Model 151 - TVI Low Pass Filter £10.00
Archer Antenna Discharge Unit £15.00
Mizuho KX-2 antenna coupler £59.00
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Yaesu CSC-92 soft case with integral belt clip VX-3E £10.00
25W Max Dummy Load £20.00
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Alinco DJ-X2000 Intelligent Receiver £299.00
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Icom IC-R5 Receiver £129.00
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Yaesu VR-5000 Scanning Receiver £419.00
Yaesu VR-500 Scanner £169.00
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Uniden UBC-180XLT scanning receiver £99.00
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Icom IC-R6 Handheld Receiver £159.00
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Icom IC-271E 2m multi mode £299.00
Icom IC-490E 70cms Mobile £250.00
Kenwood TS-271E £165.00
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Yaesu FT-8100R 2m/70cms Mobile £220.00
Yaesu FT-736R 2m/70cm Base £599.00
Yaesu FT-1500M £129.00
IC-7400 HF, 6m & 2m transceiver £899.00
Kenwood TS-2000 HF/6/2/70 £1,099.00
Yaesu FT-857D Multi-band Mobile £519.00
Yaesu FT-690R II 6m transceiver £275.00
Yaesu FT-736R 6m, 2m & 70cm Base £799.00
IC-275E £399.00
Yaesu FT-480R 2m Transceiver £220.00
Yaesu FTV-901R 2m/70cm Transverter £275
Kenwood TS-790E Dual-Band £999.00
Icom IC-910H 2m/70cms base 100w £999.00
Kenwood TM-702E VHF/UHF £149.00
ICOM IC-2200H 144-146 £189.00
The TINY-2 MK-II - With Open Squelch Board £109.00
Kenwood TM-741E - VHF/UHF transceiver 144-146 / 430- £229.00
Yaesu FT-726R Base 2/70/6m £399.00
DR-635E Alinco 2m/70cm FM Dual Band £230
Alinco DR-620 remote cables £12.00
ADI-146 7w/25w/50w 2-meter mobile £89.00
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ADI AR-146 2m FM Transceiver £89.00
Virtual radars
AirNav Radarbox 2009 version £299.00

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1042 6-way switch box.....£29.99.
NEDSP-1061-KBD DSP module..£101.95.
NEDSP-1062KBD Noise Module.... £106.95.
NEIM1031 Noise Module.....£132.95.
NES10-2 MK III speaker .....£109.95.
1090 Radiomate Keypad.....£91.95.

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Design Notes

Rotary encoders on the cheap

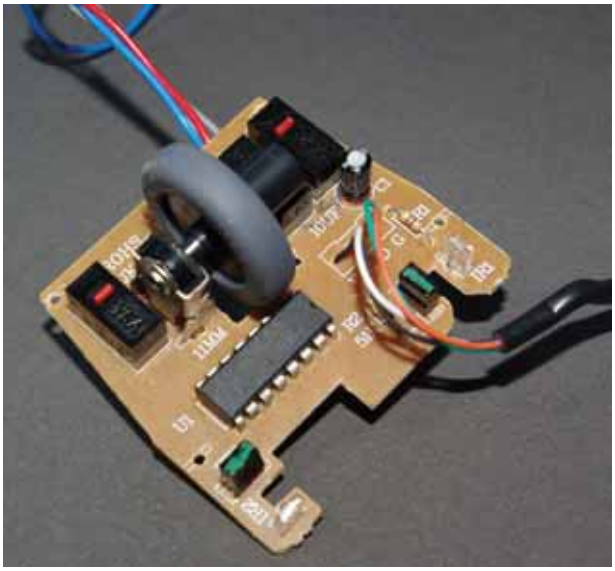

PHOTO 1: Internal PCB from a conventional roller ball mouse showing the scroll wheel sensor (to be removed).

ROTARY ENCODERS. Last month I mentioned how a mouse could be modified to make a tuning wheel for SDRs (or any other software that benefits from a decent scroll control), as originally suggested by Vojtech, OK1IAK. This was too good an opportunity to miss, so a quick visit to the local PC World store provided me with a £3.99 optical mouse with a scroll wheel. On opening this up and tracing out the connections it was obvious that the scroll wheel was itself just a simple rotary encoder providing a pair of quadrature outputs feeding into two pins of the mouse encoder chip. The common connection of the switch went to the +5V rail. I already happened to have a rather nice three terminal rotary encoder. It was designed specifically for tuning operations dating from an obsolete (and now long-scrapped) synthesised 144MHz transceiver project from several decades ago. I connected this encoder directly in place of the mouse's scroll wheel, removed the mouse PCB, mounted the whole lot in a small diecast box and put a heavy flywheel type knob on the rotary encoder. I ended up with a lovely tuning wheel for the SDR-IQ receiver that felt not unlike the Eddystone communications receivers of old. And all with the added advantage that the original mouse was still there for pointing and clicking! Two handed operation of the SDR-IQ was very satisfying.

But, in order to be reproducible, the rotary encoder must be still available – and I could not find one decent shaft encoder of the same type in the catalogues (at least, none that weren't a silly price). There were plenty of the low resolution click types mentioned last time, but these were not much better than the mouse's own scroll wheel. What else could be persuaded to function as a low cost rotary encoder with I/Q outputs?

Searching the junk box revealed a couple of old stepper motors. These can frequently be salvaged from old printers and probably from disc drives. A stepper motor consists (usually) of a pair of coils around a permanent magnet multi-pole armature, internally arranged so that as each coil is alternately energised a rotor moves from one pole to the next. Many low cost stepper motors have poles 7.5° or 15° apart, giving 48 or 24 steps per revolution. Using a permanent magnet means they will work as a generator as the shaft is turned. The outputs from the pair of coils are out of phase with each other, with the direction of phase change depending on the direction of rotation, just like a rotary encoder. Using an oscilloscope to measure what actually came out of one of the windings as the motor shaft was rotated, I observed a 10 – 15V peak to peak sinewave.

So I made another visit to PC World (it's within easy walking distance from 'JNT labs and I need the exercise). Searching the shelves more carefully than before revealed an old style roller mouse with PS2 connection for the grand sum of £2.99. The rather more conventional PCB from that mouse can be seen in **Photo 1**.

Of course, a conventional roller ball mouse does itself have a pair of slotted disc quadrature encoders, the LEDs and sensors for these can be seen in the photograph. Had I already had this type of mouse in the first place, I'd have tried modifying that first and the stepper motor solution may never have been born.

Now, how to interface the high voltage from the stepper motor to the 5V logic of the mouse interface chip? One answer is a differential line receiver. These interface chips are designed for two-wire balanced digital signalling and detect the voltage difference between the pair. They are similar to comparators in operation, but have a built in hysteresis to minimise jitter when noise is present on the signal. The 26LS32 chip contains four individual line receivers, with a specified hysteresis of ±0.2V and a 25V common mode range. It's more than adequate for our interfacing requirement. **Figure 1** shows how the stepper motor is connected to a pair of the line receiver chips. The 2.2k resistor probably isn't necessary, but I put it there just in case to limit the current if the wheel was spun really (thus fast generating too high a voltage). The two logic level

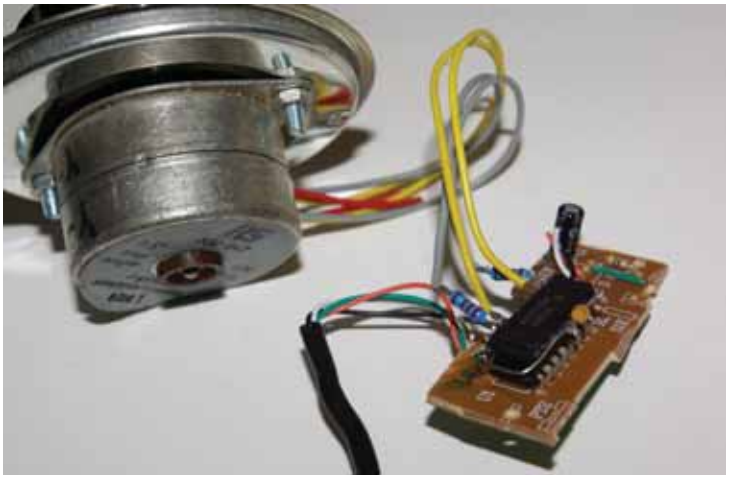

PHOTO 2: Modified PCB, with stepper motor and line receiver chip sitting on top of the mouse controller IC.

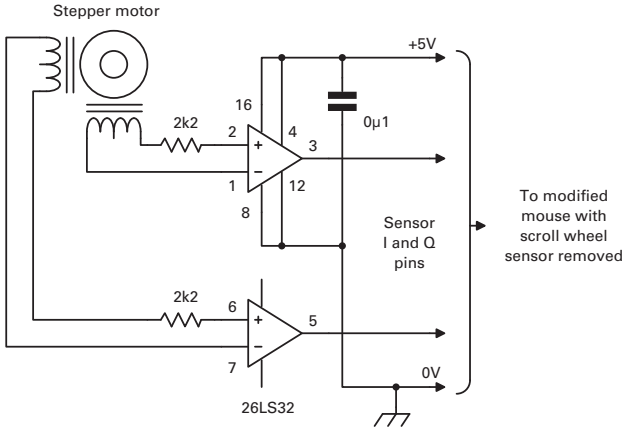

FIGURE 1: Circuit diagram of the stepper motor / line-receiver connections to substitute a mouse scroll wheel.

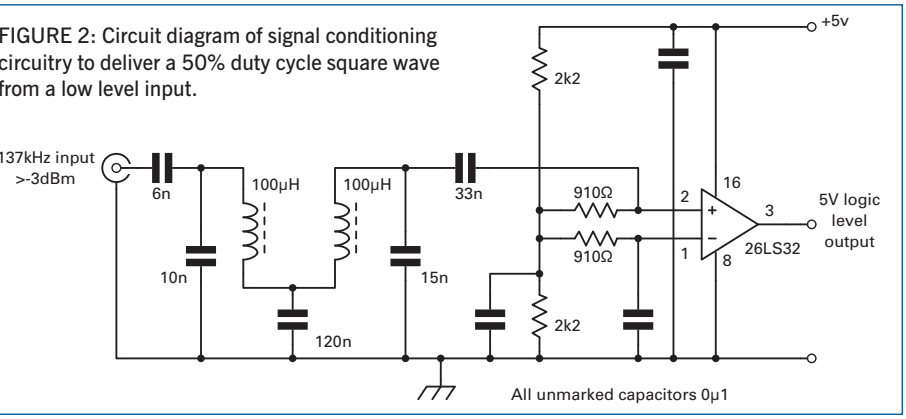

FIGURE 2: Circuit diagram of signal conditioning circuitry to deliver a 50% duty cycle square wave from a low level input.

PHOTO 3: The final two SDR tuning wheels made from scrapped scroll-wheel mice with different types of rotary encoder.

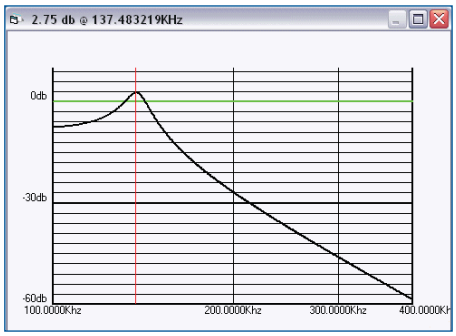

FIGURE 3: Simulated response of the 137kHz signal conditioning input filter.

outputs can be directly connected to the Z-axis inputs of the mouse chip in place of the scroll wheel sensor. **Photo 2** shows how the 26LS32 was grafted onto the severely hacked PCB in true bird's nest construction style. The whole thing worked well, although the number of steps per revolution wasn't as high as my first tuning wheel with the proper sensor. There was also a minimum speed below which not enough voltage was generated to trigger the line receiver – but this was very-very slow and, for all practical SDR-IQ tuning, it worked more than adequately. Since I already had a perfectly good tuning wheel, I mounted this second one in the 'alternate' housing shown in **Photo 3** for a bit of fun. A heavy lump of scrap brass was soldered into the bottom of the tin to give it some mechanical stability in operation.

DIFFERENTIAL LINE RECEIVERS. These chips can make useful interfaces for a number of jobs. The Class-E amplifier described last month needs a reasonably good square wave drive. If the signal is generated in a synthesiser or upconverter, the output amplitude could be of quite low level, typically a few milliwatts. It could also contain harmonics or spurii. On 137kHz, for example, to drive several designs of switch mode transmitter a good 50% duty cycle square wave is needed. The circuit of **Figure 2** will do this. The input is first applied to a second order bandpass filter. The AADE simulation of its response is shown in **Figure 3**. The output, free of any harmonics that might lead to a non-symmetrical waveform when squared up, is then applied to the two inputs of the 26LS32 line receiver. This line receiver chip needs 200mV minimum peak to peak to trigger. The filter response predicts +2.8dB of voltage 'gain' due to the difference in termination resistances, so an input of something like 60mV into 50Ω (or -11dBm) should be enough to trigger the line receiver. In practice, due to imperfections in the symmetry of the input circuitry, a good 50% duty cycle output needed a bit more signal than this, but -8dBm was adequate, so the -3dBm input it actually got was enough to cover all eventualities.

A previous version of this circuit built into a high power switch mode transmitter for 137kHz **[1]** had originally used an LM393 comparator in place of the line receiver. Not having any inherent hysteresis built in to the comparator, when used on its own the circuit was so sensitive that when driving a high power switch mode transmitter with the input keyed off, there was sufficient pick up even in the well screened circuitry, to cause feedback and spurious oscillation. Attempts to add hysteresis with positive feedback around the comparator were not very satisfactory, with the drive waveform ending up at a duty cycle lower than 50% – it was just about adequate, but not ideal. This latest version gives a better square wave and allows the same transmitter to give a couple of dB more output power with slightly better efficiency.

MAGNETIC SENSOR IC. Staying with rotary sensors, Farnell recently sent details of this latest device for detecting rotary position using a single magnet above the chip. The AS5040 Magnetic Sensor IC *(order code 1630800)* costs around £7.50 and offers the user a number of options for measuring angles. The first is as an absolute position encoder and is probably its most useful mode for our purposes. The angle of the magnet above the IC can be read out to 10 bit precision on a standard microcontroller-type three-wire serial interface. This allows rotational position to be determined to an accuracy of 0.35°. Used like this it should be able to offer a more robust and reliable feedback for antenna positioners than the wirewound potentiometer common to most amateur designs. The second option for the chip interfacing is as a three output signal device. Two quadrature outputs function in the same way as those described above giving direction of rotation; there is also a third, indexing signal once per revolution, to allow absolute position to be determined by counting the steps. The third option is more specific to its use in brushless DC motors. See the datasheet for more details (available from the Farnell website **[2]**). Enter the order code or device type number into the website search box. The chip contains an internal voltage regulator to run from either a 5V or 3.3V supply.

One downside to using this device is that it only comes in the tiny 16 pin SSOP IC package with 0.65mm pin spacing. However, with care the device can be glued down and thin wires soldered to the package pins leading off to external, more conventionally sized circuitry. A good headband magnifier, fine tipped soldering iron and a steady hand should be sufficient to make a reliable connection.

A BIT MORE ON FERRITE LOADED TLTs. A clarification needs to be made about TLTs made from lengths of coiled transmission line such as those shown in Figure 1 last month for a 1:9 impedance ratio transformer. If the transformer is to be wound on ferrite to lower the frequency of operation, *a separate core has to be used for each of the three transmission lines*. If all three were to be placed on the same core, common-mode fields from one line would couple into the other lines and shorted turns would result. To see how this happens, trace out the connection for the bottom transmission line, *a* to *d*. *d* is connected directly to *c*' which then travels back to the start and connects to *a*'. With the three lines isolated from each other this is fine, but on a ferrite core where lines would couple through the common magnetic flux linking them in the same lump of ferrite, we've shorted out a pair of lines and destroyed the possibility of getting the inductance needed for isolation

REFERENCES

[1] Switch mode transmitter for 137kHz: www.g4jnt.com/137tx.pdf
[2] Farnell: http://uk.farnell.com/

LF

VLF Dreamers get the go-ahead

DF6NM's chimney-borne telescopic support pole and roof-mounted VLF coil.

9kHz NOVS ISSUED. For some months now, UK experimenters on the 'dreamer's band' have been limited to listening for signals from the German enthusiasts who have no restrictions on activity below 9kHz. Here, any transmission of a VLF signal requires a Notice of Variation from Ofcom, and Ofcom were waiting for clearance from the Met Office before issuing them. That clearance, subject to a few exclusion zones near weather stations, has now been granted and the first NOVs have been sent out. The lucky recipients include Roger, G3XBM and Jim, G7NKS who will, no doubt, be winding huge coils as you read this. The NOVs allow operation between 8.7 and 9.1kHz with an EIRP of 100mW (there's a challenge!) and the Met Office is to be informed before a transmission is made.

FIRST JA-VE QSO ON 136. Kunikazu Togashi, JA7NI, in Daisen, Akita, Japan, and Scott Tilley, VE7TIL, of Vancouver, British Columbia, completed a trans-Pacific DFCW QSO on the 136kHz band on 28 September. The distance was 7162km.

Scott writes, "Things started off with a surprise as JA7NI copied my beacon signal 30 minutes before his sunset, something that had never happened during previous tests. What followed was a 'quick' exchange of calls and NI's report was received by VE7TIL. Then a very long and deep fade occurred. This had happened to us before and we lost each other and an entire night's sleep!

"That taught us a lesson and we adapted to the fading on this path by creating new QSO procedures to deal with the deep QSB and the long time it takes to send information. NI waited patiently, not knowing TIL had copied the calls and his report.

"Our procedure was for him to simply wait until he copied something and respond accordingly. Three hours later 'RO' appeared on NI's screen and during one of my crawls out of the operator's bunk to check the waterfall, I saw a dot during a pause in transmission and stopped the transmitter. A few minutes later there was an 'R' and 'TU', not in DFCW but QRSS. A malfunction at NI's end had him scrambling to send QRSS30 by hand, a true test of a CW operator's skill! He recovered with grace and the QSO was in the bag!

"This QSO caps off months of work by both operators in improving their stations and beacon testing on the path to learn its characteristics."

NEW VLF RECORDS. Stefan, DK7FC has been out kite-flying again and the quieter autumn conditions plus improved equipment enabled some new distance records to be set. You have to be dedicated to set these records and Stefan was at his portable site at 5am on a cold Saturday morning setting up the gear by moonlight. By 8am the kite was airborne at 300m and Stefan's 8.97kHz transmission was received by 17 stations in 8 countries, the new distance record being set by Tony, EI8JK at 1310km. Tony was using an east-west 'earth aerial' that he had found to be the quietest for receiving at his QTH. The estimated ERP for this transmission was 27mW.

Next, Stefan QSY'd to 6.47kHz with an ERP of 11mW and was received by 9 stations in 7 countries with the best DX being SQ5BPF at 904km.

Finally, a further QSY to 5.17kHz was made but problems resonating the aerial meant that only 2mW ERP could be attained on this frequency. Despite this, the signal was detected by 5 stations in 4 countries and SQ5BPF was again the best DX.

Stefan plans to be out and about with the big kite aerial later in the year and if this can be coordinated with a similar expedition by a UK NOV holder then maybe an international QSO can be made?

HOW FAR WILL 5μW GO ON VLF? 1030km it seems! That is the remarkable achievement of Markus, DF6NM and Paul Nicholson in Todmorden. Markus set up his normal home station aerial with an extra large coil on the roof and radiated an accurate carrier on 8.97kHz early in October. Markus estimates the ERP at 5μW. By careful analysis of the spectra from his VLF monitoring system Paul was able to definitely identify Markus's transmission by frequency and times of operation. One unexpected problem that Markus had to solve was the high pitched whistle from the roof-mounted coil that was annoying one of his neighbours. Wrapping the coil in a towel quietened things down nicely.

CZECH 500kHz ACTIVITY. Lubos, OK2BVG has been granted special permission by the Czech Telecommunication Office and the Czech Radio Club to operate an experimental amateur station on 500kHz.

Until 1 September 2011, Lubos can run 20W ERP between 501 and 504kHz and he will be looking for QSOs with UK stations. As soon as he was operational he was able to make good CW contacts with OR7T and PA0A.

Permission to run the OK0EMW beacon on 505kHz, which has been in operation since 2007, was also extended until August 2011.

SAQ RECEPTION. At the end of October, the Swedish LF station at Grimeton was again active on 17.2kHz for one of their Alexanderson days. Conditions were good with low atmospheric noise enabling Jay, W1VD in Burlington Connecticut to receive the signal well. Reports also came in from VE2IQ in central Canada, from DF6NM who was in Israel at the time, and from many other LF enthusiasts in Europe.

CHRISTMAS WHISPERS. As we come into a busy holiday period with good LF conditions (I hope!) a bit of WSPR activity is a good way of gathering some reports without spending all the time in the shack. Even if you aren't active on LF or MF you can join in as the more receivers monitoring the WSPR frequencies the better. If you wish to try, tune to 502.4kHz or 136.0kHz USB, connect your receiver to a PC and run the software that is free to download from the WSJT home page.

HF

Looking ahead to some of the best DXpeditions

W6KPC QSL showing his 20m antenna. A third (lower) level of 2 x 6-element Yagis was added later (this card was for a 20m QSO with G3XTT in 1979).

GOOD CONDITIONS. Propagation continued to improve in October, with some excellent openings on the higher bands at times. As expected, the bands came alive with the 'new' countries created by the reorganisation of the Netherlands Antilles. As was generally expected, the ARRL deleted the existing two DXCC entities and created four new ones, namely Curaçao (PJ2), Bonaire (PJ4), Saba/St. Eustatius (PJ5/6) and Sint Maarten (PJ7). All have been workable from the UK on all HF bands, though the 10m openings, while good at times, were not there every day. Signals from the various PJ expeditions varied widely, not surprisingly as some were running modest power with limited antennas, while some had access to existing antenna arrays on the island(s) concerned. Curaçao appeared to be least well represented in the first couple of weeks, but this was more than compensated for by the big signals from PJ2T during the CQWW Phone contest. Already, I note that PJ5/SP6IXF and PJ5/SP6EQX were expecting to be active from St. Eustatius from 18 November to 3 December while Karl, PJ2/OE3JAG, will be on from Curaçao from 30 January until 11 February.

Other than that, TO7ZG put in a good show from St. Barthelemy, the guys in A25 were active as promised, and the UK group operating as S79K were very much in evidence on most bands. And, of course, the CQWW Phone contest brought lots of activity, which will probably be reported on more fully next month as the e-mails come in. These were just a few – as I write this, for example, on 1 November, I am seeing spots for 9X0SP, 5R8X, JT0YAB, 5N50K, 5X0CW and others.

DX NEWS. In celebration of the 50th anniversary of Independence of the Democratic Republic of Congo a team of mostly Belgians and one Dutch will be active as 9Q50ON from the DRC from 3 to 12 December, all bands CW and SSB. QSL via ON4BR.

Siegfried, DK9FN (HA2EOW, and Hans Peter, DG1FK are heading back to Nendo Island (OC-100), Santa Cruz Islands, Temotu Province. Listen for H40FN and H40FK from 21 December to 3 January on CW, SSB and RTTY. QSL H40FN via HA8FW and H40FK via DG1FK.

In commemoration of the 35th anniversary of the first Italian expedition to Antarctica by explorer Renato Cepparo, a group of Italian students led by Prof. Geol. Julius Fabbri will be at the Italian Giacomo Bove Camp, King George Island, South Shetlands in December. Plans are to activate the old I1SR callsign, which was also used during the 1976 Cepparo Expedition. A website is available though, at the time of writing, the English pages do not appear to be active.

Those of you who were at the RSGB Convention will also have heard the announcement that the Five Star DXers will be heading off to Christmas Island (the T32 one) next autumn. I am heavily involved in the planning of this DXpedition and it's all systems go. The shipping container needs to leave the UK early in 2011, as shipping schedules in the Pacific are, to say the least, 'variable' and they don't want to arrive on the island and find the kit is still all at sea!

DELAYS AND CANCELLATIONS. SP5DRH and SP3BQ were forced to cancel their planned Temotu (H40) activity due to what they describe as 'a dramatic plane delay' that they encountered after they had already travelled to the Pacific area. They still hope to complete their next trip, to T30, next March (more details later). The team travelling to Sable Island (CY0) also had to cancel at the last minute due to stress cracks being found in the aircraft during a scheduled inspection. As it happens they were able to reschedule the visit for this month, from 6 to 13 December. Not all DXpeditioners would be in a position to reschedule in this way, what with work, family and other commitments to fit around. Indeed, both instances are a reminder that DXpeditions don't always go smoothly and would-be DXpeditioners often make significant financial commitments without any hope of recompense if their plans fail to materialise. I wonder sometimes why we do it (I say 'we' as I have been on quite a few trips myself) when we inevitably get flak on the Cluster system or elsewhere for failing to be on certain bands/modes/whatever in such a way as to satisfy the complainant.
The simple fact is that most DXpeditioners enjoy the fun of being at the sharp end of a pile-up, but it can certainly be frustrating, costly and depressing at times. The good news is that many DX chasers do appreciate that, without these DXpeditioners, there wouldn't be much to chase, other than a few resident amateurs in rare spots (who often get fed up with being on the end of a pile-up whenever they appear on the bands, and end up frequenting nets or staying on VHF). But do make a point of saying 'thank you', perhaps with your QSL card, or by way of a comment on the DXpedition website.

60m REPORT (from G4TRA). Joe, W8GEX a regular 60m activator and promoter of new country activity, managed to get late permission to operate 60m from Sint Maarten as part of the PJ7E activity. The subsequent six hours of operations attracted much attention, although just one G station was heard to make a contact. A published new one that didn't come on was KG4 at the US Naval base in Guantanamo Bay, presumably because at the last minute 60m permission was not forthcoming for the three prospective operators. However, one new likely new one is Uruguay, as Dale, N3BNA now has permission. His operation should be history by the time this appears and, hopefully, a few UK stations will be in the log. Finally here's a 60m tip: try Gander Volmet VFG on 6.604MHz for a good transatlantic propagation indicator. It's in Newfoundland and puts a strong signal into the UK from sunset onwards.

VOACAP ONLINE. Jari, OH6BG reports, "I am pleased to inform that the online HF propagation prediction service VOACAP Online now uses Google Maps for coordinate entry. This should make the service even more usable and accessible, also for a casual user. The transmitter and receiver coordinates are defined by dragging two location markers on the map. The mouse wheel or keyboard keys can be used for zooming in and out so placing the markers at the exact points on the map is as accurate as it can get. I have also updated the sunspot predictions until the year 2012. If you have any questions or suggestions, please feel free to drop me a note to oh6bg@sral.fi".

DXCC. Ian Capon, G0KRL, who is one of the accredited checkers for DXCC applications and endorsements, has asked me to say that he has recently moved. His new address, to which cards can be sent, is NorthView, Barway Road, Barway, Soham, Cambridgeshire CB7 5UB.

CORRESPONDENCE AND TABLES. Peter, G4XEX writes that he enjoyed the RSGB SSB Field Day, although it was after the contest when the bands went quiet that he managed to work HS0ZCW, JH7XMO, A41OO and UP2L, all on 20m. On to October, and CQ calls on 20 produced HS0ZFP (S9 both ways), CU7CL, CN8KD, VE2DJC and VE6EPK all S9. 12 and 10m openings added plenty from Europe, Asiatic Russia and South America. Finally, Peter was able to fill in some 10m band slots during the CQWW Phone contest. All contacts were SSB. Peter's report reminds me that, while those of us who have been consistently active for many years already have high totals on 10m, those who have been out of things or only recently licensed are undoubtedly chafing at the bit, waiting for some consistent 10m propagation to add to their totals.

Simon, M0VKY found the high bands in good shape – at least for some of the time – and was rewarded with contacts that included A25MB, TR8CA (FM), VU2XO, ZD9AH (all-time new), ZS8M, 5V7TT, Z23MS, VK6IR, VK6DU, VK6RO, VK6FFLD and ST2AR on 10m, C91DL, 5V7TT and T6MB on 12m, C91DL, A25ZY, TY1JB, 5V7TT, T88CQ and HC8A on 15m, plus KG4AS (all-time new) on 20m, all SSB except where otherwise stated. Colin, MU0FAL worked A71EM, 8R1RPN, HS0ZBS and PJ6A on 12m, bringing him within sight of 200 entities on that band. Also, A65BD (G4BWP) on 12 and 15. Graeme, G6CSY mentions working K3K on 40 CW as part of 'National Feral Cats Day' and says, "First time I have worked someone who signed off with '73 es meow'!" QRP on 40 produced XE1RK on CW and HK1T on SSB, while FG5LA was worked on 20 with 10 watts of QPSK63.

John, G4ATA writes after a gap due to a house move. No longer does he have room for an 80m four-square and a single 40m vertical has to suffice for now. On that band, SSB unless otherwise stated, during August and September with just 100 watts, John worked LU1IV, HK1JMF, ZP6SAL, CM8AKD, A41MO, 9K2YM, YK1BA, 9H0VRZ, HK1W, PY1NB, ZG2FK (CW), 9Y4W, HZ1BL and OX3KQ. Since then, with the amplifier back in commission he has added CO6YI, VK7AC, 5B4AIX, VK6WC, 5V7TT, PJ2T, HZ1SBS, A61BK, UN3GX (CW), PJ7E, PJ6A, A61AM, PR7DZ, TI0RC, OY6FRA and R1ANP (CW). John says, "I'm relatively pleased with what I have managed to work with a very modest setup on 40m. I will be giving some points away in next weekend's CQ WW (on 40m) and trying to up my DXCC totals since my QTH move".

Gus, M5GUS has been enjoying 17, 15 and 12, with a TS-570D and G5RV antenna. 12 produced ZD7FT, 17 gave PJ4W, and on 20 there were JA1JXD, C5YK, PJ7E, VK6MV and UN7QF, while 5V7TT was worked on 3 bands, all SSB.

Dave, G3TBK says, "Good to hear 10m open again, best DX (CW) includes 3B8DB, HS0ZEE, 9M2MRS and RI1FJ, whilst on SSB the rarest was ZD9AH". On the other bands, Dave mentions ZD8ZZ, DU9/DL5SDF, XX9TLX, 5R8RJ, KH2/N2NL and CE0Y/LA9SN on 12 CW and ZD7FT on 12 SSB. E51NOU (South Cooks) was the star catch on 15, along with CE0Y/DK7ZB. XX9TLX was worked on 15, as well as 17 and 30. Dave has 52 Band/Mode slots so far from the 4 'new' Dutch Caribbean island groups and says, "Some of the signals on 10 and 12m have been astonishing given the lack of sunspots". Dave also put the 160m inverted L back up and has so far been rewarded with PJ6A and A92IO. He expects to be returning to the Caribbean in January, with operation first from VP2MDC and V29TBK, and finishing with J88DR around the time of ARRL and BERU.

Peter, G3HQT has once again been focusing on 30m and reports J28RO, DU9/DL5SDF, ZD8ZZ, 5V7TT, PJ4D, PJ6A, PJ7E and DT8A (South Shetlands) on CW plus TO7ZG (St. Barthelemy) on RTTY. Peter says, "My XYL and I have joined the local camera club, so that has given us another interest and we are on a short painting course this weekend". I like to think that most DXers and contesters have a life outside amateur radio though in some cases I do wonder. The nice thing about contesting is that you can set a specific time period aside and then resume 'normal' life. DXing is a little different in that a DXpedition you need will invariably be announced just after you have booked that exotic foreign holiday for the same dates. The good news is that there will almost certainly be another effort from the same location, even if not for a few years. That said, as I recall the heady days of 10m propagation, listening to such exotica as KH9, T30 and the like booming in, I do wonder sometimes, given the current state of the sun and latest prognostications, whether those of us of a certain age will ever see the like again!

As far as the tables are concerned, there seems quite a bit of support for reintroducing the WARC band table that I ran some years ago. Let's give it a try, though I accept it won't suit everyone, starting 1 January, with your totals for 12, 17 and 30m. I realise that there is no SSB on 30m, so those of you who are phone operators may feel at something of a disadvantage, but maybe it's a good excuse to try the datamodes. In any case, the annual tables were never intended to be competitive, but to give an idea of what can be worked by stations of varying degrees of capability, from the modest QRP set-up to, in some cases, some of the best stations in the country. And while on the topic of tables, Henry, G3GIQ apologises for the lack of the scheduled all-time table. Henry is in the middle of a house move and has also been suffering a period of ill health. I am sure we all wish him well on both counts.

SILENT KEYS. Antoine Baldeck, F6FNU, was recently reported as a Silent Key. He passed away on 8 October. Many readers will have dealt with Antoine in his role as QSL manager for a number of stations, particularly in the Francophone areas.

Neil Penfold, VK6NE will also be known to many. He passed away on 27 September, just a month short of his 77th birthday. A few months ago the Northern Corridor Radio Group's (VK6ANC and VK6NC) club rooms changed their name to The Neil Penfold State Amateur Radio Centre, in recognition of the major effort that he played not only in the construction of those premises, but also during his long association with amateur radio, as a past president of WIA, Western Australia Councillor and QSL manager.

Robert 'Bob' Earhardt, YS9RVE passed away on 21 September of a heart attack. He was 70 years old and was very active from El Salvador between 1975 and 1990.

Finally, HF antenna pioneer A J F (Frank) Clement, W6KPC, of Bakersfield, California, died on 23 September in a highway accident. Frank was 93 and a former owner of Tri-Ex Tower and built some renowned beyond-the-envelope arrays that appeared in *QST* magazine, including the June, 1980 cover, a shot of his six-Yagi array on a self supporting tower, the Collinear Yagi Sextet. Other antenna articles by Frank appeared in the *QST* September, 1951; May, 1958; and November, 1978 issues. Frank was also one of the principal designers of the famous Spruce Goose aircraft developed by Howard Hughes. I well remember visiting Frank's QTH while travelling to the Visalia convention one year. That 20m array was truly awesome and dwarfed the large 15m monobander on a separate 100ft pole.

THANKS. Special thanks go to the authors of the following for information extracted: OPDX Bulletin (KB8NW), The Daily DX (W3UR) and 425 DX News (I1JQJ). Please send items for the **February** issue by **Friday 30 December** (later than usual as the *RadCom* office will be closed over the Christmas period).

WEBSEARCH
9Q50ON: http://www.9q50on.be/
I1SR: www.adriantartica.it
VOACap Online: http://online.voacap.com

2010 ANNUAL TABLE
(starting 1/1/10, sorted this month by 160m totals)

Call	10m	12m	80m	160m
G3TBK	98	110	106	106
MD0CCE	13	94	85	101
G3SED	35	92	50	73
GW4BLE	94	36	60	57
MU0FAL	54	91	69	51
M0VKY	42	0	45	38
G6CSY	19	9	51	21
MM0DXH (SSB)	14	0	26	14
G4XEX	23	24	31	1
G4ATA	0	0	105	0
G3HQT	52	47	81	0
G4FVK	13	1	29	0
GW0RYT	43	34	6	0
MW0MAU	7	12	6	0
GW1PJP	36	39	0	0
G1UGH	40	27	0	0

MARTIN LYNCH
& Sons
THE AMATEUR RADIO EXCHANGE CENTRE

So. Twenty years then. Who would have thought....

Can't quite believe that after all this time I am still selling Ham Radio each and every day and more to the point still loving it! Looking back over a few of the old news newsletters I use to generate, it's amazing how things have changed over time. Before internet, email and iPads everything was much more "personal" – the only way I could tell customers what was going on at my little corner store was by advertising of course but sending out bits of paper in the post. Cost a fortune but I can't help feeling it was better for my customers to have something sent to them personally so to speak.

When did we first open? September 1990. First customer through the door? Charles Rogers, M0BIN, who is still a very good customer to this day. In fact the first couple of pieces of kit I sold were two Icom receivers, an IC-R71E to Charles and the other an IC-R9000 to Martin East G4IOF who, in one single purchase spent more with me than a whole weeks turnover in those early days! Unfortunately Martin is no longer with us as indeed many of my long standing customers have gone silent key. I could fill this magazine with the history of Martin Lynch but I'll leave that to RadCom's editor, Elaine Richards, she's so much better at editorial than me!

Thank you to ALL of you that have supported me even as far back as the "Bernie & Brenda" days at the Amateur Radio Exchange in the late seventies. We're all getting older but still have one important thing in common. Ham Radio.

I've requested the advert this month to be in black and white with the original "Heinz baked beans tin" type logo. The man behind the layouts and indeed all the logo's used over the last twenty years are down to one man - Steve Hunt. He is brilliant and none of these pages would appear from me without him. Cheers Steve!

BIG RAFFLE PRIZES FROM YAESU & KENWOOD. FT-450 & TS-480SAT!

An Invitation

Martin, Jennifer, (the Mrs) Daniel and Henry (the Sons)
and the rest of the Lynchy Team invite you to

The ML&S 20th Year Birthday Celebration
4th December 2010 at 8:00am until 4:00pm
Chertsey, Surrey.

Our famous **Hog Roast** will be in full swing along with representatives from **Yaesu**, **Kenwood, PW Publishing, RSGB, BHI** plus many others.

Raffle tickets with be on sale for only £1 each with all proceeds being donated to The McMillan Cancer Support Nurses. Very special raffle prizes will be on offer from many manufacturers and suppliers.

If you haven't been to the store before, now's your chance. We have massive car parking facilities and even if that gets full there are two large public car parks within a few hundred yards of the store. Come and get a very warm welcome and of course **TOTALLY STUPID PRICES** across the entire range of products stocked by ML&S, **BEATING THE VAT INCREASE!**




Once again I thought it better my customers did the talking on our level of service. I use it as a barometer on whether we are on the right course and whilst we do mess up occasionally, (who doesn't!) it's how quickly we respond to getting the problem solved and stop it happening in the future. We used to get hand written letters, (we still do) but most are via e-mail these days. A big massive thanks to all of you that send us feedback – it means a lot, not only myself but all my staff working with me to make you happy bunnies!

John Ryder
Just to say thanks for your call the other day....very much appreciated. I have now set up the Excalibur and am absolutely delighted with it. This is the first SDR I have used and I really have a lot to learn but that just adds to the enjoyment.

Mike G1YLN
Dear Martin, I would like to say a big thank you, to yourself and your staff for the kindness and hospitality you gave when I visited you on Monday. The cup of coffee was very welcome and the advice given by your staff was informative and honest. Thanks again and look forward to visiting you again in the near future when I'm next up your way.

Robert G4KUQ
Thanks very much for brilliant bit of service when my 3 year old TS-2000 started to play up. Thank must be passed to Kenwood as well. The rig is back to its normal state and at no charge. Guess where my next rig will be purchased from?

Arne SM2EJB
Folks! I am impressed and amazed...! I ordered my Perseus receiver on Sunday, you shipped it on Monday and I RECEIVED IT on Wednesday in the very north of Sweden! Fantastic! And I had it up and running in 30 minutes. Thanks for en excellent service!

Ray GW0BCL
Once again I am impressed and delighted with your service and indeed your staff, my latest order has arrived safely and ahead of time. Go ML&S!!

Trevor PA2PG
THANK YOU VERY MUCH, I have just received the FTDX5000 and the station monitor that goes with it, and also the IF-2000 I.F. unit for my FT-2000D. Please pass on my thanks to Martin and the crew for the prompt and good handling of this equipment.

Dave G0DVR
I've recently ordered my latest lot of bits and pieces from yourself and although I won't get them for a few days yet (they're on back-order, Wouxun stuff) I thought you might like to hear about some good customer service I received. This doesn't mean I normally get bad service from yourselves (other outlets do that very well !), but in this instance nothing was at all forgotten and I thought what happened was worth mentioning. Unfortunately I can't remember the man's name, but I do remember he said that he normally just deals with the back-orders, does that help I.D. him? When I ordered the kit last week he was very helpful and efficient and quickly found the answers to questions I had about options and prices. Today, when I rang up with a query relating to the helical antenna that comes with the 4m handheld I spoke to the same person again. He said he didn't know the answers and that as you'd just disappeared for lunch (you have time to eat, must be a perk of being the boss !) he'd find out when you returned and call me back. He did all of this as promised and very promptly. A short while later when he found out that there would be a delay in the helical arriving with you he rang me up to let me know. It might not sound like much to shout about to some people, and he might not think he did anything special, but the man who "just deals with back orders" did you proud. He answered all questions, got answers when necessary, was prompt and gave me extra information he thought would be useful. A lot of so called sales people don't manage to achieve this ! Please let him know he's made a good impression.

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20 Celebrating years ML&S






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The first batch landed as predicted at the end of October and to be honest didn't touch the sides! Again as I write this we should have just received the final delivery of our order from 2010. It's not enough I know because we could do with more than double the quantity that's arriving! Don't miss this new baby from Kenwood. More the point don't throw up to £30 away paying Mr Vat Man next year!

Superb RX Performance:
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- ✓ 105 Groups D.C.S/50 Groups CTCSS
- ✓ DCS/CTCSS of RX and TX can be set respectively
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- ✓ Busy Channel Lockout
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- ✓ Multi Scan Mode (TO/CO/SE)
- ✓ Inspection, Monitor, Stun, Kill and Emergency Alarm
- ✓ All Calls, Group Calls and Selective Calls
- ✓ Calling Ring and Ring Overtime Auto Answer
- ✓ Multi Silent Mode (QT/QTADT/QTXDT)
- ✓ Channel Steps (5K/6.25K/10K/12.5K/25K)
- ✓ Wide/Narrow bandwidth Selection (25KHz/12.5KHz)

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1.3Ah Li-Ion Battery Pack (5W)
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VHF/UHF

Large-scale tropospheric opening on the 144MHz and 432MHz bands

PHOTO 1: The Maldol Log-Periodic antenna at the QTH of John Regnault, G4SWX.

PROPAGATION SYNOPSIS. A tropospheric opening that significantly enhanced propagation on the VHF, UHF and microwave bands occurred at the end of the first week of October. Stations located throughout the UK reported making contacts into Denmark, Norway, Sweden, Poland, Kaliningrad and the Baltic states of Latvia and Lithuania. A considerable number of Sporadic-E openings were also reported on the 50MHz band throughout October. During this period there are normally very few openings of this type but there has recently been an increase in this type of late season activity over the last few years. Reports have also been received of 50MHz F-layer trans-equatorial propagation to areas of central Africa. This is an encouraging sign indicative of increasing solar activity.

SPORADIC-E PROPAGATION. It is generally accepted that mid-latitude 50MHz Sporadic-E (Es) openings normally come to an end sometime in August. Indeed that was the case this year with only one Es opening being reported in the following month on 4 September. However it didn't come as a surprise to me that there were a considerable number of 50MHz Es openings reported during October. This may appear to be an anomaly but I have noticed that in the past five years there has been an increase in these types of late season events. I've shown these in **Table 1** and you will see that there has been an increase in Es activity since 2005.

This year there were 15 days during October when Es openings were reported on the 50MHz band. The majority of openings were to the Iberian peninsula with occasional paths into the Mediterranean area and south-eastern Europe. Some of the stations worked on CW and SSB from all areas of the UK included 9A2RD (Croatia), CT1FJC (Portugal), DK2EA (Germany), E75A (Bosnia and Herzegovina), EA4LU (Spain), EA6SA (Balearic Islands), F5VFO (France), HA8CE (Hungary), IZ3ZXF (Italy), IS0GQX (Sardinia), IT9TYR (Sicily), LZ1AG (Bulgaria), OE2UKL (Austria), OK1RD (Czech Republic), S59ACP (Slovenia), SP5XMU (Poland), YU6A (Serbia) and ZB3B (Gibraltar).

Four Es openings on 5, 6, 18 and 24 October reached as high as the 70MHz band with contacts being made into Portugal (CT1HZE), Slovenia (S51DI) and Italy (IK0BZY). The opening on 5 October was particularly intense and reached as high as the 88-108MHz FM broadcast band. Indeed I first spotted this opening at 1300UTC when a Spanish FM radio station popped up on 87.5MHz whilst I was listening to the car radio. Jim Rabbitts, GM8LFB (Wick, IO88) mentioned that during the opening on 24 October he contacted the 50MHz stations of IK3YND (JN66), IK5YJY (JN53), OK2EW (JN89) and S57RR (JN65). I can't offer an authoritative explanation as to why there has been a surge in October Es openings so I'm hoping some of the propagation experts out there will write in and let us all know the reasons why.

TROPOSPHERIC OPENING. There are two main types of tropospheric ducting, surface ducts and elevated ducts, both of which cause long distance (DX) openings. Under certain conditions boundaries between dissimilar masses of air provide the mechanism to transport signals considerable distances. The action can be compared to the way an SHF signal travels in waveguide and, as it frequently results in very little path loss, the received signals can often be surprisingly strong.

Unlike other propagation modes (Es or aurora for example), tropospheric ducting is usually the culmination of several days' build up and will last for many hours, if not days at a time. Quite often the higher UHF bands, 432MHz and 1.3GHz, exhibit better propagation than 144MHz. Indeed it is quite possible for openings to occur on the SHF bands when no effects have been detected on lower frequencies. Although enhancements are observed on the 50MHz and 70MHz bands these are never extensive. This is due to the frequency cut-off imposed by the vertical extent of the duct. At 50MHz for example a minimum duct thickness of 400 metres is required.

Last month I mentioned that some of the best tropo ducting enhancements often occur during the autumn months of October and November. True to form a large-scale tropospheric opening occurred on the VHF and UHF bands during a week of stable autumnal weather between 8-13 October. A high pressure system that moved westwards from central Europe developed a high level inversion layer enabling some excellent DX contacts to be made. Unfortunately for some DXers the very best period of propagation that occurred on 10 October also coincided with the RSGB Convention!

The tropo opening started during the evening of 8 October with stations in East Anglia (JO01, JO02) making a few 144MHz contacts into Sweden and northern Germany. By 9 October the high pressure moved further into the UK with paths extending into Denmark, Norway and Sweden on both the 144 and 432MHz bands. Propagation was also excellent in a northerly direction with stations in central England working into the Faroe Islands on the 144MHz band. Inter-UK activity intensified with FM operators making contacts well outside their normal range. Some of the best propagation occurred on 10 October (shown in **Figure 1**) and in addition to the Scandinavian path (OZ, LA, SM) the opening extended eastwards to Kaliningrad (UA2), Latvia (YL), Lithuania (LY), Poland (SP) and the Czech Republic (OK). The high pressure system continued to work its way westwards and by 11 October the really long distance paths to the Baltic area had disappeared. There was still propagation to Germany, Poland and the Scandinavian area but the situation was somewhat complicated by an auroral backscatter opening that occurred between 1300-1800UTC. Stations in central England and Scotland could either make tropo or auroral contacts depending on respective beam headings. It all became rather confusing especially if you didn't know there was an auroral opening at the same time. The tropo opening continued to provide some excellent contacts especially on 12 October as this coincided with the RSGB 432MHz Activity Contest. Stations in Northern Ireland did particularly well with contacts approaching 1400km into the Czech Republic. By 13 October the high pressure system had slipped away from much of the UK with only stations in western England, Wales and Northern Ireland continuing to make a few tropo contacts into Germany, Denmark and Sweden.

No long distance contacts were reported on the 50MHz band and very little was observed at 70MHz, although the station of ON4KHG (Belgium, JO10) did report a 1410km contact with OY9JD (Faroe Islands, IP62) over a

predominantly sea path. The real DX contacts were made on all bands from 144MHz right through the spectrum to as high as 10GHz. This month's GHz Bands column contains reports on activity at 23cm and up during this enhancement.

As the path loss via this temperature inversion duct was very low, stations with simple vertical antennas or small Yagis could make some particularly long distance contacts. Chris, 2E0FSR (Yorkshire, IO93) reports that he was running 50W into a Diamond V2000 vertical and managed to work 26 European stations on the 144MHz band that included contacts into DL, ON, PA, OZ and SQ1GU for best DX at 1127km distant. Gary Tuppeny, G4LOE (West Midlands, IO92) mentions making similar SSB contacts from his station that consists of an Icom IC-706 transceiver, a Microwave Modules linear amplifier and a vertical collinear antenna.

Pete Millard, 2E0NEY (Wiltshire IO81) was also active on the 144MHz band during the period 10-13 October using an Icom IC-910 transceiver running 50W into a 17-element Yagi. He managed to work stations in 7 countries, Denmark, France, Germany, Lithuania, Netherlands, Poland and Sweden. His contacts included the SSB stations of SP1MVG (1177km), SP1FJZ (1281km), SP2NJI (1464km) and LY2WR at 1806km.

Keith Maton, G6NHU (Essex, JO01) considers he has quite a small 144MHz station running 100W into a 9-element Vargarda Yagi. During the evening of 10 October he contacted 25 stations in DL, OZ, SM and SP, his best DX being SP2NJI (JO92) at 1224km. Keith appreciates that these results are not on the same scale as some of the larger stations but he hopes that it can give an indication that you don't need a massive station to do really well on the VHF bands.

John Regnault, G4SWX (Suffolk, JO02) used to be one of the UK 'big guns' but since moving QTH four years ago he had given up any thoughts of working VHF DX again. However he did put up a small Maldol 100-1300MHz log-periodic beam on the chimney fixed towards the east (see **Photo 1**) with a view to monitoring activity. Recently the DX hunting habit has resurfaced and about 4 months ago he connected his Kenwood TS-2000 transceiver via 20m of coaxial cable to the log periodic antenna. Surprisingly whenever conditions start to open up to the east he seems to be able to hear and work most of the longer distance stations before the rest of the UK. (I guess the location near the North Sea helps.) Conditions on 10 October were exceptional and some of his contacts made on the 144MHz band with the low-gain fixed beam included UA2FL (Kaliningrad, KO04) 1297km, RU2FM (Kaliningrad, KO04) 1305km, YL3AG (Latvia, KO06) 1413km and LY2WR (Lithuania, KO24) for best DX at 1556km. Many Polish and Swedish 144MHz stations around 1000km distant were also contacted. John remarked that some signals on the 432MHz band were much louder than those heard on 144MHz. Using the log periodic he made 432MHz contacts with a number of SP stations, OY4TN (Faroe Islands, IP62) and the Latvian station YL3AG. Incidentally many of the contacts made by G4SWX were achieved by the use of CW, a mode that consistently outperforms many others.

Nick Peckett, G4KUX (Co. Durham, IO94) mentions that although the opening was truly memorable it wasn't as good as the 144MHz tropo event in December 2007 when contacts could be made up to 2300km distant. However this recent opening in October was noted as being able to support communications on all bands right up to 10GHz. Between 10 and 13 October Nick made a total of 175 QSOs on the VHF, UHF and microwave bands. Some of his longest distance contacts included LY2WR on the 432MHz band at 1685km and DK3WG on the 1.3GHz band over a 1112km path. Unfortunately the 1.3GHz station of LY2WR was a gotaway despite a rapid dash up the motorway from the RSGB Convention! By way of compensation Nick did make a CW contact on the 10GHz band with OK1KJT (Czech Republic, JO60) some 1128km distant.

Gordon Curry, GI6ATZ (Co. Down, IO74) is another station with multi-band capability and between 10 and 12 October he amassed a grand total of 238 CW and SSB contacts on the 144, 432 and 1296MHz bands. His best DX contacts on the 144MHz band were with the stations of OZ1BNN (1106km), DF0CI (1135km), DK5YA (1136km), OZ6TY (1149km) and SM7GVF (1312km). Even better results were achieved on the 432MHz band with the furthest distance contacts being made to SA7BOA (1225km), DF0HF (1272km), DK2EA (1283km), SM7GVF (1312km) and OK1VVT (1377km). Equally impressive were a total of 55 QSOs on the 1.3GHz band, the best of which were to the stations of DL0VV (1166km), OZ6OL (1169km), SM6AFV (1202km), SM7FMX (1205km) and SM7ECM (1220km).

Robert West, GM4GUF mentions that as conditions were 'well up' on 10 October he decided to go out portable on the 432MHz band from a local hill top. Running just 20W into a 9-element Yagi he made 24 contacts with stations located in Denmark, Netherlands, Germany and Poland. He was particularly pleased to make QSOs with DL2NUD (JO63) 1107km, DL7YS (JO62) 1142km, DL7FF (JO62) 1179km, SP1FJZ (JO84) 1284km and SP1NQN (JO84) at 1318km.

During the evening of 12 October the enhanced tropo conditions coincided with the RSGB 432MHz Activity Contest. Although the contest is quite short, running between 2000-2230 local time, many entrants reported making well in excess of 100 QSOs during the event. The station of Vaclav Valenta, OK1VVT (Czech Republic, JO60) reports that he contacted 33 contesters, all over 1000km distant. His longest distance contacts, made on CW or SSB, included the stations of GM4JR (1244km), GM4BYF (1254km), GM4ZUK/P (1264km), GM4GUF/P (1267km), GD8EXI (1292km), GI6ATZ (1377km), GI4SNA (1385km) and GM0USI/P (running 50W and a 19-element Yagi) for best DX at 1471km.

To give you an idea just how intense this tropo opening was go to www.youtube.com and type 'LY2WR G0UWK' into the search bar. You'll then hear the 144MHz QSO between these two stations.

TABLE 1: 50MHz openings in October, 2004-2010.

Year	No. of Openings in October	Countries worked from the UK	50MHz DXCC
2004	4	6	9A, CN, I, IS, S5, YU
2005	10	8	CN, CT, EA, EA9, I, IT, LZ, S5
2006	17	33	5B, 9A, CN, CT, CU, DL, EA, EA6, EA9, ES, F, HA, HB9, I, IS, IT, LZ OE, OH, OH0, OK, OM, OZ, PA, S5, SM, SP, T9, UZ, YL, YO, YU, Z3
2007	16	29	1A, 4Z, 5B, 9A, 9H, CN, CT, DL, E7, EA, EA6, ES, F, HA, I, IS, IT, LZ, OE, OH, OK, OM, S5, SP, T9, UT, YO, YU, ZB
2008	10	16	9A, CN, CT, DL, EA, HA, I, IS, IT, LZ, OE, SP, SV, UZ, YO, YU
2009	14	19	9A, 9H, CT, DL, EA, EA6, HA, I, IS, IT, OE, OZ, S5, SV, UT, YO, YU, Z3, ZB
2010	15	18	9A, CT, DL, E7, EA, EA6, F, HA, I, IS, IT, LZ, OE, OK, S5, SP, YU, ZB

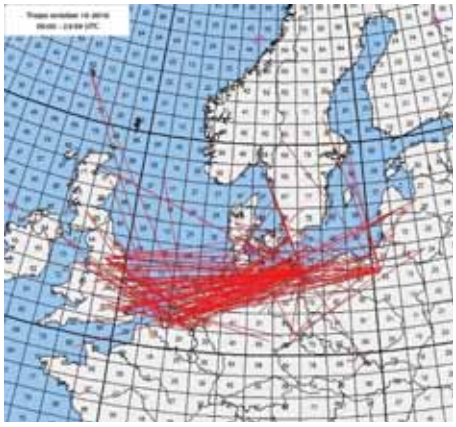

FIGURE 1: The tropospheric opening on 10 October. Diagram courtesy of Make More Miles on VHF (www.mmmonvhf.de).

DEADLINES. Good luck and if you do hear or work any DX stations on the VHF or UHF bands then please send your reports to g4asr@btinternet.com to reach me *before the end of each month*. Alternatively you can send letters to Yew Tree Cottage, Lower Maescoed, Herefordshire, HR2 0HP.

GHz Bands

At last, a big opening on the microwave bands

PHOTO 1: 39-element Quad Loop Yagi for 1.3GHz, 28-element Yagi for 432MHz and 10/15/20m trap dipole belonging to Martin, GM8IEM. (Photo: GM8IEM).

BAND ACTIVITY – THE GREAT OCTOBER OPENING. Almost three years after the last major wide area anomalous propagation event in Northern Europe, the microwave bands opened up to long distance propagation in October 2010. However, this 'opening' wasn't to follow the usual pattern.

Since I have been producing the *GHz Bands* column and analysing the big anomalous propagation events, each one has been characterised by a high pressure event moving in from the Atlantic and covering the UK. As the high then drifted away (usually to the east) and pressure began to fall, the bands would open for long distance propagation. On this occasion there was no marked high pressure system across the UK at the time of the event, or even for some days prior to the first signs of an opening. Indeed the pressure across the UK remained steady at around 1024mbar for much of the event.

I have examined the radiosonde data collected from several weather stations in Europe between 9 and 15 October. This data was obtained from the web page of the University of Wyoming's weather department **[1]**. I have also examined surface pressure maps in order to determine the progress of weather systems in the Atlantic and across Western and Northern Europe around the time of the opening. What has emerged from this is that a moderately high pressure system well to the north of the UK seems to have initiated the event.

The earliest radiosonde data I have is for 9 October and surface pressure maps from 6 October. The pressure maps were obtained from Magicseaweed **[2]**. In spite of the name, these animated maps are factual and available going back over a lengthy period! Finally, the online barograph data for NPL at Teddington **[3]** was used as a check on the chart data.

At 1000UTC on 6 October a low pressure system sat over Iceland. On the 7th an intense low pressure system moved in over the UK South West Approaches with a high pressure system nearly stationary over Scandinavia. The high was only around 1024mbar. The winds were southerly over the UK with a Teddington surface pressure of around 1016mbar.

8 October. The first reports of anomalous propagation were for 8 October. John, G3XDY (JO02) reported working SP6GWB (JO80) on 1.3GHz; DC6UW (JO44) on 1.3 and 2.3GHz and OK1JKT (JO60) on 10GHz.

9 October. Surprisingly, nothing was reported on 9 October. The radiosonde data for three locations, Lerwick, Ekofisk and Schleswig for the 9th shows evidence of an elevated duct at around 950m above Lerwick (Shetlands) at midday, 1200m above Ekofisk (North Sea) at 0000UTC and around 500m above Schleswig (north Germany), again at midday. The midday Ekofisk data was not available. From this data I would have expected some reports for the 9th, but none were received.

10 October. The real opening seemed to start for most people on 10 October when a significant number of QSOs were made on all amateur bands between 1.3 and 10GHz with many QSOs also reported on the VHF bands. By the 10th the high pressure system had moved to east of Iceland and was steady at about 1028mbar but the pressure over the UK and North Sea was falling slowly. The low pressure system to the south was now centred over the Pyrenees. At Lerwick the midday radiosonde data showed signs of a small temperature inversion between 650m and 950m. Further to the east the Ekofisk area thermal inversion was much lower, extending from just 200m up to 550m, suggesting a strong, low duct had formed. Over Schleswig the duct was still present, but slightly less pronounced and a little higher. Clearly, subsidence was strong in the North Sea region, leading to strong signals due to the relatively shallow duct entry angle for stations in the UK. **Figure 1** shows a radiosonde plot of temperature against height for Ekofisk at 1200UTC on the 10th.

In his report for the 10th Gordon, GI6ATZ (IO74) had logged 19 stations at over 500km on 1.3GHz with SM7FMX (JO65) at 1205km as his best DX of the day. John, G3XDY, worked SM7LCB (JO86) on 1.3, 2.3 and 3.4GHz (for a new 3.4GHz square at 1100km) in the morning before going off to the RSGB Convention. After he returned he worked university club station LY2WR (KO24) on 1.3GHz at 1561km. However, John, G4EAT may have been the first G to work LY2WR at around 1600km. John, G4BAO reported working them later at 1618km.

GM8IEM (IO78) reported working OZ1CTZ (JO46) at 904km and DC6UW (JO44) at 1024km. His contacts were made with just 8W from an IC- 910H and a 30 year old 39-el G3JVL quad loop Yagi. **Photo 1** shows Martin's antennas for 432MHz and 1.3GHz, together with an HF trap dipole.

Robert, GM4GUF/P, worked Alan, GM0USI/P on Skye (IO67) on 1.3GHz during the morning of the 10th whilst preparing for his trip up Tinto (IO85) that evening. He reports that the Angus beacon had dropped in strength from S8 to S1 in the Clyde valley and wondered if he would miss out on all the fun seen on the cluster after hearing the OY 1.3GHz beacon the night before! His walk wasn't wasted since on 1.3GHz he was rewarded with 'crushing signals' into SM, OZ, PA and DL. He worked 15 stations with the best SM7ECM (JO65) at

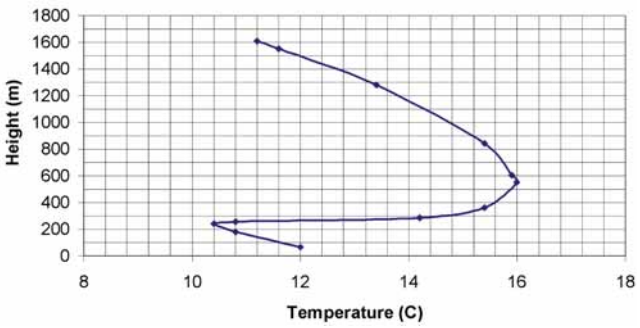

Figure 1: Ekofisk Radiosonde plot showing the presence of a thermal inversion (duct) at midday on 10 October. The inversion is marked by the rise in temperature between 200m and 650m. Note the rather slow change in temperature, with height, between 300 and 550m compared with the abrupt change at 200m.

PHOTO 2: 10GHz dish (left) and 3.4GHz patch antenna on the roof of GJ4ISM/P car on Jersey, during the October opening. (Photo: GM4ISM).

1048km. His 1.3GHz equipment comprised an FT-817, DB6NT transverter and PE1RKI amplifier at just 10W.

Gordon, G0EWN (IO93) was on 1.3, 2.3 and 10GHz with stations in LA round through SM, OZ, D, SP, OK, ON, PA and F all worked. His best DX was SP4MPB (KO03) at 1475km on 1.3GHz and SM6EAN (JO57) at 975km on 2.3GHz. Dave, G0DJA, worked SP1FJZ (JO84) at 1164km and a number of other stations on 1.3GHz, at between 500 and 950km.

Martyn, G3UKV (IO82) reported that, rather unusually, his 3.4GHz dish was on the mast. He worked SM7ECM (JO65) on 3.4GHz for only his third DXCC entity on the band, at 1068km.

11 October. The opening was still very much in evidence, by when the high pressure was now reaching down towards the UK from the north and the low pressure system was firmly seated to the south. As the high pressure reached south the pressure began to rise slightly. This didn't stop the good DX conditions.

John, G3XDY, worked on 1.3GHz: DL3JAN (JO61), OZ9PP (JO47) and GM4BYF (IO85), followed by a call from OY9JD (IP62). John says the OY6BEC beacon had been 599 to 599+ for 24 hours by this time, but it took time for the duct to drop low enough for Jon to get into it (the Lerwick radiosonde data showed an elevated duct at between 500 and 600m at midday on the 11th). The OY beacon peaked 40dB over noise in 2.5kHz and was audible for over 48 hours. On 3.4GHz he worked GM3UAG (IO87) on SSB followed by F9OE (IN78) on 10GHz.

Mark, GM4ISM, had already announced he would be taking 3.4 and 10GHz portable systems to Jersey whilst on a business trip. On arrival in Jersey on the 11th he was able to set up the basic 10GHz station at Fremont Point. Within a few minutes he exchanged very strong signals with Ralph, G4ALY (IO71) and then Russ G4PBP (IO82) at 371km. He then changed to 3.4GHz where he worked G4ALY. That 3.4GHz QSO may be the first recorded GJ to G contact on the band.

Gordon, G0EWN was chatting with OK1JKT on 10GHz when he was tail-ended by a CW call which turned out to be F6DKW, despite a 45° beam offset. He managed to work a number of QRP stations. OK7RA (JO60) was surprised when Gordon replied to his 5W call on 1.3GHz.

Again, conditions were good from further west and GI6ATZ reported working 24 stations on 1.3GHz with the best DX being DK7QX (JO42) at 1009km.

GJ4ISM/P had more time on his second day so he was able to point the antenna all the way round to the east. He had QSOs with G4EAT, G3XDY and F6DWG all on 10GHz followed by a QSO with G3XDY on 3.4GHz at 390km.

12 October. Although the opening was beginning to fizzle out by the 12th, several good contacts were still being made. The high pressure system was drifting SW towards the west of Ireland by late on Tuesday. Normally I would have expected this would have signalled the end of any long distance contacts towards the east on the higher bands. However, GI6ATZ was still able to work 12 stations on 1.3GHz with the best DX being DK1PZ (JO41) at 1098km plus two other German stations at over 900km.

As is often the case with these openings, conditions were maybe a little better in the east of the UK. G3XDY worked G8ARM (IO70) and GM3SBC/P (IO86) on 1.3GHz, and F4BUC/P (JN08) on 2.3GHz. Up on 3.4GHz he worked GM4LBV (IO86) and GJ4ISM/P (IN89) for a new DXCC entity and locator. On 10GHz he worked GJ4ISM/P, again for a new DXCC entity and locator as well as working GM3SBC/P (IO86).

For his final evening on Jersey GJ4ISM/P took his equipment to the south of the island and operated for an hour or so from Noirmont Point with a clear view from west through south to east. He immediately had a 10GHz pileup from F6DKW, F1PYR and F1DBE/P and, after working these stations, he was able to make a final 10GHz QSO with G4NNS over an obstructed path to the north. His portable antenna systems for 3.4 and 10GHz are shown in **Photo 2**.

13 October. By the 13th the opening had all but ended for the UK with just G3XDY reporting a few more QSOs on the higher bands.

FORTHCOMING MICROWAVE EVENTS - 2010

Heelweg Microwave meeting, 15 January 2011. Details: www.pamicrowaves.nl/website.

Microwave Update, 13-16 October 2011. Details: Bruce Wood, N2LIV n2liv@arrl.net.

15th International EME Conference, Cambridge, UK, 16-19 August 2012. Details: www.eme2012.com.

SUMMARY. This was a most unusual tropospheric ducting opening and the first wide-area one in North West Europe for almost 3 years. Unlike previous openings it did not start with a high pressure system building directly from the west. Instead a moderately high pressure system, over Scandinavia, initiated the opening. I wonder if this was significant? If this was a 'different' type of opening then we still haven't had a 'typical' opening for some time.

My thanks to everyone who sent in reports for the column. It has not been possible to include all the reports this month and I have, of necessity, had to edit down some of the reports received. Because of the extensive coverage of the opening I've had to hold the final part of the getting started on 24GHz series over until next month.

WEBSEARCH

[1] http://weather.uwyo.edu
[2] www.magicseaweed.com
[3] http://resource.npl.co.uk

A Brief History of the RNARS

The Royal Naval Amateur Radio Society celebrates 50 years

Mick, G3LIK and Don, G3HZL manning the HF station at the new RNARS HQ in *HMS Mercury*.

RNARS. The first Amateur Radio Club in *HMS Mercury* was set up in 1947 when the callsign G3BZU was allocated by the GPO. This club had to struggle along as it was totally reliant upon there being a spare Nissen hut to operate from and a licensed member of ships' company who could hold the licence. In those first few years it was difficult but the club survived and members of the various courses at the Signal School were encouraged to join in order to enhance their knowledge of radio and to gain competence with Morse code.

In 1957, Mike Matthews, G3JFF was given permission to start a local radio club in *HMS Kranji*, Singapore. Mike also served on the committee of the Malaysian Amateur Radio Society where there were also members of the RAF Amateur Radio Society. He noticed that the RAF had club stations all over the world that were supported by their main signal school back in the UK. On his return to the UK, Mike, together with George Tagg, G8IX (a Telegraphist of First World War vintage) and Lt. John Riggs RN, drew up a set of proposals for the setting up of a Royal Navy-wide Society. These plans were presented to the Captain of the Signal School, Captain John Henley RN who approved. These proposals became the initial Conditions and Regulations of the Royal Naval Amateur Radio Society.

In 1964, the Captain of the Signal School, Captain D Bromley-Martin was invited to become the first President of the Society and he accepted with great pleasure. The Society Committee requested, henceforth, that the Captain of the Signal School should be invited to become the President of the Society on taking up his posting and this was to be the normal procedure until the eventual move to *HMS Collingwood*.

INAUGURAL MEETING. On 25 June 1960 the inaugural meeting was held in the cinema of *HMS Mercury* when 26 interested serving and ex-serving amateurs got together to discuss the formation of the Society. The Captain of the Signal School was represented by the Commander, The Honourable David F Seeley (Lord Mottistone) who was later to become the Society Patron.

Amongst those attending were John, G3ENI; Peter, G3IPV; Brian, G3MRC; Mick, G3LIK; Rod, G3KEL; Mike, G3JFF; George, G3HIS; Peter, G3LET; John, G3AWO; David, G3HLW; Chas, G3BQR; George, G3CED; Anthony, G3ACP; Tom, G3FMN; Art, G3JAF; Terry, G3JZV; Joe, G3CNO; Bill, G2DZT; George, G8IX; John, G8WC; John, G3DOT and Jack, G3ODJ.

The conclusion of this meeting was that the formation of the Royal Naval Amateur Radio Society had been accepted and a committee was formed and voted in. They were: Chairman George Tagg, G8IX, Secretary Radio Supervisor Mike Matthews, G3JFF, Treasurer Lieutenant Johnny Riggs RN, G3ENI, Committee Commander John Pegler RN, Chief Radio Supervisor John Allen, G3DOT and David Pilley, G3HLW. Two of the stated objectives of the Society were to 'foster amateur radio activities within the service' and to 'promote an interest and education in all facets of radio communications'.

HARDY SOULS. The Society took over the assets of the original Mercury Amateur Radio Club and was housed in a small brick building that had previously been the NAAFI manager's office. This building was cold and damp with an electric heater that consumed lots of watts but gave out little or no heat and very temperamental oil heater that was no better. The members, at that time, who were prepared to activate this station had to be a very hardy lot, especially during the winters.

A grant was sought, and obtained, from the Nuffield Trust to buy equipment with which to set up the Headquarters Station in *HMS Mercury*. The Society started to grow slowly and published itself through *The Communicator* (the RN Communications Branch magazine) and via the various nets and commercial radio magazines that were read in the amateur world.

SPEED TESTS. In 1961 the first RNARS QSL card was introduced and printed by Frank Humphries G5IZ; it depicted *HMS Tiger*. In 1962 the Society started transmitting the QRQ runs (Morse proficiency tests), which were copied world-wide, by the various Service signal schools and civilian establishments throughout the UK. These exercises were run using Creed and GNT automatic Morse senders using punched paper tape until being replaced by more modern computer programs. Speeds of 20, 25, 30, 35 and 40 words per minute were sent on the 80 and 40m bands on the first Tuesday and Wednesday, respectively, of each month, with 15wpm being added in 1965 at the behest of Doug, G4BEQ who asked for there to be another speed increment between the 12wpm for the amateur licence requirement and the 20wpm currently transmitted.

The 40m transmissions ceased after it was thought that some stations were checking their copy before sending it off for marking – the same transmission having been run on the previous evening on 80m. A certificate was issued for each one hundred percent correct submission with stickers for each subsequent speed achievement.

The first run, due to be transmitted in January, had to be cancelled due to both Dave Pilley, G3HLW and Mike Matthews, G3JFF being stopped by high overnight snow drifts that were up to the height of the hedge tops, blocking the road from Clanfield to *HMS Mercury*. This did, in fact, provide much publicity and generated an enormous amount of mail asking what had happened and got the monthly transmissions off to a good start in February 1963. These transmissions ceased in 1995 due to lack of response from the amateur fraternity in general.

KEEPING IN TOUCH. It became obvious that the growing membership was keen for the Society to have its own means of publishing

Mike, G3JFF in the old shack at *HMS Mercury*.

Creed and GNT Morse tape readers for the QRQ runs in the old HQ station at *HMS Mercury*.

RNARS members present at the official opening of the new HQ station in the P&RT Centre of *HMS Mercury*.

its news and views. Lt Dave Davis RN undertook to produce a bi-monthly news sheet and, in December 1964, Issue No 1 of what was to become the current *RNARS News Letter* appeared. This was a six page A4 edition and proved to be very popular. Dave continued to produce this News Sheet, using the postal service after he had been drafted to Malta. The News Letter had, eventually, to be reduced to three editions per year, due to the ever increasing costs of postage. These became the Spring, Summer and Winter editions, which continue today.

Over the years, the Headquarters Station has run various nets such as the Wednesday evening net on 80m (in recent times it has been run by various members from their home QTH) and the Sunday morning news net that has for many years, been run by Mick, G3LIK from his home – with help from other members as and when necessary. Another net is run every Monday evening and there has also been the very popular 'Bubbly Rats Net', which is run at 'Tot Time' every week day and is normally, conditions allowing, well attended. This net awards an Annual Cup and Certificate to the member who obtains the highest number of attendances on the net. This award is made at an annual Bubbly Rats get together that is held, currently, at a hostelry in Gunthorpe on the banks of the river Trent.

The Society, via the Area Representatives scheme, attends many amateur radio rallies and functions around the country each year providing a meeting point and get-together for members would not normally be able to get to the HQ station.

RALLY. In 1965, the Society held its first mobile rally at *HMS Mercury*, a small but successful event outside the shipwrights' store. This was the forerunner of many more and better rallies that became very popular and formed a focal part of each yearly calendar. These rallies were held in early June each year.

In later years, the rally was situated on the sports field at Hyden Wood where they were blessed with good weather on all but two occasions and even then the weather relented and the afternoons were excellent and the on-site parades and events, such as marching bands, fly pasts by the RN historic flight and radio controlled model car and boat displays went off successfully. One year, the Petersfield radio controlled model aircraft club flew their aircraft from the sports field and one of their models decided to go off on its own as the talk-in station was interfering on the control channel! They did, however, recover it later in the day from eight miles away. The rallies also had displays by the local Sea Cadet Field Gun crews.

These rallies were finally discontinued after the move to *HMS Collingwood*, due, mainly, to major traffic problems in accessing and leaving the rally site from the main road between Fareham and Lee-on-the-Solent.

HMS BELFAST. In 1972, *HMS Belfast* was moved and moored in the Pool of London and the Belfast Trust was formed with the aim of refurbishing the ship back to the standard she had when originally decommissioned. To this end, Chief Radio Supervisor Wally Walker, G4DIU was seconded to the *HMS Belfast* Trust and given his own S156 (stores requisition book) and a three ton flat bed lorry, complete with driver, to collect and arrange delivery to the ship of as much of the radio fitment as could be scrounged, borrowed or otherwise obtained from the various dockyard return stores. At this time Wally suggested to the *HMS Belfast* Trust that an amateur radio station might be installed on board with the aim of publicising the ship to the world and to provide a point of interest to visitors to the ship. This would also, of course, enhance the standing of the RNARS and increase the number of visitors at the same time.

In 1973 Wally retired from the RN but kept in touch with the *HMS Belfast* Trust and in 1975, as part of the Diamond Jubilee of the RSGB, an amateur station GB2RN was set up on the Admiral's Bridge. This area had to be used as the actual bridge wireless office door was welded shut. It was a very well supported event and afterwards the RNARS London (*HMS Belfast*) Group was formed from Society members who lived locally to continue these activities. Don, G3HZL was the first Chairman of this group. The station has since been permanently situated in the BWO and is open to visitors at all times when the ship is open to the public.

1976 saw the start of the *HMS Belfast* Activity (Easter) Week and this is now an annual event. In 1978 the callsign GB2RN was officially allocated to *HMS Belfast* on a permanent basis.

The Belfast Trust was disbanded and *HMS Belfast* transferred to the Imperial War Museum's ownership as an official Museum Ship open to the public on a daily basis.

HQ STATION. The new Headquarters Station of the RNARS was officially opened, by Captain Derek O'Reilly RN, in the new Physical and Recreational Training building – a really luxurious accommodation after the cottage and the original Nissen huts. This allowed for the running of three main operating positions with a KW Viceroy/KW500 linear with an Eddystone EA12 and Racal RA17 into a trapped dipole and a KW202/KW204/KW1000 linear into a TH6DXX beam. Additionally, Top Band operation was available into a long wire.

The VHF bay consisted of a Pye base station for 4m into a beam/ground plane and an FT-200 transceiver for 2m using a beam or vertical antenna.

In 1980, *HMS Collingwood* Amateur Radio Club G3CRS was re-activated with Graham, G8OWJ as its Chairman.

Sadly, in 1982, George Tagg, G8IX RNARS 0001, the first founder member, became a silent key and his membership number was allocated to the Headquarters Station.

CELEBRATIONS. The Society celebrated its 21st, Coming of Age Anniversary in 1981 with a formal dinner in the Warrant Officers and Senior Ratings Mess at *HMS Mercury* and at which ten of the original Founder Members were able to attend.

In 1985 the Society celebrated its 25th anniversary with another formal dinner, this time held at the Royal Sailors Home Club in Portsmouth. There were 130 people in attendance and the Chairman, Ken Craddock-Hartopp, G4PZR, introduced Lord Mottistone and requested that he become the RNARS first Patron. Lord Mottistone, who was Commander the Honourable David Seeley RN in the early days of the setting up of the RNARS, accepted and was welcomed by all present.

This year, 2010, the RNARS celebrated 50 years and activities have taken place throughout the year to celebrate the event.

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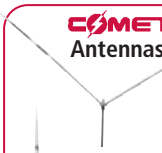

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IOTA

Catching up with some of the rarest IOTA destinations

PHOTO 1: Yuri, V73QQ standing atop the nuclear waste dump on Enewetak.

RSGB CONVENTION. There was a great gathering of IOTA enthusiasts at the RSGB Convention a few weeks ago – if you missed it please put the event in your diary for next year as soon as the dates are confirmed (usually the second weekend of October).

Roger, G3KMA, the IOTA Manager, made a plea in his opening remarks for more UK participants in the IOTA listings. It is a little disappointing that we are outnumbered by amateurs from other European countries when this is an RSGB award programme. So please register on the website at www.rsgbiota.org, dig out your island QSLs, enter the QSO data online, submit the application online and send the cards off for checking by the postmark deadline of 31 January 2011 for inclusion in the 2011 annual listings.

It was a particular pleasure to meet Cezar, VE3LYC and hear about his adventures in the Canadian north. Undeterred by the difficulties of DXpeditioning, he is planning more IOTA trips and looking at the remaining new ones. It was fascinating also to hear about the massive T32 IOTA trip from Derek, G3KHZ and see recent pictures of some of the most remote islands in the world.

MARSHALL ISLANDS RETRY. One news story that broke too late for the last column was an attempted visit by Yuri Sushkin, N3QQ, to the uninhabited and unactivated Ujelang Atoll, OC-278, on the extreme edge of the Marshall Islands. Yuri had been in contact with the local authorities for some time and received an invitation to tag along on a special visit by the government supply ship *Lady E* to deliver equipment for a new school on Enewetak a couple of hundred miles from Ujelang. There was also to be an official school opening ceremony that required the *Lady E* to visit Ujelang to gather food. Clearly an opportunity not to be missed – but sadly it turned out that the school equipment had not arrived in time so although the boat would make its regular trip to Enewetak it would not go on to Ujelang.

Having got as far as Majuro, the administrative centre of the islands, Yuri decided he might as well activate Enewetak, OC-087, and check things out for a later attempt on Ujelang. He eventually made 3700 mainly CW QSOs as V73QQ from Enewetak (and another 1200 from Majuro, OC-029) and left the equipment in the islands for a return trip to Ujelang that is now scheduled for early December if the school equipment arrives in time. Check http://oc-278.ucoz.com for more info.

The Marshall Islands were the site of various nuclear bomb tests back in the 1950s and Enewetak was one of the main locations. One of the islets on the atoll, about 30 miles from the inhabited area, contains a nuclear waste dump now covered by an enormous concrete dome. Perhaps there's a case for taking a Geiger counter along on the next expedition there! **Photo 1** shows Yuri standing atop the dome.

DXCC IOTAs. It is often amusing to see the expressions on the faces of DXCC DXpeditioners when they learn that the rare DXCC entity they are visiting is some way down the IOTA wanted list. Many IOTA enthusiasts start island chasing when they've got little left to work on the DXCC list so perhaps this is not surprising. But it doesn't have to be that way and I always recommend that people chase IOTA and DXCC in parallel – some of the IOTAs are on very infrequently and you may regret it if you ignore a rare one now. But in many cases you can chase DXCC and still get an IOTA – a radio version of 'Buy One Get One Free'.

One such BOGOF IOTA is Sable Island (NA-063) that I mentioned in the previous column. It has been claimed by over 60% of IOTA participants but is considered rare for DXCC. The October DXpedition encountered bad weather and has been deferred until early December. Check their website at www.cy0dxpedition.com for more information on their plans. Coincidentally, one of the government scientific team on Sable Island is VE1AWW, a newly licensed amateur (July 2010) who is QRV in his spare time with 100W to a vertical until the end of the year. This is clearly not the ideal spot for a newbie so let's hope the enormous pile-ups don't put him off amateur radio for good.

Another DXCC IOTA is the Chatham Island group, OC-038, near New Zealand. Toshi, JE1SYN, and Hiro, JF1OCQ, will be active as ZL7/W1SY and ZL1WY/ZL7 from there from 2 to 9 December. They plan to operate most modes on 160 to 6 metres. Check their website at http://w1vx.net/pedition/zl7/2010ZL7.htm for more information.

Down in the South Atlantic there is activity from Ulli, DL2AH, operating as ZD9AH during a visit to Tristan da Cunha (AF-029). He is running 100W to a wire antenna but has been a reasonable signal on various bands in the UK and may still be QRV when you read this. There should also be some activity for the next 12 months from Gough Island, AF-030, a separate IOTA, but the new operator who should have arrived in September hasn't been spotted yet.

Peter, DG1FK (H40FK) and Sigi, DK9FN (H40FN) will be active on CW, PSK and RTTY from Nendo Island (OC-100) Temotu from 21 December to 3 January. They will have two stations with amplifiers, a wire for 160, 80 and 40m and a 2-element beam for 30-10m. QSL H40FK via DG1FK, H40FN via HA8FW.

That's it for this time. For any readers wondering why this column is still being written by G3ZAY rather than GM4FAM, there was a bit of a glitch in the handover process but hopefully Cris will pick up the pen next time.

PHOTO 2: The *Lady E* preparing to leave Majuro for Enewetak.

Book review

Two fascinating historical works plus an engineer's delight this month

Inside Enigma

by Professor Tom Perera, W1TP

Getting your hands on a genuine Enigma machine these days is quite a feat. Not many Enigmas survived the War: the majority were destroyed by the Allies in the period after victory. Acting on orders, the standard method of destruction was by detonating a hand grenade within the mechanism, the result of which was, I'm sure, quite spectacular. A few, however, were quietly snaffled by individuals and squirreled away in attics and the like; these are the ones that remain today.

Professor Tom Perera is one of the world's leading authorities on Enigma machines. Over the years, he has developed the knack of seeking out the machines. He has a remarkable personal collection of them (not to mention telegraph keys) and he travels widely, speaking on Enigma and exhibiting from his collection. This book is a collection of his knowledge and experience of the Enigma and other, similar coding machines.

The book's coverage is breathtaking and ranges from a mathematical discussion on exactly how many possible variations an Enigma machine can create (if you don't have any wiring information it's roughly $3x10^{114}$, or zillions more than the number of atoms in the universe) through to details of the Polish and Bletchley Park Ultra project including details of the Bombe and Colossus code-breaking machines. But it starts very simply, with an overview of the need for secret communications and how codes & ciphers have developed over the centuries from the Caesar Code of simple letter substitution to the Second World War Enigma and some Cold War machines. The operation of the Enigma is discussed in detail, from both the electromechanical perspective (how it does what it does) and the operational view (how it was used).

I was surprised to discover that there are many different versions of the Enigma machine. I knew that there were at least the three- and four-rotor variants with (and presumably without) the 'stecker' (plugboard), but the book identifies some 25 variants, both civilian and military, dated between 1923 and 1944. In addition, several rare accessories are documented. These include the 'Uhr' external switch box, an add-on printer, remote light (output) panel and a mains power supply, to name but a few.

There are literally hundreds of photos that support the text, including some very rare images. A lot concern the Enigma itself, of course, including many very detailed close-up views of the mechanism and electrical parts. There is also a detailed set of strip-down images of a Russian Cold War-era Fialka machine, which is a more complex 10 rotor variant based on the principles of the Enigma. Other photo sets include an Enigma that was recovered from a U-boat 60 years after it sank, home-made Enigma replicas and many more. Towards the end of the book you'll even find a translated Enigma manual (reprinted from a 1991 book by C Barger).

If you even have just a passing interest in Enigma and similar technologies then this book will be a revelation. It opened my eyes to a lot of stuff I'd never ever dreamed of and I recommend it very enthusiastically.

206 pages, 204 x 254mm
ISBN 9781-9050-8664-1
Published by RSGB
Non Members' Price £14.99
Members' Price £12.74

Images Across Space

by Dr Douglas Brown and Adam Bernard

I must admit that I have a bit of a soft spot for John Logie Baird. I've always thought of him as a combination of mechanical genius and Heath Robinson, with a lot of inspiration and some electricity thrown in for good measure. But this book shows that there was much, much more to the man than that. I hadn't known that he had demonstrated a practical colour TV camera and colour projector in 1939 and didn't realise that he had been a leading light (sorry) in ultra high brightness cathode ray tubes for a pre-war, cinema screen size 405 line projection TV. I was also interested to learn of some of his war-time work, including a high definition (for the time) aircraft-mounted TV camera and transmitter that beamed back (nearly) live reconnaissance images.

This is not a linear telling of Baird's story; instead, it concentrates on themes, projects and designs. It includes a wealth of illustrations, rare photographs and sketches, including many never-before-seen items. It is put together in such a way that I sometimes felt I could almost follow Baird's entire train of thought. Some projects – for instance 3D TV, for which he developed a practical, semi-mechanical system – were years ahead of their time, details being published in 1942.

I found myself constantly surprised by this book in very pleasant ways. It is very well researched and contains much that I have never seen in print before, including numerous photos. For a man whose untimely death ultimately led to him being remembered as the pioneer of a failed system, this book was a revelation to me. I'm very glad I read it and thoroughly recommend it to anyone remotely interested in the transmission of moving images.

180 pages, 176 x 250mm
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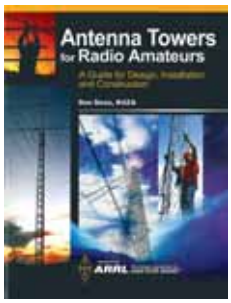
Antenna Towers for Radio Amateurs

by Don Daso, K4ZA



The title says it all – this is a book about getting your antennas in the sky and keeping them there. As it's an American book so many of the brand names and suppliers are from North America but the laws of physics are the same there so all the actual engineering information is the same.

This is a very comprehensive yet accessible work.

There is a lot of very practical information that applies to smaller installations.

If you are thinking about putting up a tower, read this book first.

176 pages, 208 x 272mm
ISBN 978-0-87259-094-6
Published by ARRL
Non Members' Price £27.99
Members' Price £23.79

Railways on the Air

How some of the groups involved took part in this year's event.

PHOTO 1: Matt, M0LYI and Bob, G0OCB operating GB0WR from the comfort of the Station Master's Office, Stanhope Station, Weardale Railway, County Durham.

INTRODUCTION. Railways on the Air started in 2008 when Bishop Auckland ARC decided to coordinate an event that celebrated the anniversary of the first steam powered passenger railway that took place on 27 September 1825. The first passenger train ran on a line in the North East of England from Darlington to Stockton. The Club operated the special event station GB2EVR at the Eden Valley Railway.

ROTA is not a contest: it's a promotion of amateur radio whilst helping to celebrate the unique position railways hold in our national heritage. This year some 32 railways were activated over the weekend of 25/26 September, including one in Norway. Conditions, particularly on the 80m band, were excellent for most of the weekend. Many groups reported contacting well into the teens of other railways.

GB0WR. Matt, M0LYI, in County Durham operated GB0WR from Stanhope station on the Weardale railway. Using a homebrew 80m horizontal dipole strung between the platform footbridge and the station canopy fed by a Yaesu FT-897D and a homebrew Watson 80Plus2 antenna, he produced extremely strong signals on 80m. Paths to the south west, including Cornwall and South Wales were particularly good on the Sunday. His log recorded the high teens of contacts with other railways together with a multitude of individual amateurs at home and abroad.

GB2LHR. The Furness Amateur Radio Society this year operated two railways GB2LHR (Lakeside and Haverthwaite) and GB2RER (Ravenglass and Eskdale). FARS secretary Dave, G3VUS, operating GB2LHR, reported that FARS set up the station within the car park at the Haverthwaite Station end of the LHR, pitched alongside what was once the entry gate. In use was a Kenwood TS-570D running 100W into a doublet. The antenna's centre point was around 25feet AGL, supported on a pump-up telescopic mast. The ends of the wire ran parallel to the slate wall perimeter.

FARS operated from within the club's own caravan. Their main operators were Dave, G3VUS, Bill, G4USW, Dick, M0RBE on HF with Ken, M3UFU looking after the 2m station, which consisted of a Yaesu FT-1802 running 25W into a small collinear antenna placed above the doublet. Assisting these operators at different times during the weekend were Rob, G4RQJ, Gail, M3UQF, Anne, M3HQW and Alan, M6AMO.

Operations were from around 9.30 onwards both days until mid afternoon, as they had to vacate the site before the last train arrived. This is the third time they have operated GB2LHR and report that each event has been more successful than its predecessor.

GB8CR. Brian, G0KRK, operated GB8CR (Chasewater Railway) and reports that the event was a great success all round with the members of the club and the volunteers of the Chasewater Railway. Their shack was a tent on the platform. Lots of people wanted to know what was going on with an antenna strung along the platform. Sunday was the official day for being in steam with loads of people taking the train. The station master at the end of day came over as they were dismantling the shack to say he felt that there was something missing from the platform but could not think what it was – until they lifted the tent from its frame, only to leave the tent-

PHOTO 2: FARS secretary Dave, G3VUS operating GB2LHR.

PHOTO 3: Dick, M0RBE, Ken, M3UFU, Bill, G4USW, Dave, G3VUS, Audrey and Rob, G4RQJ in front of the clubs caravan to left, and Ken's mobile home on the right, just visible behind the awning is the pump up mast.

PHOTO 4: GB8CR's operating HQ on the platform at the Chasewater Railway.

PHOTO 5: (L to R) Jonathan, M1ADX, Bob, G7JTZ and Rex, G0CLR at Sheringham station.

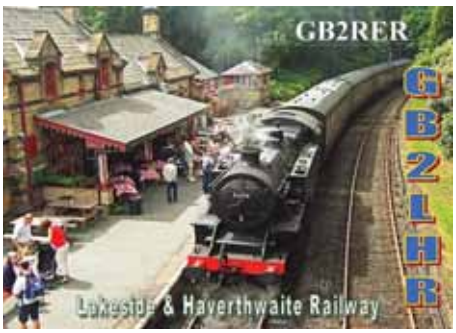
poles and the hidden platform sign! They had in fact placed the tent over the sign on the Saturday so they could secure it to the grass overnight, so everybody was cold but happy at the end of the day.

GB1NNR & GB2NNR. Norfolk Amateur Radio Club and Bittern DX Group joined forces to simultaneously operate two special event stations for the Railways on the Air weekend. Both set up amateur radio station on the North Norfolk Railway (also known as the Poppy Line) to make as many contacts as possible across the two days.

NARC set up their HF and VHF station, callsign GB1NNR, on the platform at picturesque Sheringham station on the North Norfolk coast, concentrating mainly on 80m and 40m to give as many contacts as possible to UK and European stations. NARC also used a D-Star digital radio.

Bittern DX Group set up their HF station, callsign GB2NNR, at the other end of the line in the old shunting yard at the Georgian town of Holt. This year the bands were particularly dead and most contacts were made with European and UK stations. Towards the end of Saturday afternoon 20m livened up and operators reported transatlantic QSOs.

This year the weather was particularly unkind. There were high winds and frequent showers on the Saturday and continuous rain on Sunday. Around 18.30 on Saturday evening a gust of wind overturned the gazebo under which the Bittern group had been operating. This forced a retreat into the club's caravan. It was also thought to be advisable to lower the main tower and HF beam. From then only a limited service was possible, using a G5RV. Even so, contacts continued to be made, even in these cramped conditions.



GB2LFR QSL card.

The original railway was built by William Marriott in 1887 and it ran until 1924. It was part of the Midland & Great Northern Joint Railway (M&GN) and was intended to become part of the Midland & Northern rail network, but gradually fell into disuse as a result of increased use of road transport.

The M&GN Joint Railway Preservation Society was formed in 1959 and a light railway order for Sheringham – Weybourne was granted in 1973. The order was transferred to North Norfolk Railway in 1976 and public services began. The extension to Holt was opened in 1989.

2011. Next year's event is planned for the weekend of 24 and 25 September. Groups and individuals can already register on the website at http://rota.m0php.net/stations. As this year, BARAC will suggest frequencies (avoiding the RSGB news ones this time!) as places on the bands to start calling. Following many requests, the ROTA organisers will also be recognising those amateurs who contact these special event stations by issuing an additional certificate designed specifically for their contribution. More details will be on BARACs website.

QRP

Catching up with news from the QRP world

The trail friendly radio from Ten-Tec.

TRAIL FRIENDLY RADIO. Trail friendly radio is a term first coined by Wayne Burdick, N6KR, co-founder of Elecraft, the company that produces the well-known K1, K2 and K3 transceivers. As Wayne says, "Some years ago at the Dayton Hamvention I did a presentation entitled Ergonomics and Amateur Radio. It was not lost on either me or the audience that the title was an oxymoron. I spent an hour suggesting ways to improve the situation. While discussing field operation, I alluded to something called a 'trail friendly radio' (TFR), and speculated on what form it might take. Ergonomically, it's an interesting assignment. Suppose you have no table? No chair? No room to string up a dipole? I've always wanted to explore TFRs myself, with the goal of optimizing them for small size, ease of use and maximum integration. But the idea had to simmer and morph in my mind for about a decade before all pieces of the puzzle came together – in my case, as the KX1 transceiver."

I have owned a KX1 for some years. It was a Christmas gift from my wife who had sat on one in the back seat of a car taking us to a QRP convention in California! She though it small, beautiful and very practical; an ideal gift for me. As far as I know the KX1 was the first in a series of small portable QRP transceivers with the controls on a 'top panel' rather than a front panel; ergonomically designed for amateur radio on the move [1]. The KX1 was followed by the PFR3 (Portable Field Radio) produced by Hendricks QRP Kits [2]. This kit radio, designed by Steve Weber, KD1JV, is a 5 CW transceiver on 40, 30 and 20 metres. Very soon after the PFR3, the Chinese HB-1A QRP transceiver kit, designed by BD4RG, appeared on the market. Originally available from China via eBay, it has since been sold by Martin Lynch and Sons and reviewed in *RadCom* [3].

In May of this year, Ten-Tec in the USA announced two similar QRP transceivers: the R4020 and the R4030. They look like the Chinese HB-1A transceiver, which is hardly surprising as they are made by the same Chinese company. The R4030 covers the 40 and 30m bands and the R4020 covers the 40 and 20m bands and both offer a nominal power output of 5 watts. Perhaps the big advantage is that these transceivers are ready built and carry the full Ten-Tec warranty. They sell for $249 and details can be found at [4].

EARTHQUAKES ROCK ZL3 RADIO BUILDATHON. Despite rocking to earthquakes, 20 Christchurch NZ radio amateurs put on a great ZL3 Buildathon event for a group of Boys Brigade ICONZ lads in late September. This 7th ZL3 Radio Buildathon was hosted by Tait Radio Communications. Buildathon Co-ordinator David W Searle, ZL3DWS says he is thankful to be able to write, "At 4:35am on the morning of Saturday September 4th, Christchurch was hit by a magnitude 7.1 earthquake that caused widespread damage to homes and infrastructure. By sheer luck no one was killed. Power was lost for several hours but landlines and mobile phones remained operational. Christchurch is slowly recovering. The hundreds of aftershocks deliver a stark reminder to have a plan in place when the power and electronic bedside phone fails, the money machine doesn't work and you're on your own in the dark. However, because it was pitch black across the city, the stars in the heavens were a wondrous sight to behold that morning!" David says he is always looking for great kit ideas for kids 8 to 81 years: e-mail your ideas to ZL3DWS@nzart.org.nz or visit http://sites.google.com/site/zl3buildathon.

G QRP CLUB WINTER SPORTS. The G QRP Club Winter Sports is one of the most popular QRP operating events. Each year between Boxing Day (26 December) and New Year's Day (1 January) the club invites any operators to join in a QRP QSO Party using 5 watts of RF output or less. The operating takes place on and around the International QRP Calling Frequencies. These are, for CW: 1843, 3560, 7030, 10106, 14060, 21060, 28060kHz and for SSB: 3690, 7090, 14285, 21285, 28360kHz.

The Winter Sports is not a contest, although the G4DQP Trophy is awarded to the operator thought to have made the best overall contribution to the event. So "5NN BK" exchanges are not heard and participants often linger over interesting QSOs. It is usual for operators to exchange their G QRP Club membership number, if they have one. The event does provide an opportunity for operators who do not usually use low power to turn down their power to 5 watts or less and see what can be done. Those taking part are invited to submit logs and comments to the G QRP Club Communications Manager, Peter Barville, G3XJS, Felucca, Pinesfield Lane, Trottiscliffe, West Malling, Kent ME19 5EN or e-mail to g3xjs@gqrp.co.uk.

The G4DQP Trophy is awarded to the station making the best overall contribution, which may not be the station with the most QSOs or working the most DX. So turn down the power and have a try at this popular event. It is one of the few times I have heard QRO stations complaining about QRM from QRP stations!

QRP IN THE COUNTRY 2011. Following the very successful first QRP in the Country, Tim Walford, G3PCJ is hosting it again in 2011 at Upton Bridge Farm, Long Sutton, Somerset. The date will be 17 July 2011. The theme will be low power radio operation and home construction in a country setting! The Walford Electronics website is at www.users.globalnet.co.uk/~walfor.

WEBSEARCH

[1] www.elecraft.com/KX1/KX1.htm
[2] www.qrpkits.com/pfr3.html
[3] www.hamradio.co.uk/acatalog/Am_Mobile_MyDEL.html
[4] www.tentec.com

Young people at the ZL Buildathon run by ZL3DWS.

QRP in the Country 2010.

Antennas

The GM3RVL 'Joiners Delight' loop antenna

PHOTO 1: The overall construction of the 'Joiners Delight' antenna. The element is made from a 3m length of 22mm copper tube bent into an approximate circle of approximately 950mm O/D.

REDUCING LOOP LOSSES. The description of my magnetic transmitting loop in September's Antennas resulted in some feedback. The most interesting of these was a description of a loop antenna designed and built by Harry Brash, GM3RVL. He has been fascinated by small transmitting and receiving loops for a long time and followed the controversy about them in *RadCom* and elsewhere. His view is that losses are the limiting factor and the trick is to make the loop as loss free as possible – and that has to include the immediate surrounding electrical environment.

As part of the investigation into loop losses, GM3RVL made some tests with loops constructed using standard plumbing angle joints, soldered and mechanical. As a rather primitive test, he passed significant DC currents across joints and was surprised at the poor electrical connections at DC. He assumed losses would be worse at RF but had no suitable test equipment to make the appropriate measurements (more about this later). He goes on to say, "The other obvious issue regarding loop Q was the connection to the tuning capacitor. I was surprised how some constructors put great effort into making a high performance loop and then used quite crude connections to a standard variable capacitor. I felt that the arrangement I finally chose was as close to the ideal as possible, apart from making the whole thing from silver. It would have been good to use copper capacitor plates and spot welding in place of soldering but soldering was my only option at that time."

CONSTRUCTION. The overall construction of the antenna is shown in **Photo 1**. The element is made from a 3m length of 22mm copper tube bent into an approximate circle of approximately 950mm O/D. The ends are flattened and soldered to two 8in square 1/16in thick brass plates, which form the capacitor. The rest of the structure is made of wood, apart from some Perspex insulators to mount the plates to the two long strips of hardwood.

The mechanical tuning arrangement is shown in **Photo 2**. There is a hinge at each point marked with an arrow. The offset arrangement of the hinges results in the two capacitor plates being moved closer together as point A is raised, and vice versa. Tuning is therefore accomplished by moving point A up and down using the hardwood dowel D. Rough adjustment (band change) is accomplished by releasing the clamp C and setting to marked positions of the dowel. Fine adjustment is by moving lever F.

The mechanism as illustrated in Photo 2 is set so that the capacitor plates are spread apart for the higher frequency bands. With the dowel raised, as shown in **Photo 3**, the capacitor plates are moved so that they are close together for the 30 and 40m bands. On the 40m, the plate spacing is only a few millimetres and GM3RVL reports that the tuning was very 'touchy', although he made some contacts. When the loop is mounted outside, any movement due to wind affects the tuning due to the small capacitor plate separation.

OTHER CONSTRUCTION ISSUES. To overcome the perceived losses due to joints in the loop element, GM3RVL made his loop out of a single section of 22mm copper tube as shown in the photos. He used a bending spring with a wire extension so that the spring could be placed anywhere along the 3m length of the tube. This worked well, provided the bending was done gradually. He avoided the temptation to bend too much at a time, which could cause the spring to jam in the tube. Be warned, bending the tube is hard work!

The first version of this loop used aluminium plates for the capacitor. These were tinned using so-called aluminium solder (possibly the Radiospares version). The solder appeared to tin the aluminium well enough but difficulty was experienced soldering this arrangement to the ends of the copper loop. The aluminium capacitor plates were replaced by brass plates at a later stage and fixed to the loop ends using conventional solder, which gave joints that looked more 'convincing'. No change in performance has been noted.

MATCHING. Various methods of matching the feeder to the loop were tried. GM3RVL notes, "The biggest SWR improvements occurred when I moved from loop coupling to a gamma match. It wasn't so much that the loop wouldn't match; it was that the gamma match was easier to tune. It didn't require so much critical adjustment. Additionally it was less sensitive to band changes."

GM3RVL has since reverted to loop coupling because he was unsure of the gamma match efficiency and he wanted to avoid coupling the feeder directly to the loop. He goes on to say, "I'd be interested in your comment on current loop coupling practice. The Faraday screened loop in Figure 15.55 on page 15.28 of the *RSGB Handbook* (later editions) is wrong, in my opinion. I have seen this arrangement described in several places. As I understand it, the broken braid on both sides at the top of the coupling loop should be unconnected and only joined to the other braid and the centre conductor at the bottom feed point.

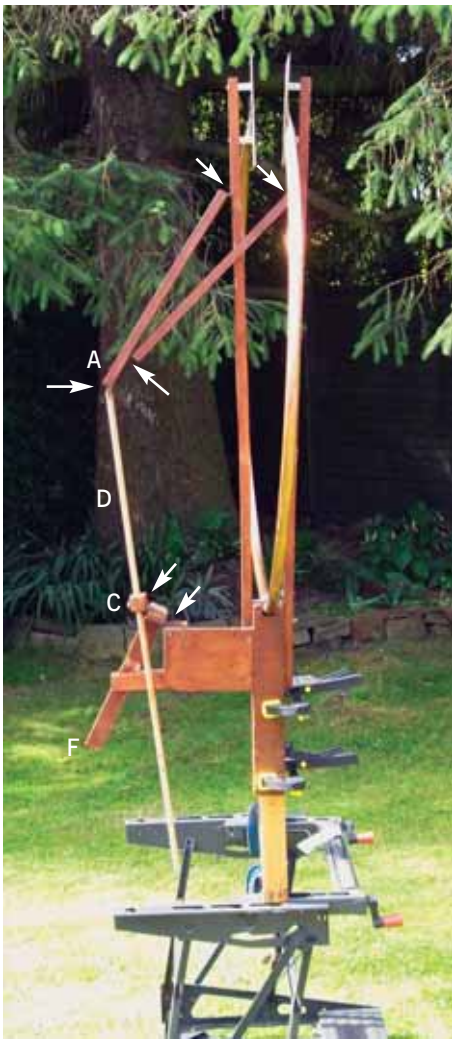


PHOTO 2: The mechanical tuning arrangement of the 'Joiners Delight' antenna.

Otherwise it is not a Faraday screen.

"I made a Faraday screened coupling loop (1/5 diameter of main loop) using RG213. Without adjustment, it tunes up on 20m (SWR ≈ 1.3:1), 15m (SWR ≈ 1.1:1) and 10m (SWR ≈ 1.1:1). The loop will tune up to 29.5MHz and down to 40m provided there is no wind. The very close spacing of the capacitor plates on that band makes the tuning quite critical, hence the wind 'interference'. The loop has not been tested on 30m at the time of writing."

Photo 4 shows the coupling coil and the fine-tuning lever in more detail. The adjustment at the end of the tuning lever is about 25mm to cover the 20m band, 35mm to cover the 15m band and about 100mm to cover the 10m band up to 29.5MHz. The tuning range on 40m is just a few mm. The tuning movement can of course be changed by altering the mechanics.

As I am responsible for the above-mentioned Faraday coupling loop appearing in the *RSGB Handbook* I feel that an explanation is in order. This coupling loop was included in a magnetic loop design 'Abstimmbare Magnetische Antennan (AMA)' by DL5CZ. Variations of this antenna have been manufactured by

PHOTO 3: The mechanical tuning arrangement set so that capacitor plates are close together for the 30 and 40m bands.

FunkTechnik Beese since 1983. Additionally, this type of coupling loop was included in the design by Roberto Craighero, I1ARZ so I had no hesitation of including it – although I must confess I was a little unsure of its Faraday status. Furthermore, I became aware of some disquiet about it so I included the proviso in **[1]**, **[2]** and **[3]**, "The coax inner and braid at the apex of the (coupling) loop (in the illustration) is shown to be joined, which would make it a Faraday half loop. The inner to braid connection should be removed but the gap in the braid should remain."

TESTS. If you use copper pipe joints to make the loop as described in September's Antennas then some method of measuring the resistance of the joint is beneficial. GM3RVL fed 5A DC through the pipe from a current limited power supply and measured the voltage (in mV) across the joint with a digital multimeter. He then calculated the resistance using Ohm's law. He also made a measuring bridge designed for low resistance measurements. One side of the bridge is capacitive, powered by a signal generator, and uses a receiver as a detector. So far it is working correctly with test resistors down to about 0.1Ω but he thinks it needs to go down almost two orders of magnitude to test the pipe joints. Overcoming the mechanical

PHOTO 4: The Faraday coupling coil and the fine-tuning lever in more detail.

layout for testing the pipes is a challenge, particularly the construction of reliable connections at the ends of the test pieces.

I used the high current DC method of measuring resistance of my loop by incorporating the pipe section under test in the circuit of high current 10A charger and a lead acid battery (not having a current limited power supply). This worked to a degree but was limited by the 0.1mV resolution of my digital multimeter. Most of the joints caused a voltage drop of 0.1mV although one joint was 0.2mV. This suspect joint was resoldered and further tested to give 0.1mV. The voltage drop of the whole copper loop including the variable capacitor hinges was 18.1mV at 10A, ie a total resistance of 1.81mΩ.

FINALLY. I often receive e-mail (and occasionally letters) requesting advice on certain problems regarding antennas, most of which is to do with fitting HF antennas within the confines of postage stamp locations. I am more than happy to continue doing this and the e-mail system provides a quick and easy way of communication when dealing with these queries. My main difficulty is sometimes trying to envisage the general situation from a plain description. It is much easier for me if a drawing or photograph (or both) of the antenna and layout is provided, bearing in mind the saying that a picture is worth a thousand words.

FINALLY FINALLY. I wish you all a happy Christmas and a pleasant ham radio New Year.

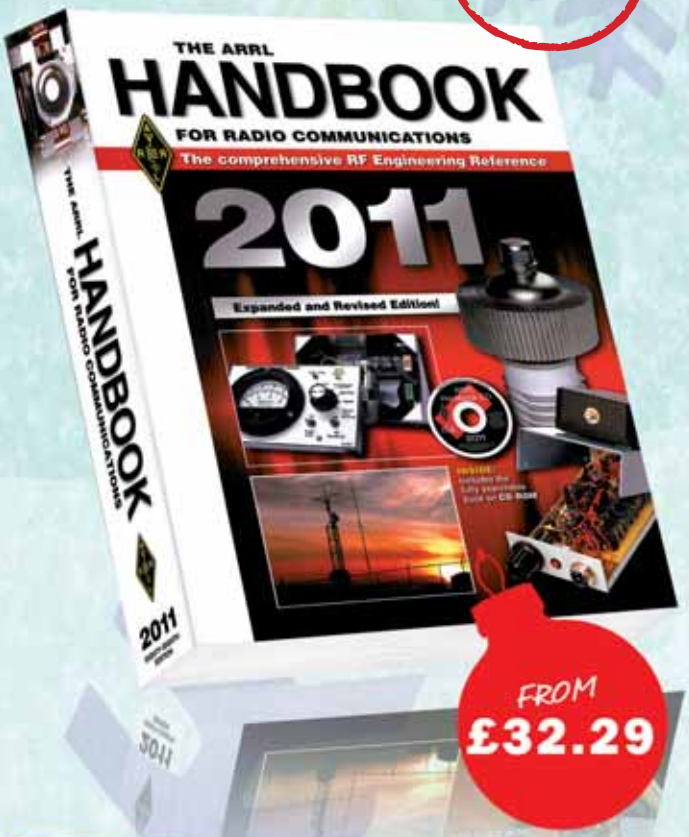
REFERENCES

[1] *RSGB Radio Communications Handbook*, later editions
[2] *Backyard Antennas* P85
[3] *Building Successful HF Antennas*, P108

RSGB shop

NEW

Merry Christmas



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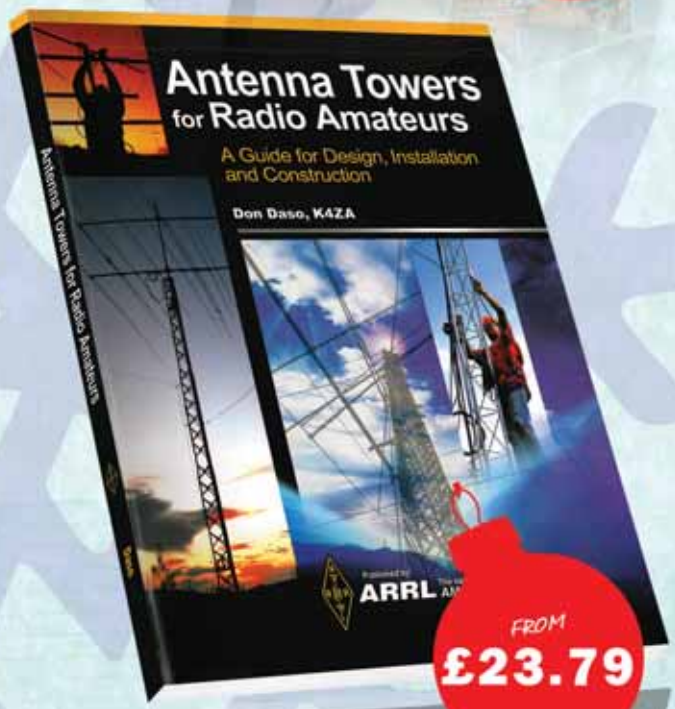

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ML&S at 20

Martin Lynch & Sons has reached the 20 year mark, we look back to the beginnings of the business.

Martin & Jenny Lynch in 2010 outside the Chertsey store.

CHILDHOOD INTEREST. Martin Lynch first got into amateur radio when he was around 12 or 13. He remembers coming home from school and his Mum said that his Uncle Dixie had been around – he had a little radio, electronics and TV shop many years ago. He had left a receiver out of a Lancaster bomber in his room, a freshly painted, bright blue R1155. That was Martin's first introduction to amateur radio. Top Band was the first band he heard radio amateurs on and to this day he can still remember the callsigns of those amateurs – G3ZHB and G3KDL. Leslie Light, G3KDL is now a Silent Key, although Martin did meet him some years after first hearing him on the air. He met G3ZHB 20 or 30 years later at a rally at Sandown when he was writing out a receipt and asked for a callsign. He's still a customer now.

Martin loved the idea of being able to transmit, which was what prompted him to get his own licence. He just loved the idea of having a radio station, which is why he still enjoys amateur radio now. Whilst he was a G8 originally – G8JNW – he wanted to get on Top Band and that was the incentive to learn CW. The HF bands were interesting too but it was initially all about Top Band. He took the Morse test at Martin Le Grand in London. Martin passed the test first time, which delighted him.

The idea of being able to transmit to others using your own home brew or ex-military then was amazing, it's not quite the same now as so many things have changed. In those days, Martin found the idea of being able to put out a call and have someone come back and talk to you thrilling, even more so if he had built the equipment himself – which he often did.

APPRENTICESHIP. Martin joined Racal as an apprentice when he was 16. He admitted that his school report at 14 said that 'Martin would do a lot better if he stopped selling stuff to his mates in the playground'! Racal BCC at Wembley was where they used to make equipment like the Clansman for the military. They often had surplus kit that Martin used to buy, modify and then sell to local radio amateurs – that was before Amateur Radio Exchange opened in Ealing. That was Martin's earliest recollection of actively selling amateur radio gear, albeit on a very part time basis.

He was with Racal for 4 or 5 years finishing his apprenticeship and then stayed around for another 18 months. From there he joined Bernie and Brenda full time at the famous Amateur Radio Exchange. Martin had started working for Brenda and Bernie around 1976/77 part time. He told Brenda that he thought the layout of the shop window was terrible and she challenged him to do better. The new layout got him a Saturday job! That was in their little corner shop in Northfield Avenue in Ealing.

When he left Racal it was an 800-strong manufacturing plant that had everything on one site. If you wanted to understand how something was designed, production engineered, how coils were wound or equipment cases painted, everything was done on that one site. It was a fantastic thing for a radio amateur to be involved in. Sadly, they soon started farming out these jobs and things changed, ending in the closure of Racal BCC at Wembley in 1991.

SELLING. Martin's main role at Amateur Radio Exchange, both as a part time employee and full time, was selling. Brenda and Bernie recognised that Martin could sell but as a Saturday boy he also kept the shop tidy, labelled products and even went to rallies and exhibitions at the weekends. There were a lot more rallies and exhibitions in those days, including the Leicester Amateur Radio Show when Brenda insisted that all the staff wore suits and ties!

When ARE moved to a much bigger shop in Action, Martin recalls the phone call from Brenda telling him about the new shop sign where "amateur" was spelled wrong. It was up in lights all across the front of the shop! She went totally nuts at the sign supplier (her spelling was and no doubt still is, impeccable) and the sign soon got replaced. Martin recalls that, in the late 1970s, amateur radio was incredibly popular. The Japanese were bringing out very advanced technology kit at competitive prices. Exciting times! The shop couldn't get the gear in fast enough.

GOING INDEPENDENT. Martin decided to build his own business after being persuaded by his wife, Jenny. Coming from a book keeping background, she convinced him that it was the only thing he should do. He'd already left Brenda and Bernie and had gone into the motor trade, which he absolutely loved. But doing that he soon realised he had to be his own boss. He admits that he was rather disruptive – he was doing well in the business but was rather unconventional, installing his own PC to list all the new and used car stock when the Volvo franchise didn't have a computer in the place! The only other thing he knew was amateur radio. So he opened his first little shop on Northfields in 1990. It was Martin and a fellow radio amateur, Valerie Gleek, G4WIS, helping out in the beginning. Now, 20 years on and a few premises down the road, he's still selling amateur radio kit.

Within two or three months of opening the shop they could barely keep up with demand, despite being in a recession. It was difficult having to do everything himself, although he'd helped Brenda and Bernie in many areas of the business, now buying, pricing and advertising was up to him. They were challenging times.

Initially he only advertised in *PW* and

Martin proudly showing off his 'Yaesu' number plate outside the Chertsey store.

Martin Lynch with Barry Cooper, G4RKO, past General Manager of Yaesu UK at an Open Day.

One of Martin's more flamboyant vehicles outside his Ealing store!

RadCom and the first adverts weren't very big either, just half pages. Although it wasn't long before they grew to a full page. To this day, he still advertises in both those publications. He did try a few others later on such as *SWM*, for example.

MOVING ON. Martin Lynch spent just over 3 years at the first shop, which became far too small rather quickly. Once the stock was in the shop you couldn't move, as it would only hold about 7 or 8 customers to begin with. In 1993/94, he moved to 'the big shop' in Ealing. It was a triple fronted shop and opened after the Leicester rally – straight after the rally. All the staff went to the Leicester rally at Granby Halls with lots of the stock. They moved into the new shop on the Saturday night by unloading the stock straight after the show. All the staff turned up on Sunday to sort things out and then they opened on Monday morning. Martin admitted that's the sort of energy you've got in your early 30s!

The company stayed at that shop for 6 years – well, as an amateur radio shop, anyway. In 1994/95 Martin travelled to Dayton and started to see a different trend in amateur radio, a worrying move towards computers and computer communications. He felt that amateur radio could be heading for a slump, so decided to expand the business away from radio. He moved into the only other thing he knew, motorbikes. At that time, the scooter market in London was doing well so Martin opened a bike shop. Initially the left side of the shop was amateur radio and the right side was scooters. (How nuts was that?) The bikes did so well that Martin almost gave up amateur radio. Instead he moved the radio business to a small shop just up the road and Chris ran the shop with just a few staff. This kept things going.

CHANGING HOBBY. Fortunately, amateur radio went through some changes with the dropping of the Morse requirements and the change in licensing. Martin feels that these changes made a difference to the business too and things started to improve. This made him return to 'back his original horse' and he set out to find new premises for the radio business. This is what prompted the move to Chertsey, although it took 6 or 7 months to find the right place.

He feels it's a great location with the M25, M4, M3 and M40 all within a few miles. There's plenty of parking for customers too – except on open days, when people often have to use nearby car parks, albeit only a few hundred yards away.

The new shop in Chertsey needed more staff than the small shop to cope with the volume of business. Martin says that customers tell him that they like the dedicated radio shop as they like to be able to come and look at the equipment, sit and play while they have a cup of tea or coffee and then be able to go home and think about things. The tea and coffee is something he inherited from Brenda. Her view was that people had often travelled a long way so why not make them at tea or coffee?

UP TO DATE. Quite quickly ML&S needed more staff – Jenny now has four working in book keeping and there are about 10 staff in the shop and workshop. They also started to get their own product lines and gain distributorships for others. He was fortunate to get the Yaesu dealership quite early in his career; it took a little longer to get the Kenwood and Icom accounts. The first line he brought in that was outside the norm was from Miracle Antenna and he got that account by writing and faxing them tirelessly. It was the first step towards his ideal of running a 'one-stop shop'.

Martin admits it's been a bit of a rollercoaster ride with lots of hard work, but the Chertsey shop is now full of dozens of different brands, including some of their own. The MyDEL brand is mainly on equipment such as power supplies and meters but Martin said that one day he'd like to have the brand on a decent HF radio.

This recession has been hard work. Times are tough: though people still support their hobby, money is tighter and the dealers have to be more creative in finding deals and products that the customer wants. He reckons that while a customer may not move house, buy a new car of go on a fancy holiday they will always find money for a new radio!

ML&S still do most of their business over the counter and over the telephone rather than the internet. Martin thinks that people like to be able to park up and have a look at the options available before they make a decision. Because the company carries a lot of stock they can usually supply off the shelf.

OPEN DAYS. The company has always had Open Days – the one on 4 December will be the 19th. Most of them have been very well attended and they are hoping that this celebration Open Day will be off the scale. Most of the main manufacturers will be supporting the Open Day and this year they have made some exceptional prizes available for the raffle. There is a change this year as the tickets will be sold for £1 each and all the proceeds will be donated to Macmillan. Prizes include an FT-450 from Yaesu and a TS-480SAT from Kenwood, to name but a few. Macmillan nurses do an amazing job and their work has touched the lives of those working at ML&S in the last couple of years.

Regulars will know that early starters will get bacon butties first thing and the traditional hog roast will be going strong later in the day. What better way to start celebrating the first 20 years and looking ahead to many more?

Martin, Jenny and Chris, G8VDQ at the first outing of the new company at the Leicester Amateur Radio Show.

EMC

BT Vision recalls Comtrend power line adaptors

PHOTO 1: A Comtrend DH10P similar to the ones that are being replaced by BT Vision. (Photo: G3JWI).

QUIETER COMTRENDS? According to the BT website (see Websearch), a very small number of the power line adapters supplied with BT Vision could have a manufacturing defect. Only the Comtrend DH10P model is affected (see **Photo 1**) but BT advises customers with other versions to have them replaced with updated models anyway. EMC Committee member Nigel, G7CNF reports that he rang the BT freephone number and was told that the recall was not due to safety reasons but to be more compatible with BT Home Hub. It will be interesting to see how BT is contacting its BT Vision customers and what sort of response rate will be achieved.

BT Vision appears to be using this recall to upgrade as many of their field population as they can. It appears likely that this upgrade will include the 'reduced emissions whilst idle' mode as launched with the Comtrend model 9020. This contrasts with what might be called the 'QRM 24/7' transmission mode featured in previous models. This is good news for reducing cumulative interference emissions in the HF radio spectrum, particularly international broadcast bands, but may not produce a significant reduction in interference emissions when the devices are actually transferring data. This may reduce the number of interference complaints to Ofcom but it could also make the source of the interference more difficult to find due to its intermittent nature.

EMC UK 2010. Fort the second year in succession, RSGB EMC Committee member Richard, G3SBA organised the RSGB stand at the EMCUK 2010 Conference and Exhibition at Newbury on 12 - 13 October. EMC Committee members Robin, G3JWI, Paul, G3WYW and me, G0SNO, also helped G3SBA to man the stand. The main purpose of the RSGB stand was to raise awareness of VHF Power Line Telecommunications and other major EMC issues among professional EMC engineers, managers and those involved in the EMC standards making process. RSGB books and membership were also available at the stand. Other exhibitors at the show included manufacturers of professional EMC test equipment, accredited EMC test laboratories and suppliers of EMC components such as shielding and interference filters.

There was a live demonstration on the RSGB stand with a spectrum analyser connected to a flat screen monitor. This showed VHF emissions from a pair of power line Ethernet Adaptors or PLAs.

G3SBA also exhibited a model of a house with data transmission via mains wiring. This was scaled to fit on the UK-EMC Exhibition stand by coiling the twin pair cables whilst maintaining a realistic characteristic impedance. A homebrew vector network analyser was connected to show the effect of changing impedances when different loads were switched on or off.

The model included a TV set with a roof-mounted antenna. This setup demonstrated that the downlead of the TV aerial radiates mains-borne interference efficiently at the frequency where it is a quarter wavelength long. It also showed how switching a lamp on or off or plugging in an extension lead can introduce RF unbalance, causing mains wiring to radiate PLT signals.

We also exhibited some more 'rogue' PC power supplies with no RF interference filters. Power supplies like this have been the subject of action by Cardiff Trading Standards, demonstrating through a formal procedure that rogue PC power supply units are a serious source of radio interference.

G0SNO also presented a paper at one of the Technical Workshop sessions at the conference, titled Gigabit Powerline Networking and Compatibility with Radio Services.

SMART METERING. There is a document on the Department of Energy and Climate Change web site called Smart Metering Implementation Programme: Prospectus (see Websearch). This represents the joint views of the Department of Energy and Climate Change (DECC) and the Gas and Electricity Markets Authority (GEMA). According to this document, the Government believes that every home in Great Britain should have smart energy meters, to give people better information about their energy consumption and also better control of energy consumption. Smart meters are expected to deliver environmental benefits and to help to reduce carbon emissions. They would also allow suppliers to offer new services and tariffs and domestic consumers would be provided with an in-home display showing energy consumption in near real time. Another potential use for smart metering is to charge electric vehicles at home, maximising the use of cheap, low-carbon electricity. Customers could also recharge electric vehicles at alternative charging points away from home and pay for the electricity through their home energy bill.

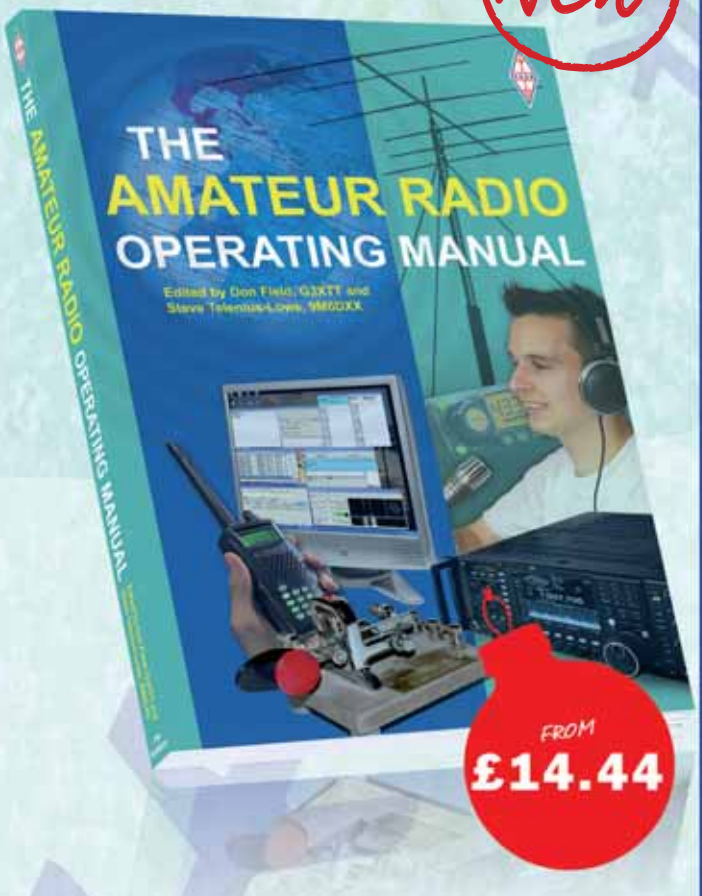
Smart meters for gas and electricity would be connected to a home area network (or HAN) to provide communication between devices in the home or business. There would also be a wide area network (WAN) connection for communicating back to the energy supplier or other authorised parties.

There are various potential EMC and spectrum utilisation issues with smart metering. Would radio links be used and, if so, on which frequencies? If radio frequencies are allocated for the purpose and are licensed then there is assurance that the communications channel will remain usable and any inference can be legally eliminated. If licence-exempt short range device frequencies are used (such as 433MHz) then the system must be designed so that smart metering continues to operate as intended in the presence of transmissions by other short range devices and also legitimate users of the band such as radio amateurs and the primary user.

How immune would the system be to nearby amateur radio transmissions? For example, what happens if smart meters cannot connect and send/receive tariff and billing information due to a nearby radio transmission? Smart meters would also presumably include the ability to terminate supply of gas or electricity. Will the meters be sufficiently immune to ensure that a radio transmission cannot unintentionally turn off the supplies to the house next door? Would Power Line Telecommunications (PLT) be used for any of the data communications,

RSGB shop

NEW



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Merry Christmas

The RSGB Amateur Radio Operating Manual - 7th Edition

Edited by Don Field, G3XTT and Steve Telenius-Lowe, 9M6DXX

Despite what many believe, amateur radio is a fast-moving hobby and the last five or six years in particular have seen numerous changes. The *RSGB Amateur Radio Operating Manual* provides the best practical guide to the hobby as it is today.

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Size 210x297mm, 224 pages, ISBN 9781-905086-00-8

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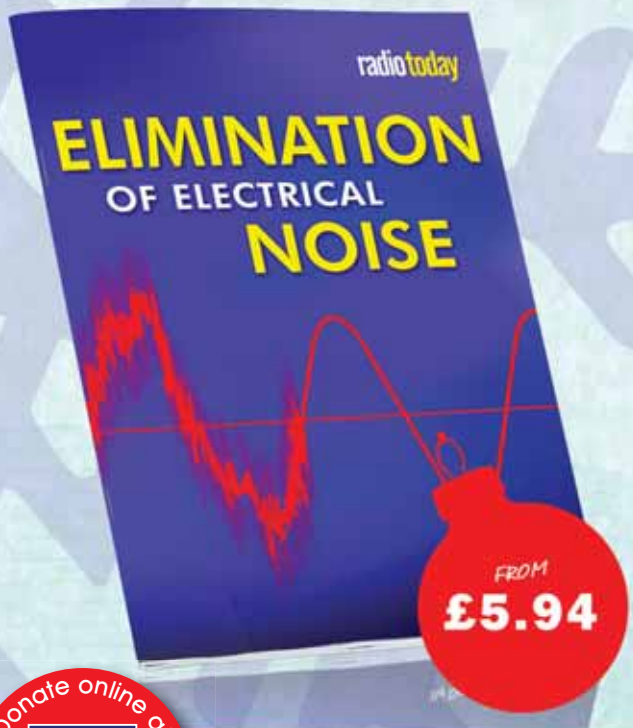

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By Don Pinnock, G3HVA

Many radio amateurs experience electrical noise problems and feel forced off the amateur radio bands. Don Pinnock, G3HVA is a firm believer that radio amateurs should deal with the problems rather than be forced off the air. *Elimination of Electrical Noise* therefore tells of Don's personal experiences and provides solutions to noise problems that will help many.

In *Elimination of Electrical Noise*, Don details the various types of noise, how it is generated and how best to deal with it. Faulty or maladjusted machinery or electronic devices can produce so much interference that normal reception is considerably affected. Even equipment operating below or close to International Standards can generate enough electrical noise to severely reduce the chances of a nearby amateur being able to enjoy his chosen hobby. Don describes how to track down a noise source, how to deal with it at its source, and how to put up defences in your own station to reduce noise entering via the mains wiring. He reports on his own experiments with selecting wire antennas that have increased immunity to external noise. And for those looking for a new house, there's advice on how to choose it from the point of view of noise.

If you suffer from electrical noise problems, Don's experiences and advice may well provide the solution you are looking for. *Elimination of Electrical Noise* provides the help you may need to take charge, tackle that noise problem and get the most from your hobby.

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PHOTO 2: Photovoltaic micro-generation system at G4CUS.

either in the HAN or WAN? If so, how would it coexist with HF radio communications and the proliferation of home powerline networking devices that have appeared recently? It would appear that smart metering systems need to maintain communications even if a circuit breaker trips so it should not be dependant on the integrity of the mains wiring. These requirements would point to a wireless solution rather than PLT.

How 'quiet' would the system be regarding RF emissions both from the meters themselves and from the HAN or WAN communication links? If nearly identical systems are to be installed in every house, then whatever radiated emissions there may be will come from every house, resulting in cumulative effects. It is over 20 years since microprocessor-controlled radio teleswitches were introduced for control of off-peak electricity metering but these produced VHF radiated emissions in amateur bands that were reported in April 1990, August 1990 and August 1992 EMC.

The RSGB EMC Committee is aware of smart meters and is keeping a close watch on their EMC implications.

PHOTOVOLTAIC MICRO-GENERATION.

An item in October 2010 EMC asked for any reports of RFI from photovoltaic (PV) micro-generation systems that convert the DC output of the solar cells to 230V 50Hz AC. Such systems normally use synchronous or 'grid tied' inverters that are capable of feeding surplus electrical power back into the mains. The operator of a PV system receives payment for such electricity at a special 'feed-in' tariff. We received two reports about EMC of PV systems, one favourable and one unfavourable.

Antony, G4CUS had a PV system installed this year, having made it clear to the installation company that there must be no RF interference. **Photo 2** shows how close Antony's aerial system is to the solar panels. He reports that he has not experienced any interference whatsoever. The inverter is located in the loft just under the 7MHz dipole and 3-element beam. The system is rated at 3.36kWp (kilowatts peak) and it uses sixteen solar panels made by Schueco UK. The inverter is manufactured by Fronius.

Darren, G0TSM reports that in August 2009 a new housing estate was completed at the bottom of his garden with the nearest house approximately 15m from his HF antennas. One day, Darren turned the rig on and 10MHz band was lost under S9+20 QRM. He didn't mean just a few 'sproggies', but broadband digital-sounding QRM taking out the whole of the band. After a lot of tuning around, Darren found that the QRM was strongest when beaming towards this new housing estate during daylight hours. All bands from 10MHz to 24MHz were affected with S7 - S9 levels on 14 - 24MHz. The 28MHz amateur band was clear but there was S6 interference level on 50MHz.

Darren reported this to Ofcom whose engineers spent many man-days tracking the QRM down. It turned out to be grid-tied inverters powered by solar panels that are designed to look like roof tiles. After nearly 12 months, Ofcom wrote to Darren saying there was nothing that could be done under current legislation and they were closing the case. Darren comments that Ofcom really did try and one consolation is that the interference switches off after dark! Darren even saw the instruction manual for one of the inverters which said, "Warning, cannot be used with HF SSB marine communications".

Ofcom may have closed this case but the RSGB EMC Committee has recently opened it after receiving Darren's report. We would like to know why some PV solar power systems, which are intended to reduce environmental pollution by generating 'green' energy, appear to cause unnecessary pollution of the electromagnetic environment. The report from G4CUS shows that some types of inverter appear to produce low levels of RF interference so why do other types appear to produce higher levels?

It may be that G0TSM's problem is caused by an installation problem or by the individual grid tied inverters. We consulted the EMC Committee's resident expert on EMC legislation and, in his opinion, Ofcom is not correct in stating that they have no powers to act in this situation. The revised EMC Directive and the 1996 consequent UK Regulations do cover installations. The installation must be compliant with the Essential Requirements when it is put into service for the first time. If G0TSM's QRN was caused when the installation was first used then it is within the ambit of the Regulations. There are no standards as such but the regulations require that the Essential Requirements are met using "good engineering practice".

A possible source of RFI is common-mode emissions from the inverter getting onto the DC power cables to the solar panels. This may be an area where EMC standards have not caught up with developments in technology, for example in respect of conducted emissions standards for the DC input of a DC to AC power inverter.

MODIFIED SINE WAVE INVERTERS.

Richard, GD8EXI reports that he recently installed a Sinergex 'PureWatts' 500 watt DC to AC modified sine wave (MSW) power inverter on a boat, only to find that it emitted broadband RF interference from LF right up to 50MHz. Richard reports that even when the inverter was only driving a 12 watt load he could no longer receive the Navtex navigational and meteorological service on 518kHz. He also reports RFI at S9+ levels on all the amateur bands up to 21MHz and S5 on 50MHz.

So-called 'modified sine wave' inverters produce something that is very highly modified compared to a true sine wave. It would be better described as a three level pulse waveform and the harmonic content is similar to a square wave.

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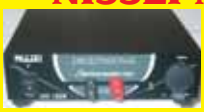

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COMPETITIONS

SPECIAL OFFERS

Sport Radio

Contesting apprenticeships, the new AFS Super League, and why looking at things in isolation makes them look different from looking at them in the wider sense

GR2HQ team leader Chris Tran, GM3WOJ.

THE APPRENTICE. The team that operated the UK HQ station GR2HQ for the IARU HF Championship is looking to recruit some apprentices for their 2011 effort. Team leader Chris Tran, GM3WOJ, would specifically like to hear from young contesters who would be interested in joining the team. SSB operators in particular are being sought.

Apprentices will be invited along as guests and might not get to operate at all in the first year, but will help with station assembly in the weeks before the event (where necessary), sit in with experienced ops during it, be used as runners, etc. This is a great opportunity to travel to the top contest stations in the UK and work with top contest operators. Those who show the greatest potential and/or skill will be invited to join the team, a total of twelve spaces being available.

A complete lack of previous experience will not necessarily disqualify an applicant, but priority will be given to those with experience. All those invited to become apprentices will be expected to be actively involved in contesting between now and the next IARU HF Championship in July 2011.

If you're an extremely keen young contester, please contact Chris, GM3WOJ by e-mail to team@gr2hq.com.

LET BATTLE COMMENCE. The new Super League begins this month and the challenge is on to find the UK club that does best across the whole series of Affiliated Societies (AFS) contests that take place over the winter. The winning club will have to do well across the board, which is an interesting prospect.

Table 1 shows, in a very simplified form, the top five clubs in the AFS contests last winter. To me it suggests that the competition is going to be wide open, because none of the clubs that did well at VHF did well at HF, or vice versa. It'll be fascinating to see which of the leading clubs – if any – up their game in a bid to win. Or maybe a club further down the results tables, whose members already make a reasonable – if unspectacular – effort across the board, will come through to win.

UPS AND DOWNS. Mick Puttick, G3LIK, wrote to say, "I read that the first RoPoCo contest is going to be on SSB in 2011. What a downward step this is for the CW people. Having won the trophy some years back a couple of times, I feel it is a backward step by the RSGB. With so many people now getting involved with the CW contests I was disappointed to read this step that has been taken by the Committee".

Mick is absolutely right that RoPoCo 1 will be an SSB event from next year, but looking at the event in isolation doesn't reveal the whole picture. His final sentence spurred me into looking at the participation figures for various RSGB CW contests, to see where the growth he refers to might have taken place. The figures can be seen in **Table 2**. To me it shows that any increased interest in CW contesting has passed all these events by, because over the past seven years participation in all of them has been quite steady.

That being the case, where has the increase taken place? In Club Championships and the Club Sprints is the answer, as both have been introduced in the last seven years. Club Championships has become an enormous success, with an average of 181 stations entering each CW session this year. Fewer entries are made in the Club Sprints, but the numbers are increasing. In total, that's 11 more HF CW events per year (plus of course 11 SSB and 7 data) than there were in 2003. When set against all the new events that have been introduced, changing the mode of one leg of one event doesn't seem so significant to me.

2011 EVENTS. The Dutch National Society VERON has announced that from January they are starting monthly VHF activity contests – some on exactly the same nights as the UKACs. In an e-mail, Theo Koehler, PA1TK said, "To promote short activity contests our Dutch sister society VERON will organise the Dutch Amateur Contests (DAC) starting Tuesday 4 January 2011. This is in line with the UKAC and the Northern Activity Contest, which runs in the Scandinavian Contest. The contests will be on 144MHz on the first Tuesday of the month, 432MHz on the second Tuesday of the month, 1296MHz on the third Tuesday of the month, Microwave on the fourth Tuesday of the month, 50MHz on the second Thursday of the month and 70MHz on the third Thursday of the month. All contests will be 1900-2300 local time (CET)."

After the running of the 21/28MHz Contest in October, comments were made on the UK Contesting reflector and at the RSGB Convention that the event should be retained. Some of those who made comments also made suggestions how activity could be increased. Contrast this to the comments made on one of the e-mail reflectors that I subscribe to, where some were saying that doing the decorating was more rewarding than taking part in the 21/28MHz Contest. Either way, this event (and a lot of other things) were scheduled for discussion at the Contest Committee's

TABLE 1: The top five teams in last winter's AFS contests.

	1st	2nd	3rd	4th	5th
2m	Chesham	Trowbridge	Colchester	Bolton	Sutton & Cheam
70cm	Chesham	Spalding	Colchester	Sutton & Cheam	Trowbridge
CW	Three A's	Lichfield	Bristol	De Montfort Uni	Mid Beds
SSB	Three A's	Bristol	De Montfort Uni	Cray Valley	Newbury

TABLE 2: The participation figures for the RoPoCo contests, CW AFS and the Low Power contest over the past seven years.

Year	RoPoCo 1	RoPoCo 2	CW AFS	Low Power
2004	43	53	224	36
2005	56	40	246	41
2006	45	48	242	41
2007	53	51	239	33
2008	56	47	241	42
2009	51	48	237	38
2010	53	47	240	40
Average	51	47.7	238.4	38.7

TABLE 3: The new list of qualifying events for the HF Championship. An asterisk denotes a non-RSGB event.

Event	Month	Mode
* BARTG Sprint (SOE/SOAB)	January	RTTY
1.8MHz Mixed	February	Mixed
Commonwealth	March	CW
* BARTG HF	March	RTTY
RoPoCo SSB	April	SSB
* EU Sprint CW	April	CW
* EU Sprint SSB	April	SSB
IOTA	July	CW, SSB or Mixed
RoPoCo CW	August	CW
* EU Sprint SSB	October	SSB
* EU Sprint CW	October	CW
1.8MHz CW	November	CW

face-to-face meeting in early November. This was after the publication deadline for December's *RadCom*, so I'll disseminate information from that meeting in the January edition.

A major change in RSGB contests next year surrounds the HF Championships. Hitherto it has been heavily biased towards CW events. A re-balancing of the modes was seen by some as long overdue and this has now taken place, so in **Table 3** you will find the list of events that will qualify for 2011.

You'll notice that half of the events are not run by RSGB. Check the websites of the organisations concerned for the rules and submit your entries for these contests to the relevant organisations, because the non-RSGB events will not be adjudicated by RSGB. When these events have been adjudicated by their relevant organisations and the results published, calculations will be made by the Contest Committee of how many points will be awarded for the HF Championship.

Because the list of qualifying events is being substantially expanded, no longer will it be necessary for participants to be CW orientated or to enter all of them to stand a realistic chance of winning. The final point is something that has long been incomprehensible to me, because plenty of people operate in the IOTA contest with groups, effectively putting them out of the running.

An inevitable consequence of the fact that you will now be able to pick your 'best five out of twelve' is that the loading factor that used to be applied (more points were awarded for events that contained an HF element than ones that were LF only) is that there will be no loading factor in the new HF Championship; every event having equal status.

THIS MONTH'S EVENTS. Although there are no RSGB HF events this month, there are lots of VHF/UHF ones. The first is the 144MHz Affiliated Societies on Sunday 5th. It's the first of the new Super League series. If you operate as a member of a club in an AFS event there's no need to be a member of RSGB, just the club. However, if you partake as an individual, you do need to be a member (although check logs from non members are always welcome). There's a limit of five members per team, but active and ambitious clubs are welcome to field multiple teams. This is followed closely by the first of December's UKACs – 2m on the 7th, then 70cm on the 14th, microwave on the 21st and 6m on the 28th. Over the festive period (26-29th) the Christmas Cumulatives give us an excuse (should we need one) to get away from the family for a couple of hours each day. Activity is on all four bands each day, so lots of band hopping is called for to make a good overall score.

Internationally, the ARRL 160m is the first event of the month on Friday 3rd to Sunday 5th. It is a slightly unusual event in that the duration is 42 hours. The good thing is that those 42 hours include two full nights, which is when there is likely to be propagation between Britain and North America (work the US, US possessions and territories, plus VEs). There are categories for single-op, QRP, low-power, high-power and multi-op. At one time you needed a pretty good 160m station to stand a chance of making a transatlantic QSO, but these days people with modest setups often find themselves able to work the Big Boys over there, who have excellent receiving systems. Even so, trying to work across the Pond on 160m QRP is quite a challenge. For a very different challenge, how about trying the Russian 160m Contest? It takes place on Friday 17th and is in fact two contests, each of which lasts just one hour, the second following on immediately from the first. There are single- and multi-op sections for young ops (born 1990 and after) and seniors. The web page at www.radio.ru/cq/contest/rule/map-2.gif shows how to calculate your grid square (not the same as a Locator square, most of the British Isles being in X4) and also how the multipliers work for making QSOs into adjacent (and further) squares. The RAC Canadian Winter Contest takes place on the following day. In this one there are nine entry categories (various power levels, single- and multi-op, CW- and phone-only, multi-single and multi-multi) and a certificate is offered to the top scoring station in each DXCC entity, so several could be awarded to UK stations. Only four UK stations appear in the 2008 results (all from England) and six in the 2009 results (all from England again), so clearly this contest presents a great opportunity for those who live in other parts of the UK to get themselves some 'wallpaper'.

RSGB HF EVENTS

Date	Event	Times (UTC)	Mode(s)	Band(s)	Exchange
Dec 5	144MHz AFS	0900-1700	All	144	RS(T) + SN + Locator
Dec 7	144MHz UKAC	2000-2230	All	144	RS(T) + SN + Locator
Dec 14	432MHz UKAC	2000-2230	All	432	RS(T) + SN + Locator
Dec 21	UHF UKAC	2000-2230	All	1.3/2.3	RS(T) + SN + Locator
Dec 26-29	Christmas Cumulatives	1400-1600	All	50-432	RS(T) + SN + Locator
Dec 28	50MHz UKAC	2000-2230	All	50	RS(T) + SN + Locator

BEST OF THE REST EVENTS

Date	Event	Times (UTC)	Mode(s)	Band(s)	Exchange/info
Dec 3-5	ARRL 160m	2200-1600	CW	1.8	RST (Ws & VEs also send ARRL/RAC section)
Dec 17	Russian 160m	2100-2300	CW, AM, SSB	1.8	RS(T) + SN + Location code (see text)
Dec 18	RAC Canada Winter Contest	0000-2359	CW, phone	1.8-144	RS(T) + SN (VEs send Province code)

For all the latest RSGB contest information and results, visit www.rsgbcc.org

RSGB shop

Season's greetings

Stealth Antennas

By Steve Nichols, G0KYA

Tiny postage stamp-size gardens, intolerant neighbours, planning permission problems, living in apartments: these are some of the challenges facing the modern radio amateur when trying to get on the air. *Stealth Antennas* offers clear practical advice to those who might have thought they were unable to put up a suitable antenna.

Some think of amateur radio antennas and expect a 100ft steel lattice tower bristling with polished aluminium beams. For the rest of the radio amateur world, *Stealth Antennas* offers a wide range of antenna solutions to get your signal out. From using house rain gutters and drain pipes, or a magnetic loop in the loft, through to a tuned loop around the window frame a wide range of ingenious solutions are offered. Designs include magnetic loops, tuned wire loops, small verticals, zig-zag loaded dipoles, the W3EDP wire antenna, and even controversial designs such as the EH antenna. There are even reviews of a number of commercially-made stealth antennas. *Stealth Antennas* also looks at the best way to work DX with a modest station.

Stealth Antennas does not neglect VHF/UHF antennas. While easier to conceal because of their small size compared with HF antennas, what are the effects of mounting a VHF antenna in the loft? Roof tile absorption is discussed, as are the effects of detuning caused by copper water pipes or house wiring.

Many amateur radio operators are faced with the fear of interference being caused to televisions, telephones, hi-fi systems and anything with a plug on it. In these circumstances a stealth antenna may be the solution to allow you to get on the air or even the answer to your planning difficulties. *Stealth Antennas* has lots of original and ingenious antenna ideas for radio amateurs who might have thought they were radiationally-challenged.

If you are able to put up a 100ft tower and 6-element beam this book may not be for you. For the rest of us, *Stealth Antennas* should persuade anyone with an amateur radio licence that they can work the world without a beam, tower and linear amplifier.

Size 240x174mm, 208 pages, ISBN 9781-9050-8666-5

Non Members' Price £13.99 **RSGB Members' Price £11.89**

RSGB Prefix Guide

9th Edition

Edited by Fred Handscombe, G4BWP

If you are interested in DX, awards or simply operate the HF bands, the *RSGB Prefix Guide* is the book for you. From the basic "what was that Call?" question through to research for an elusive award, this book provides what is needed. This edition is fully updated with a significant number of changes to the prefix listings, so that it provides the latest and most comprehensive list of the world's amateur radio prefixes. The listings also provide a huge range of additional information covering references for continent, CQ Zone, DXCC, IOTA, ITU Zone, Latitude & Longitude and a whole lot more.

The *RSGB Prefix Guide* also includes lists of DXCC deleted entities, Russian & CIS entities etc. The popular DXCC checklist is here, along with very latest information on various award programs including IOTA, CQ WAZ, DXCC, WAS and others. There is also an index of countries and their callsign allocations divided by continent as are more detailed listings for the wide range of RSGB awards for HF and 50MHz.

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- Prefix guide
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- 2011 Diary
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2010 Christmas gifts

RSGB Yearbook 2011

Edited by Steve White, G3ZVW

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TYT TH-UVF1

A new, smart-looking low-cost dual band handheld enters the fray

The TYT UVF1 looks quite striking with its shiny speaker grille and comes with a decent selection of accessories as standard.

MORE FROM THE FAR EAST. The TYT TH-UVF1 is one of the new breed of inexpensive dual-band handhelds emerging from the Far East. Designed and built in China, it feels nice in the hand and has a slightly space-age look about it thanks to its bright metal speaker grille.

WHAT'S IN THE BOX? As is increasingly common, the radio is supplied in a double-layer box with the radio and slender 48-page manual in the top layer. In the lower tray is the 1500mAh Li-Ion battery, flexible aerial, hand strap, a belt clip that attaches to the back of the set using screws that are provided, a drop-in charger with linear plug-top PSU and a cigarette lighter charger lead. Charging the battery from flat takes about 5 hours; a red 'charging' LED turns green when the battery is full.

FIRST IMPRESSIONS. Everything goes together quite nicely. The battery clips securely into place but is easily removed with a simple pushbutton latch. The 17cm-long antenna is a normal SMA type, somewhat shorter and slimmer than some of its contemporaries. The radio feels nice in your hand: solid, smooth-but-grippable and not too heavy.

Turning it on via the inviting power/volume knob on the top illuminates the clear dot-matrix LCD. You can select blue, orange or purple backlight via a menu option – I was rather taken by the purple option. The display consists of two rows of 7 characters plus various annunciators. On 6.25 and 12.5kHz channels the last 25, 5 or 75 are solid characters slightly less than half the height of the main dot matrix figures. The legends on the keypad are easy to read but the keys are not backlit.

IN USE. Basic operation is quite simple. You can enter a frequency via the numeric keypad, or step up and down using the arrow keys at the top of the keypad. Switching between bands is as easy as pressing the U/V button. More complex matters are handled using the menu system, accessed via the red MENU key at the top left. There are some 34 menu options in total, all documented adequately in the manual, but the first 10 are easily accessed by pressing MENU followed by one of the numeric keys, which are also labelled with their menu functions. So, to set the squelch, press MENU 5 to bring up the SQL setting, press MENU again to activate the 'change' function, then press the up/down arrows to set the desired squelch level.

The only thing I found remotely awkward was switching repeater shift on and off. This is done via Menu number 30, cryptically named 'S-D' (for Shift Direction). However, it is possible to set up and name the 128 memories for commonly used channels, so it would make sense to set up local repeaters and simplex channels in this way for easier use. I suspect that the optional TH-UVF1 control software and associated would make this easier, but at a cost.

Audio quality is decent. Transmit audio is quite good, while the receive side sounds a little lacking in bass. Some might consider this a benefit, in that it's more 'punchy' on receive. Deviation can be selected as Wide (5kHz) or Narrow (2.5kHz).

Table 1 summarises the technical performance of the sample radio. The RF power output didn't quite reach the claimed 5W but receive sensitivity was significantly better than the published specification.

GENERAL FEATURES. There isn't space to review all the features of this nice little handheld but some of the ones I found interesting included the voice synthesiser, a pleasant American-ish female that announces key presses and menu options – including menu settings – although it doesn't seem to be possible to read back the current frequency. There is an FM broadcast receiver that operates from 70-108MHz so it actually covers the 4m band, receive only, but of course it's wide band FM so 4m NBFM is at best rather quiet. I found it worked fine on broadcast FM. There are 25 separate memories for broadcast stations. Additional extended receive bands are included, covering 136-174, 350-390 and 400-520MHz.

There is a built in VOX that can be used with an external mic. A switchable compander function allows a certain amount of audio compression; this can increase 'talk power' even on FM. You can set the backlight to off, auto (lights on keypresses) or permanently on. There is a switchable receive power saver and a battery voltage meter. CTCSS encode and decode is included and works well. Frequency steps can be selected as multiples of 5kHz or 6.25kHz. The radio supports dual receive but is not capable of full duplex operation.

CONCLUSION. The TYT UVF1 is a workmanlike and robust-feeling handheld that includes all the features you'd expect from a dual-bander and, at £99.95, is quite reasonably priced compared to some competitors. Our thanks to Nevada Radio for the loan of the review model.

TABLE 1: Basic performance figures as measured by RSGB.

	2m	70cm
Power output measured / (spec)	4.62W (5W)	4.6W (5W)
Receive sensitivity measured / (spec)	0.232μV -125.7dBm (-122dBm)	0.227μV -125.9dBm (-122dBm)

HF F-Layer Propagation Predictions for December 2010

Compiled by Gwyn Williams, G4FKH

	3.5MHz	7.0MHz	10.1MHz	14.0MHz	18.1MHz	21.0MHz	24.9MHz	28.0MHz
Time	000011111220	000011111220	000011111220	000011111220	000011111220	000011111220	000011111220	000011111220
(UTC)	246802468020	246802468020	246802468020	246802468020	246802468020	246802468020	246802468020	246802468020
*** Europe								
Moscow	886....67788	8473..388578	...76678....	...88884....	...8999.....	....998.....	....88......	....77.....
*** Asia								
Yakutsk	25434	7..3.3.77737	...77..43...	.....	.....	.....	.....	.....
Tokyo	......22222.	...57466434.	.....	.....	.....	.....	.....	.....
Singapore	.......2212.	786555	......64....	.....35.....	.....66.....	.....64.....	.....5......	.....
Hyderabad	.....	33333	.......5....	......54....	......5.....	......5.....	.....	.....
Tel Aviv	886....38888	979....99879	...4..38....	...76676....	...6888.....	....886.....	....88......	.....
*** Oceania								
Wellington	.....	....5664....	....6773....	....465.....	.....4.....	.....	.....	.....
Well (ZL) (LP)	.....	.....	.....	.....	.....	.....	.....	.....
Perth	.....	......47534.	......77....	......85....	......3.....	.....	.....	.....
Sydney	.....	.....6762...	....6884....	....887.....	....45......	.....	.....	.....
Melbourne (LP)	.....	...88.......	...99.......	...793......	....974.....	....97......	....8.......	.....
Honolulu	.....	.......2....	.....435....	.....	.....	.....	.....	.....
Honolulu (LP)	.....	.....	.....	.....	.....	.....	.....	.....
W. Samoa	.....	....6676....	....7886....	....587.....	.....75.....	.....5......	.....	.....
*** Africa								
Mauritius	2........111	7......56666	5......76524	.......7....	.......5....	.....	.....	.....
Johanesburg	.....	42.......233	86.....48877	3......875..	.....	.....	.....	.....
Ibadan	12.......111	777.....6677	766.....7777	...5...474..	...755573...	...77677....	....7775....	....777.....
Nairobi	3........222	88.....28888	6......36656	.......6....	......46....	...54454....	....667.....	......4.....
Canary Isles	666.....4666	8786....8788	88.72..57886	....6667.5..	....8887....	....666.....	.....	.....
*** S. America								
Buenos Aires	.....	22.6........	34.8........	...6........	.....	.....	.....	.....
Rio de Janeiro	.....	23.6.......2	35.8.....232	...7........	.....	.....	.....	.....
Lima	.....	.2.3........	.4.64.......	.....	.....	.....	.....	.....
Caracas	.....	44.4......33	46.86....4..	....7...4...	.....756....	.....777....	.....775....	.....57.....
*** N. America								
Guatemala	.....	.2.22.......	.3.36.......	.....4......	......3.....	......4.....	......4.....	.....
New Orleans	3332........	67.72.....26	...36.......	.....	.....	......4.....	.....	.....
Washington	3333......23	77473.....77	.4.3.....6..	.....6346...	......45....	......56....	......6.....	.....
Quebec	5553.....465	57.63....733	........5...	.....6667...	......66....	......66....	......7.....	.....
Anchorage	.....	55.4...34334	.....3..7...	.....	.....	.....	.....	.....
Vancouver	.....	33.3........	.....	.....	.....	.....	.....	.....
San Francisco	.....	.....	.....	.....	.....	.....	.....	.....
San Fran (LP)	.....	.....	.....	.....	.....5....	.....4....	.....	.....

KEY: Each number in the table represents the expected circuit reliability, eg '1' represents reliability between 1 and 19% of days, '2' between 20 and 30% of days, etc. No signal is expected when a '.' is shown. **Black** is shown when the signal strength is expected to be low to very low, **blue** when it is expected to be fair and **red** when it is expected to be strong. The RSGB Propagation Studies Committee provides propagation predictions on the internet at www.rsgb.org.uk/propagation/index.php. An input power of 100W and a dipole aerial has been used in the preparation of these predictions; therefore a better equipped station should expect better results. The predicted smoothed sunspot numbers for December 2011, January and February 2011 are respectively (SIDC classical method – Waldmeier's standard) 26, 29 & 31 and (combined method) 52, 56 & 60. The provisional mean sunspot number for October was 23.5. The daily maximum / minimum numbers were 47 on 25 October and 0 on 6 to 8 October.

RadCom

Getting listed here and on GB2RS is easy. E-mail details of your meetings as early as possible to GB2RS@RSGB.org.uk and we'll do the rest. We need to know your club name, RSGB Region number, contact name & phone number, date of meeting and detail of meeting. Example: South Bristol ARS, Region 11, Len, G4RZY, 01275 834 282, 29 October, On the Air. It's that simple. The deadline for the January *RadCom* is 29 November and for the February edition it's 4 January. For GB2RS, the deadline is 10am on the Tuesday for the week of broadcast.

1 SCOTLAND SOUTH & WESTERN ISLES

REGIONAL REP: LEN PAGET, GM0ONX, GM0ONX@RSGB.ORG.UK

COCKENZIE & PORT SETON ARC
Bob, GM4UYZ, 01875 811 723
3 Normal club night
11 Christmas night

KILMARNOCK & LOUDOUN ARC
Graham, MM3GDC, mm3gdc@btinternet.com
10 Quiz at the Barr Castle Social Club
14 Club night

LIVINGSTON & DARS
Norman, 07740 946192, uk.groups.yahoo/group/ms0liv
7, 21 Club evening
14 Operating evening

LOTHIANS RS
Andy Sinclair, lrs_secretary@moosedata.com
8 Christmas curry night

PAISLEY (YMCA) ARC
Bill Anderson, 2M0BZZ, 01505 613633, bill@3bis.co.uk
1 Training
8 Homebrew linear amplifiers, GM3UCI
15 Christmas social
22, 29 Closed

WEST OF SCOTLAND (GLASGOW) ARS
Fred Coombes, 2M0BIN, 01415715512, www.wosars.org.uk
1, 8, 15 Construction projects & licence training
3, 10, 17 Presentations, guest speakers, raffle & quiz
22, 24, 29, 31 Closed

2 SCOTLAND NORTH & NORTHERN ISLES

REGIONAL REP: DENNY MORRISON, GM1BAN, GM1BAN@RSGB.ORG.UK

ABERDEEN ARS
Lewis, GM4AJR, 01224 575 663, www.radioclubs.net/aars
2 Junk sale

3 NORTH WEST

REGIONAL REP: KATH WILSON, M1CNY, M1CNY@RSGB.ORG.UK

BOLTON WIRELESS CLUB
boltonwireless@gmail.com
15 Christmas party

CHESTER & DARS
Barbara Green, 07957 870770, www.chesterdars.org.uk
7 Construction contest at Burley Hall
14 Christmas social at Cheshire View

MID-CHESHIRE ARS
Peter Paul Fox, G8HAV, 01606553401
1 Committee meeting
8 Surplus equipment sale
15 Planning for Radioactive rally
22 VHF-HF OTA
29 Closed

PRESTON ARS
Richard, M0RDZ, 07855873566, secretary@prestonars.co.uk
9 End fed wires by Bill, G3NQX

THORNTON CLEVELEYS ARS
Colin Hirst, G0EPY, colmay@sky.com
6 Natter night / OTA
13 Auction, Mick, G4EZM
27 Closed
29 Christmas party

4 NORTH EAST

REGIONAL REP: HAROLD SCRIVENS, G0UGE, G0UGE@RSGB.ORG.UK

ANGEL OF THE NORTH ARC
Nancy Bone, G7UUR, 0191 477 0036, nancybone2001@yahoo.co.uk
6, 20 OTA, natter night
13 Digital modes including PSK31, RTTY and MT63 by Zoltan Derzsi
27 Closed

EAST CLEVELAND ARC
Alistair, G4OLK, 01642 475 671, alistair.mackay@talk21.com
3 OTA
17 Radio magazines evening
24, 31 Closed

HORNSEA ARC
Gordon MacNaught, G3WOV, 01377 240573, gmacnaughtwov@yahoo.co.uk
1 AGM
8 Committee meeting
15 Christmas party
22, 29 Closed

MALTBY & DARS
Keith, G1PQW, 07701 156 678, www.maltbyradio.org.uk
1 Morse's Code - or was it? by Keith, G1PQW
8 Planning for 2011
15 OTA
21 Members' pie 'n' pea supper
22, 29 Closed

RIPON & DARS
Rob Hall, M0RBY, 0787 608 5631, www.ripon.org.uk
2 Discussion – the perfect shack toys for Christmas
9 Christmas quiz night
16 Mince pies and RF social evening

SCARBOROUGH AMATEUR RADIO SOCIETY
Jerry Scarr, G6LBL, 01751 476601, jerryscarr@googlemail.com
6 Surplus equipment sale & talk by G4DAX
13 Christmas social

SHEFFIELD ARC
Peter Day, G3PHO, sarc@g3pho.org.uk
6 Lightwaves talk & demo by G3PHO
13 Christmas dinner (club room closed)
20 Quiz and/or video evening
27 Social evening

5 WEST MIDLANDS

REGIONAL REP: TREVOR BAILEY, M0KMB, M0KMB@RSGB.ORG.UK

COVENTRY ARS
John, G8SEQ, 07958 777363
3 Talk by the Projected Picture Trust
10 Pub games night
17 Curry night at The Mint, CV1 3GJ

GLOUCESTER AR&ES
Anne, 2E1GKY, 01452 548478, daytime, www.g4aym.org.uk
6 VHF operating
13 Leta's Christmas buffet
20 Informal evening

MIDLAND ARS
Norman, G8BHE, QTHR, 01214 229 787
1 OTA and training classes
8 Christmas social
15 Laptop computers and training classes
22, 29 Closed

MID-WARWICKSHIRE ARS
Don, G4CYG, 019 2642 4465
14 Christmas gathering

SALOP ARS
www.salop-ars.org.uk
2 Frequency standards, Ken, G8DIR & Richard, G3VZG
9 Christmas meal, The New Inn
16 Mince pies evening with raffle
23, 30 Closed

SOUTH BIRMINGHAM RS
Don, 0121 458 1603, www.radioclubs.net/southbirmingham
1 Open meeting and ragchew, Christmas party planning
2, 9, 16 Foundation classes with Dave, G8OWL
3, 10 Construction evening
6 Aerial review for Field Day, repair or replace
13 Decorating the main hall for Christmas party
17 Christmas party and grand raffle
20 Planning meeting for 2011 radio rallies
24, 27 Closed
31 Shack open for members

STRATFORD UPON AVON DRS
G0CHO, 01608 664488, cousbey@theiet.org
13 Test equipment evening with G0JUQ

TELFORD & DARS
Mike, G3JKX, 01952 299 677, mjstreetg3jkx@blueyonder.co.uk
1 Committee /A, HQ closed
8 RM5 visit
15 Christmas dinner at The Duck, Allscott
22 Mince pies and mulled wine, story telling
25 Christmas net, 144.6MHz ± and GB3TF, 0900/2100
29 OTA and natter night

6 NORTH WALES

REGIONAL REP: MARK HARPER, MW1MDH, MW1MDH@RSGB.ORG.UK

DRAGON ARC
Stewart Rolfe, GW0ETF, 07833 620733
6 Government secret bunkers talk by Les, MW0SEC
20 Christmas social evening

WREXHAM ARS
Glyn, MW0BNB, www.wrexham-ars.co.uk
7 Club dinner

7 SOUTH WALES

REGIONAL REP: JIMMY SNEDDON, MW0EQL, MW0EQL@RSGB.ORG.UK

ABERYSTWYTH & DARS
Ray GW7AGG, 01970 611853, ray@clocktower.go-plus.net
9 Christmas dinner at Aberystwyth Cliff Railway
30 OTA with David, 2W0EDW on 145.500 then 145.550

SWANSEA ARS
Nick Lewis, MW0JGE, 01792 402035
2 AGM
16 Christmas dinner, Clyne Golf Club

8 NORTHERN IRELAND

REGIONAL REP: PETER LOWRIE, MI5JYK, MI5JYK@RSGB.ORG.UK

No entries received this month. Please send any information to GB2RS@RSGB.org.uk

9 LONDON & THAMES VALLEY

REGIONAL REP: ALISON JOHNSTON, G8ROG, G8ROG@RSGB.ORG.UK

AYLESBURY VALE RS
Roger, G3MEH, 01442 826 651
8 Christmas party with Chesham club hosted by Roger, G3MEH

BROMLEY & DARS
Andy, G4WGZ, 01689 878089
21 Mince pies

BURNHAM BEECHES RC
Dave, G4XDU, 01628 625 720
6 Christmas dinner

CHESHAM & DARS
Terry, G0VFW, 01442 831 491, cdars.club@ntlworld.com
1 General meeting + AFS contest planning
8 Christmas party with Aylesbury Club hosted by Roger, G3MEH
15 Social evening & drinks in WHC bar
22, 29 Closed

CRAY VALLEY RS
Bob, M0MCV, 020 8265 7735 after 8pm
2 M2000A, GB50 and GB200T by Bob, M0MCV and Dave, G4BUO
16 Christmas drinks and social

ECHELFORD ARS
John, G4GSC, 01784 451898
9 Christmas party
23 Closed

EDGWARE & DRS
Mike, G4RNW, 020 8950 0658, michael.stewart5@ntlworld.com
9 Grand Edgware junk sale

NEWBURY & DARS
Rob, G3LMW, 01635 862737, g4lmw@btconnect.com
11 NADARS Christmas dinner

RADIO SOCIETY OF HARROW
Linda, G7RJL, 0208 386 8586, www.g3efx.org.uk
3 Construction contest
17 Christmas social

READING & DARC
Pete, G8FRC, 01189 695 697
3 Annual dinner
9 AGM then cheese & wine/beer

SHEFFORD & DARS
David, G8UOD, 01234 742 757, www.sadars.co.uk
9 Mince pie evening

SOUTHGATE ARC
David Sharp, M0XDS, david.sharp1@tesco.net
8 AGM

SURREY RADIO CONTACT CLUB
John, G3MCX, 020 8688 3322, john.g3mcx@btinternet.com
6 Croydon Airport Model Flying Club by Darren Parvin, M0PRV
20 Club fix-it and natter night

SUTTON & CHEAM RS
John, G0BWV, 020 8644 9945, info@scrs.org.uk
16 Christmas junk sale

VERULAM ARC
Ralph, 01923 265572, g1bsz@aol.com
2 Informal social at the Queens Head, Sandridge
6 Committee meeting

WEY VALLEY ARG
www.weyvalleyarg.org.uk
3 Australia, food, antennas and crocodiles by David Jefferies
17 Christmas jolly

WIMBLEDON & DARS
Jim, M0CON, 020 8874 7456, www.gx3wim.org.uk
10 Christmas social
31 Closed

10 SOUTH & SOUTH EAST

REGIONAL REP: GAVIN KEEGAN, G6DGK, G6DGK@RSGB.ORG.UK

ANDOVER RAC
Martin, M0MWS, 07776181646, www.arac.co.uk
7 Club night, military equipment discussion and workshop
14 Christmas dinner
21 Club night, committee meeting, video night

BASINGSTOKE ARC
Clive, G4ODM, 01256 326050
6 Family evening
20 Christmas dinner

BREDE STEAM ARS
Steve, 01424 720815, M0NUC@aol.com
4, 7, 14, 21, 28 At the shack

HARWELL ARS
Malcolm, G8NRP, 01235 524844, info@g3pia.org.uk
14 AGM

HORNDEAN & DARC
Stuart, G0FYX, 023 9247 2846, www.hdarc.co.uk
7 Natter night/social evening
28 Closed

HORSHAM ARC
www.harc.org.uk
2 AGM
4 Christmas dinner
16 Social – The Red Lyon, Slinfold

MID-SUSSEX ARS
Peter, G4AKG, 01444 239371
3 Christmas dinner
10 Radio night
17 Christmas quiz
24, 31 Closed

SOUTHDOWN ARS
John, G3DQY, 01424 424 319
1 Operating at Hailsham shack
6 Christmas social at Chaseley

SWINDON & DARC
Den, M0ACM, 07810 317750, www.sdarc.net, deryckg3ykc@btinternet.com
2 Fun quiz
9 Christmas dinner
16, 23 Natter night
30 Closed

TROWBRIDGE & DARC
Ian, G0GRI, 01225 864 698, E/W
1 Christmas social & presentation night
15 Natter night

WATERLOOVILLE ARC
Rich, G4IBW, 02392680852, g4ibw1@ntlworld.com
17 Christmas dinner
1 What is it? quiz by Peter, G8MSQ
8 Discussion evening
15 Christmas party (clubroom closed)
22, 29 Closed
24 Santa Claus net, 3.650MHz SSB, 2130
25 Christmas day net, 2m FM

11 SOUTH WEST & CHANNEL ISLANDS

REGIONAL REP: PAM HELLIWELL, G7SME, G7SME@RSGB.ORG.UK

APPLEDORE & DARC
Brian Jewell, M0BRB, 01237 473251
13 Christmas party

BLACKMOOR VALE ARS
Tony G0GFL, 01258 860741, www.radioclubs.net/bvars
7 VHF evening in the club shack
12 Christmas dinner
14 Annual quiz/fun night
21 HF evening in the club shack
26 Boxing Day 2m & 4m FM net, 11am
28 Closed

BRISTOL RSGB GROUP
Robin, G3TKF, 01225 420442
27 Closed

CALLINGTON ARS
Chris Harris, G7UDX, 07973 418 371, g7udx@me.com
3 Christmas quiz, mince pies & seasonal treats

EXETER ARS
Nick, 01363 775756, info@exeterars.co.uk
13 Christmas skittles night, Moose Centre

SOUTH BRISTOL ARC
Len, G4RZY, 01275 834 282
2 Amateur radio software workshop with David, G7PKJ
9 Preparation for the Christmas social
16 Christmas social
23 Christmas greetings
30 New Year greetings

TAUNTON & DARC
William, G3WNI, 01823 666 234, g3wni@btinternet.com
8, 15 OTA
22, 29 Closed

THORNBURY & SOUTH GLOUCESTERSHIRE ARC
Tony, G0WMB, 01454 417048, tonytsgarc@btinternet.com
1, 8 OTA
15 Video night
22 Chairman's quiz and social
29 Closed

TORBAY ARS
Dave, G6FSP, g6fsp@tars.org.uk
3, 10 Natter night
17 Christmas party and quiz
24, 31 Closed

WEST DEVON RC
Jules Cuddy, M1AGY, 01752 291588
14 Christmas party
28 Closed (until 11 Jan)

YEOVIL ARC
Steve Crask, G7AHP, steve@g7ahp.co.uk
2 WSPR & JT65A, G7AHP
9 Yeo Project evening
16 Mince pie evening
23 Closed

12 EAST & EAST ANGLIA

REGIONAL REP: PHILLIP BROOKS, G4NZQ, G4NZQ@RSGB.ORG.UK

BITTERN DX GROUP
Linda, G0AJJ, 01692 404154, secretary@bittern-dxers.org.uk
5, 19 Foundation course
9 Informal meeting at Pinewood Park Leisure Club

BRAINTREE & DARS
John, M5AJB, 01787 460 947
6 Club social
20 Natter night and OTA

CAMBRIDGE & DARC
Lawrence Micallef, M0LCM, 07941 972724, events@cdarc.co.uk
3 The vibration of aerials, Arthur, G3BMI
4 Training weekend, Foxton
10 Film evening "Mirror in the sky"
17 Mince pie evening

CHELMSFORD ARS
Martyn, G1EFL, 01245 469 008, www.g0mwt.org.uk
4 Christmas lunch at The Glades Restaurant
7 The joy of contesting by Mark Haynes, M0DXR
14, 21, 28 Club net
15 Committee meeting - Danbury Village Hall

COLCHESTER RADIO AMATEURS
Kevan, 2E0WMG, 07766543784, kevan2e0wmg@live.co.uk
16 Christmas social

DARENTH VALLEY RADIO SOCIETY
Ray, G0FDU@G0KDV.com
8 Quiz night plus fish & chips

EAST KENT RS
Karl Davies, M1DFM, 01227 710120, karl.davies@talk21.com
6 Bletchley Park illustrated talk by Eileen & Karl
15 Christmas dinner

HARWICH ARIG
Kevan, 2E0WMG 07766 543784 kevan2e0wmg@live.co.uk
8 AGM & Christmas social

HAVERING & DARC
John, M0UKD, 07817365354, john@m0ukd.com
1 Constructors Cup 2010
8 Informal club evening
15 Stamps of the world by John Dale, 2E0WJI
22 Christmas drink at the Queens Theatre
29 Closed

LOUGHTON & EPPING FOREST ARS
Marc Litchman, G0TOC, 020 8502 1645
3 Christmas buffet, bring & buy sale
17 Presentation of members' awards
31 Closed

NORFOLK ARC
Chris Danby, G0DWV, 01603 898678, cmdanby@btinternet.com
1 Aerial theory, use & practice by Pat Gowen, G3IOR
8 Informal, construction and workshop evening
15 Christmas party

SOUTH ESSEX ARS
Norman, M0FZW, 01268 692776, secretary@southessex-ars.co.uk
8 Christmas social & DVD show

WEST KENT ARS
Les, G6UBM, westkentars@googlemail.com
13 Christmas social

13 EAST MIDLANDS

REGIONAL REP: JIM STEVENSON, G0EJQ, G0EJQ@RSGB.ORG.UK

BRIGG & DARC
John, 2E0III, 01652 632938, info@bdarc.co.uk, www.bdarc.co.uk
9 Making You Tube videos, Dave, M0OGY
23 Christmas party

FRISKNEY AND EAST LINCOLNSHIRE COMMS CLUB
Chris M0MFP, 01507 442240
7 Christmas meal; commercial radio talk by Tony, G3ZPU

LINCOLN SHORT-WAVE CLUB
Pam Rose, G4STO, 01427 788356, pamelagrose@tiscali.co.uk
1, 8, 22 G5FZ OTA & natter night
4, 11, 18 G5FZ OTA & work around the shack
15 Quiz, raffle and nibbles

LOUGHBOROUGH & DARC
Chris, G1ETZ, 01509 504 319
7 Paper plane contest
14 Photograph competition
21 Christmas drink at the Pied Bull
28 Closed

MELTON MOWBRAY ARS
Geoff, G3STG, 01664 480 733, G3STG@btinternet.com
17 Christmas meeting at SMMC

NUNSFIELD HOUSE ARG
Ken Frankcom, G3OCA, 01332 720976
3 Junk sale
10 Christmas party
17, 24, 31 Shack night

WELLAND VALLEY ARS
Peter D Rivers, G4XEX, 01858 432105, g4xex@fsmail.net
13 Christmas dinner

FREE MEMBERS' ADS
Charges are waived for Members' Ads submitted by e-mail to memads@rsgb.org.uk. One ad per member per month; other important terms & conditions apply (see grey box on page 89).

FOR SALE

10 SK ITEMS STILL FOR SALE from the estate of the late Fred Wells, M0HOD. Please view the pictures and download the latest .pdf listing from www.g0jlx.co.uk. All proceeds to his widow. Contact details on the website and on the .pdf listing. G0JLX, 07768 282880, g0jlx@mail.com (QTHR, Winchester).

105 COPIES of VHF Communications dated 1971 to 1999. £15 the lot. Carriage and delivery extra at cost. Brian, G4FZL, 01760 725671, brian.povoas@talktalk.net (Norfolk).

AMERITRON AL-811 XCE linear amp (Nov 2007), £420. Ken, Gi4ERM, 02892 671095, gi4erm@yahoo.co.uk (Lisburn, Co. Antrim).

BEGALI MAGNETIC CLASSIC iambic paddle, gold plated, with box and supplied accessories including 0.03mm contact adjustment feeler gauge and spare paddles. Slight mark underside of base, otherwise immaculate and in perfect order. Currently £227, first £125 secures. Collect or +P&P. Bill, G0EOL, 01606 594205, billg0eol@o2.co.uk (QTHR Cheshire).

CUSHCRAFT A3S 3-el tribander, good used condition, dismantled but buyer to collect, £250 ono. Dale, G3VMK, g3vmk@btinternet.com, 0115 9664221 (Nottingham).

EMTRON DX-2SP HF linear amplifier. 160 – 10m. GU-84B tube. Excellent condition, £2350. Prefer buyer inspects and collects. Peter, G3ZSS, 01252 783124, peter@g3zss.com (Farnham).

FRG-7, works ok, few scratches on case but front panel unmarked. With handbook. Re-advertised due to time waster. £50 plus post or collect. Peter, G3MZF, 01977 682888, Peterg3mzf@aol.com (Leeds area).

FT-1000MP. Inrad CW filters fitted. Boxed with manual. Radio is in mint condition. £650.00. G0AIX, 01736 362536 (QTHR, Penzance).

FT-817ND complete as bought 01/09 with MH-31 mic, NiMH batt pack and useful stand, PLUS bhi noise module, CW filter and RadioMate keypad. In as new condition, in original packing, £450 plus post. Ian Pryde, GM3LGU, 01620 825639, i.pryde813@btinternet.com (QTHR, Haddington).

IC-7400 boxed, exc condx (backlight fixed), £780. Icom SP20 £75. 2 bhi speakers £65 each. bhi 1031, £90, MFJ969 ATU £90. High Sierra Side Kick mobile ant, 80-10m, £260. Manson EP920 PSU, £65. Diamond 627 mobile tri-bander ant, £60. Gordon, M0GIQ, 01724 734742 (Scunthorpe).

ICOM 821H, vgc, £400 + p&p. 2x Astatic tear drop fist mics, £80. 2 x 4m mast head preamps RP4SH, £20 each. 2 x 6m masthead preamps RP6SH, £20 each. Trev, G2KF, 07974 892179 (Cornwall).

ICOM IC-7000 HF, VHF, UHF xcvr in original box with manuals, mic, remote kit and LDG AT7000 automatic ATU. All in mint condition. LDG is not in original box. £780. Colyn, GD4EIP, 07624 413036, gd4eip@manx.net (Isle of Man).

KENWOOD TS-570D with voice synthesiser and SSB narrow band filter fitted. Original man. Kenwood desktop mic. £500. Prefer buyer collects. George, G3LPT, 01359 259518, g3lpt@btinternet.com, (QTHR, Suffolk).

KENWOOD TS-940S HF xcvr, two careful owners, GWO, manual but no box, £450 ono. Linear Amp UK Explorer, one careful owner, GWO, manual but no box, £500 ono. Prefer buyer inspect and collect. Terry, GM3WUX, 0141 423 2683, terry@describe-online.com (Glasgow).

MITSUBISHI M57727 37W RF power module as used in TRIO TS-711E / TR 9130 and other older multimode transceivers. Sealed in unopened antistatic package, as supplied new, complete with data sheets. £35. Alan, G1EAB, 0115 9612295, g1eab@tiscali.co.uk, (Nottingham).

RACAL RA17L, £60. Sailor 80/160 Tx 12/24V with handset, £25. Eddystone 770U Mk2, £60. CG203 Tx valves, QRO, boxed, 3 for £15. Marconi CR100 and CR300 Rxs £50. TF301 gen, £10. Very rare WW2 AM wavemeter 1191A, best offer. C Young, 01637 875848 (Newquay).

REPEATER TIMER (Fag display) and very nice PCB making program (tracks etc), Windows 98 onwards, £3.50. Vic, G8WCQ, 01297 23421 (Mr V McClure, 43 Roman Way, Seaton, Devon, EX12 2NT).

TEN TEC JUPITER less than a year old and in mint condition. Comes with mic, handbook and original packing box, £1250 ovno. Buyer collects or will ship insured £30. Cash / bank transfer or cheque. Mike, M0MHS, 0772 6066666, mikestroud9@aol.com (Welwyn Garden City).

TRIO TS-120V 10W o/p, 10-80m, 12V, £100. W Ginder, GW3NAS, 01545 580108 (Newquay).

VIBROPLEX TELEGRAPH KEYS collector's guide book. Brand new, 3rd edition w/supplement. 118 pages. £20 + £2.50 UK p&p, £5 Europe, £7 Worldwide. Paypal, bank deposit, cheque or postal order. Marcelo, LW3EOV, marcelo0680@yahoo.co.uk (London).

YAESU FT-101ZD Mk2 HF transceiver, WARC bands, narrow CW filter, original desk mic, box. Almost perfect condition, 100W output 160-10m, £300. Pair Wharfedale Diamond 8.1 loudspeakers, £60. Acoustic Energy Aego M active speaker system (90W RMS), £80, all as new. Steve, G0EAT, 07984 320273 (East Yorkshire).

YAESU FT-897 100W HF and FT-60 2m/70cm. Shack clearance, mobile and home antennas, chargers, batteries, ATU, PSU, SWR meters etc. All good condition, light use and can demonstrate. David Jardine, G0FDV, 01435 865500, dj@ukpc.net (Heathfield, East Sussex).

YAESU FT-1000 MP mk 5, 200W. Power supply FP-29. Yaesu SP-6 speaker with filters, owned from new, mint condition, boxed, manuals, no scratches, non smoker, try before you buy. Bargain, £1399. M0CVS, 01629 823025 (Matlock, Derbyshire).

YAESU MD-1 desk mic, excellent condition, £100 + carriage. VC300DLP 300W ATU / power meter / dummy load / antenna switch, £100 + carriage. Yaesu FRT-7700 receive ATU, £35 + carriage. Michael, G4OCR, 0161 881 9544, michael@bolton.ac.uk (Manchester).

Continued on page 88

Yaesu FT-950 Transceiver

Direct lineage from the legendary FT DX 9000 and FT-2000

HF/50 MHz 100 W Transceiver
FT-950

- Triple-conversion super-heterodyne receiver architecture, using 69.450 MHz 1st IF
- Eight narrow, band-pass filters in the RF stage eliminate out of band interference and protect the powerful 1st IF
- 1st IF 3 kHz Roofing filter included
- High-speed Direct Digital Synthesizer (DDS) and high-spec Digital PLL for outstanding Local Oscillator performance
- Original YAESU IF DSP advanced design, provides comfortable and effective reception. IF SHIFT / IF WIDTH / CONTOUR / NOTCH / DNR
- DSP enhancement of Transmit SSB/AM signal quality with Parametric Microphone Equalizer and Speech Processor
- Built-in high stability TCXO (0.5 ppm at room temperature)
- Built-in automatic antenna tuner ATU, with 100 memories
- Powerful CW operating capabilities for CW enthusiasts including CW Zero-in and CW Spot features
- Five Voice Message memories, with the optional DVS-6 unit
- Large Multi-colour VFD (Vacuum Fluorescent Display)
- Optional Data Management Unit (DMU-2000) permits display of various operating conditions, transceiver status and station logging.
- Optional RF µ-Tune Ultra Sharp Preselector System for 160 m, 80/40 m and 30/20 m Bands

Optional, YAESU Exclusive, Fully-Automatic -Tuning Preselector System!

Fully automatic, Ultra-sharp, External µ-Tuning Preselector (optional) features a 1.1" (28 mm) Coil for High Q

On the lower Amateur bands, strong signal voltages can impinge on a receiver and create noise and intermod that can cover up the weak signals you're trying to pull through. YAESU engineers developed the µ (Mu) Tuning system for the FT DX 9000/FT-2000, which is now available as an option for the FT-950. There are three modules available, the MTU-160, MTU-80/40, and MTU-30/20); these may be connected externally, using the optional base kit, with no internal modification required.

When the µ-Tuning module is engaged, the VRF system is bypassed, but the fixed Bandpass Filters are still in the received signal path.

Optional External Data Management Unit (DMU-2000) Provides Many Display Capabilities

Enjoy the ultimate in operating ease by adding the DMU-2000!

Enjoy the same displays that are available with the FT DX 9000 and FT-2000: Band Scope, Audio Scope, X-Y Oscilloscope, World Clock, Rotator Control, Extensive Transceiver Status Displays, and Station Logging Capability. These extensive functions are displayed on your user-supplied computer monitor.

Shown with after-market keyer paddle, keyboard, and monitor (not supplied).

DMU-2000
Data Management Unit (option)

For the latest Yaesu news, visit us on the Internet:
http://www.yaesu.co.uk

Specifications subject to change without notice. Some accessories and/or options may be standard in some areas. Frequency coverage may differ in some countries. Check with your local Yaesu dealer for specific details.

YAESU
Choice of the World's top DX'ers

WANTED

SONY MINIDISC RECORDING MACHINE, together with a remote controller and some discs. model MDS JE 510 or similar. Fair price paid for a good working example. J H Lepper, G3JHL, 01794 512283 (Romsey, Hants).

BENDIX TA-2 WW2 transmitter, also Bendix receivers RA-1B, RA-10 and Bendix radio accessories. Airborne or Navy types. Bendix manuals, literature, photos wanted. John, G0LJS, g0ljs@arrl.net, 01380 859088 (Chippenham, Wilts.)

COLLINS 75S 3 RX, any condition considered. Also 500c/s Collins filter (455kHz) and any other S Line spares. Peter Hopwood G3UKH, 0191 2744115, pahopwood@hotmail.com (Newcastle upon Tyne).

CW FILTER YK-88C-1 or YK-88CN-1 for Kenwood TS570. Ray, G3AGF, 01032 491516, ray@g3agf.eclipse.co.uk (Seaford).

DIAGRAMS for MuTek SLNA 144e and ATCS 500. Who repairs MuTek now? Mike Webb, GD6ICR, manx9@manx.net (Isle of Man).

FRG-7 IF FILTER KIT. Wanted IF narrow band filter for FRG-7. G4HHZ, 02380 270785, g4hhz@tiscali.co.uk (Chandlers Ford).

FT-225RD preferably with MuTek front end board and in good clean condition. Valve bases for 4CX1500, also all types of parts for homebrew linears. Gordon, GM3UCI, 01555 770914, gm3_uci@yahoo.co.uk (Carluke).

HF LINEAR AMPLIFIER: Drake, Kenwood etc. Also TS 480HX or AT. Cash and collection OK. Keith, G4GZS, 07859 917317, keith4gzs@hotmail.co.uk (Rugby).

LOWE PR-150 preselector/ATU. Bob Garner, G8LAN, 01275 792370, bob.garner@virgin.net (Clevedon).

MIC FOR YAESU 290R, 7 pin. Ken Moreton, G1VBY, 01782 562237 (Newcastle, Staffs).

RALLIES & EVENTS

We are not aware of any rallies in December 2010.

2011

16 JANUARY – NEW VENUE – RED ROSE WINTER RALLY – George H Carnall Leisure Centre, Kingsway Park, M41 7FJ. DF, free CP, B&B, C, LB, OT 11am, TS, SIG, DF, RSGB bookstall. Details from Steve, 07502 295 141 [www.wmrc.org.uk].

16 JANUARY – DOVER AMATEUR RADIO CLUB RALLY – Whitfield Village Hall, Dover CT16 3LY. One of the first events in the season. TS, TI via GB3KS, C. [www.doverradiorally.com].

30 JANUARY – HORNCASTLE WINTER RALLY – Horncastle Youth Centre, Lincolnshire LN9 6DZ. 10.30am, £1.50, DF, C, free CP. Tony, G3ZPU, 01507 527835, e-mail G3ZPU@yahoo.co.uk.

6 FEBRUARY – 26th CANVEY RADIO & ELECTRONICS RALLY – 'The Paddocks', Long Road, Canvey Island, Essex SS8 0JA [southern end of A130]. Free CP, OT 10.30, £2, C, DF, TS. Dave, G4UVJ, 01268 697 978 (evenings) [www.southessex-ars.co.uk].

6 FEBRUARY – RADIO-ACTIVE RALLY – Civic Hall, Nantwich, Cheshire CW5 5DG. CP, OT 10.30, TS, B&B, C. Simon Chettle G8ATB, 01270 841506, e-G3at@aol.com. [www.midcars.org].

13 FEBRUARY – HARWELL RADIO AND ELECTRONICS RALLY – Didcot Leisure Centre, Mereland Road, Didcot OX11 8AY. TI S22 (V44), free CP, £2.50 (u12 free), OT 10.15/10.30. TS, FM, SIG, LB, C, DF. Details from Ann, G8NVI on 01235 816379, e-mail rally@g3pia.org.uk [www.g3pia.org.uk].

27 FEBRUARY – RAINHAM RADIO RALLY – Rainham School for Girls, Derwent Way, Rainham, Gillingham, Kent ME8 0BX. 10.00, Trevor, G6YLW, 0771 7678 795, e-mail trev@wig1.co.uk.

27 FEBRUARY – SWANSEA ARS RALLY – Court Herbert Sports Centre, Neath Abbey, Neath SA10 7BE. OT 10.30, £2/50p, free CP, TS, B&B, SIG, LB, C. Details Roger, GW4HSH, 01792 404422 [www.radioclubs.net/swanseaars].

6 MARCH – BOURNEMOUTH RADIO SOCIETY 23rd ANNUAL SALE – Kinson Community Centre, Pelhams Park, Millhams Road, Kinson, Bournemouth BH10 7LH. CP, OT 09.30-14.30, admission £1.50, TS, SIG, C, DF. Contact John, G0HAT, 07719 700771 [www.brswebsite.org.uk].

6 MARCH – EXETER RADIO & ELECTRONICS RALLY – America Hall, De la Rue Way, Pinhoe, Exeter, EX4 8PW. OT 10.30 (10.15), £2, TS, B&B, C, TI. All profits from the event are shared between GB3SW, GB3EW and GB3EX, the local 2m and 70cm repeaters. Contact Pete, G3ZVI, 07714 198374, e-mail g3zvi@yahoo.co.uk.

13 MARCH – 26th WYTHALL RC RADIO AND COMPUTER RALLY – Woodrush Sports Centre, Shawhurst Lane, Hollywood, nr Birmingham B47 5JW on the A435, 2mi from J3 M42. TS, C, £2, B&B, CP, TI S22 (V44). Contact Chris, G0EYO, 07710 412 819, e-mail g0eyo@blueyonder.co.uk [www.wrcrally.co.uk].

SILENT KEYS

We regret to record the passing of the following members:

Mr K E Dixon, EI9AB	5/10/2010
Mr A S Leigh, G0CHX	December 2009
Mr D J Archibald, GM0LEW	17/10/2010
Mr G A Rock, G0NUM	
Mr E T Whetton, G3DJJ	5/10/2010
Mr V Cundall, G3FAU	6/2010
Mr RT Greenwood, G3LBA	3/10/2010
Mr H J Dee, G4LRZ	
Mr C Brown, GW3OIM	23/10/2010
Mr J H Mitchell, G4DMX	
Mr J H Saynor, G4GGP	16/9/2010
Mr R H Harbord, G4YDY	2/9/2010
Mr K Hollinshead, G6LWH	3/9/2010
Mr K Furness, G7TRA	
Mr R W Yates, G8ACR	
Mrs M Chadwick, G8OCW	11/10/2010
Mr ASJ Reynolds, G8VBN	11/10/2010

19 MARCH – LAGAN VALLEY ARS RALLY – The Village Centre, 7 Ballynahinch Road, Hillsborough. OT 11.30, TS, CP, C. Contact Jim, GI0DVU, 02892 662 270, e-mail jim.henry@ntlworld.com.

21 MARCH – CALLINGTON AMATEUR RADIO SOCIETY RALLY – Callington Community College, Launceston Road, Callington, Cornwall PL17 7DR. TI, CP, OT 10am, £2.00, TS, B&B, C, DF, WIN. Contact Chris G7UDX, 07973418371, e-mail g7udx@mac.com.

20 MARCH – 27th YEOVIL QRP CONVENTION – Digby Hall, Hound Street, Sherborne, Dorset DT9 3AA (adjoining the central shopping car park). OT 9.30am, TI S22, CP, TS, LEC, B&B, C, DIS. Contact Derek, M0WOB, 01935 414 452.

27 MARCH – SPRING MILITARIA & ELECTRONICS & RADIO AMATEUR HANGAR SALE – Hack Green secret Nuclear Bunker, Nantwich, Cheshire, CW5 8AP. 10am, £2.50, civil, military and vintage radio equipment plus vehicle spares and more. Contact Rod Siebert, 01270 623353 or e-mail coldwatr@hackgreen.co.uk [www.hackgreen.co.uk].

10 APRIL – NORTHERN AMATEUR RADIO SOCIETIES ASSOCIATION EXHIBITION (Blackpool rally) – Norbreck Castle Exhibition Centre, Blackpool. TI, CP, TS, B&B, SIG, MT, LB, C, DF, RSGB book stand. OT 10:45/11:00. Dave, M0OBW, 01270 761 608, e-mail dwilson@btinternet.com [www.g1gyc.demon.co.uk/narsa].

This list shows all rallies and events we are aware of as at 4 November 2010. If your rally or event is not listed, TELL US ABOUT IT! Send an e-mail to GB2RS@RSGB.org.uk and your event will appear here and on GB2RS. It's free! Guidelines for submissions: Please let us know your event details as early as possible. If you submit by e–mail (to GB2RS@RSGB.org.uk) then we suggest you set your e–mail program to request a 'read' receipt so you can be sure we've seen the details.

TI Talk-In; CP Car Park; £ Admission; OT Opening time - time for disabled visitors appears first, (eg 10.30/11am); TS Trade Stands; FM Flea Market; CBS Car Boot Sale; B&B Bring and Buy; A Auction; SIG Special Interest Groups; MT Morse tests; MA Foundation Morse Assessments; LB Licensed Bar; C Catering; DF Disabled Facilities; WIN prize draw, raffle; LEC Lectures/Seminars; FAM Family attractions; CS Camp Site.

SPECIAL EVENT STATIONS FOR DECEMBER 2010

Due to unforeseen circumstances, Ofcom has not been able to provide us with a listing of special event stations this month. We apologise for any inconvenience this may cause. If you are running a special event station in December and would like it included in GB2RS, please send details by e-mail to gb2rs@rsgb.org.uk.

3 APRIL – SOUTH GLOUCESTERSHIRE AMATEUR RADIO RALLY – Avon Scouts Activity Centre, Fernhill, Almondsbury BS32 4LX (junction of M4 & M5). OT 10.00, CP, DF, C. CBS, TI S22 (V44). Stan Goodwin, G0RYM, 07833 517370, gentryone@googlemail.com [www.avonscouts.org.uk/woodhousepark].

17 APRIL – WEST LONDON RADIO & ELECTRONICS SHOW (Kempton Rally) – Kempton Park Racecourse, Staines Road East, Sunbury on Thames, Middlesex TW16 5AQ. TI, free CP, OT 9.50/10.00. TS, FM, B&B, SIG, C, DF, WIN, LEC. Details Paul, M0CJX, 0845 165 0351, info@radiofairs.co.uk [www.radiofairs.co.uk].

17 APRIL – LOUGH ERNE AMATEUR RADIO CLUB 30th ANNUAL RALLY – The Share Holiday Village, Lisnaskea, Co. Fermanagh BT92 0EQ N. Ireland. Access from Erne/Shannon Waterway. OT 11.30, CP, B&B, TS, LB, C, DF. Details Iain 028 66326693, e-mail iain@learc.eu. [www.loughernerradioclub.co.uk].

24 JULY – HORNSEA AMATEUR RADIO CLUB RALLY – Floral Hall, 7 The Esplanade, Hornsea, East Yorks HU18 1NQ. OT 10.30, CP, TS, B&B, SIG, RSGB, RAFARS, LB, C, DF, WIN. Details from Rick, M0CZR e-mail R106221@aol.com or Duncan, G3TLI, e-mail g3tli@hotmail.co.uk [www.hornseaarc.co.uk].

1 MAY – DAMBUSTERS HAMFEST – Thorpe Camp Visitor Centre, Coningsby, Lincs LN4 4PE. TI S22, GB4FR & GB3FJ, £3 under 12 free (incl traders and their companions), free parking, Pitches free but size is limited if not pre-booked. RAF heritage centre on site. Overnight camping. C, OT 10.00, RSGB bookstall. David, david@g1zqc.demon.co.uk.

12 JUNE – 10th JUNCTION 28 QRP RALLY – South Normanton Alfreton and District Amateur Radio Club (SNADARC) in association with the G-QRP Club. Alfreton Leisure Centre, Church Street, Alfreton, Derbyshire DE55 7BD. Just 10 minutes from M1 J28 and the A38. OT 10, TS, B&B, SIG, C. Russell Bradley, G0OKD on 01773-783658, e-mail russell.bradleyG0OKD@ntlworld.com [www.snadarc.com].

19 JUNE – NEWBURY RADIO RALLY AND BOOT SALE – Newbury Showground, next to M4 J13. Big display area of amateur radio stations, exhibitions, special groups, clubs and societies. TI S22 (V44), free CP, OT 9.00, £2, TS, C, DF, FM, SIG. Sellers have access from 8am and pitches cost £10. Details from rally@nadars.org.uk [www.nadars.org.uk].

26 JUNE – WEST OF ENGLAND RADIO RALLY – Cheese & Grain, Bridge Street, Frome, Somerset BA11 1BE. TS, RSGB Books, C, CP, DIS. Contact Shaun, G8VPG, 01225 873 098, e-mail rallymanager@westrally.org.uk [www.westrally.org.uk].

17 JULY – QRP IN THE COUNTRY – Upton Bridge Farm, Long Sutton, Langport TA10 9NJ. SIG, B&B, LEC, C, LB, FAM. Free entry. Tim Walford, G3PCJ, 01458 241224, e-mail walfor@globalnet.co.uk [www.walfordelectronics.co.uk].

31 JULY – HORNCASTLE SUMMER RALLY – Horncastle Youth Centre, Willow Road, Horncastle, Lincolnshire LN9 6DZ. 10.30, £1.50, DF, C. Tony, G3ZPU, 01507 527835.

14 AUGUST – FLIGHT REFUELLING ARS HAMFEST – Mike, M0MJS, 01202 883 479, e-mail hamfest@frars.org.uk [www.frars.org.uk].

4 SEPTEMBER – TELFORD HAMFEST – Enginuity Technology Centre, Coalbrookdale, Telford TF8 7DU. OT 10.30. TI S22 & GB3TF 433.200MHz. TS, SIG, discounted admission to Enginuity Centre. Details from Martyn, G3UKV, 01952 255 416 www.telfordhamfest.co.uk].

9 OCTOBER – AUTUMN MILITARIA & ELECTRONICS & RADIO AMATEUR HANGAR SALE – Hack Green secret Nuclear Bunker, Nantwich, Cheshire, CW5 8AL. OT 10.00, £2.50, civil, military and vintage radio equipment plus vehicle spares and more. Contact Rod Siebert, 01270 623 353 or e-mail coldwatr@hackgreen.co.uk [www.hackgreen.co.uk].

16 OCTOBER – HORNSEA AMATEUR RADIO CLUB RALLY – Floral Hall, 7 The Esplanade, Hornsea, East Yorks HU18 1NQ. OT 10.30, CP, TS, B&B, SIG, RSGB, RAFARS, LB, C, DF, WIN. Details from Rick, M0CZR e-mail R106221@aol.com or Duncan, G3TLI, e-mail g3tli@hotmail.co.uk [www.hornseaarc.co.uk].

6 NOVEMBER – WEST LONDON RADIO & ELECTRONICS SHOW (Kempton Rally) – Kempton Park racecourse, Staines Road East, Sunbury on Thames, Middlesex TW16 5AQ. OT 10.00. TS, FM, DF, free CP, RSGB, LEC, TI S22 (V44). Paul, M0CJX, 0845 165 0351, info@radiofairs.co.uk [www.radiofairs.co.uk].

RSGB MEMBERS' ADVERTISEMENTS

RSGB members wishing to place an advertisement may do so free of charge by e-mail, or by post provided the advertisement is accompanied by a payment of £5.00 to cover administration costs.

The following terms and conditions apply to all Members' Advertisements.

1) In order to qualify for free insertion, Members Ads must be submitted by e-mail to memads@rsgb.org.uk. Please ensure you include .uk on the end of the email address.
2) **Your advert must clearly show whether it is For Sale or Wanted and must include your name, callsign or membership number, telephone number and postal town, in that order.**
3) The Ad may not contain more than 40 words, excluding the information in (2), and may be edited for readability at our sole discretion. Longer ads may be accepted if there is a good reason, eg a shack clearance on behalf of a SK member; e-mail us and ask.
4) Not more than one ad per month will be accepted from any member. 'Recurring' ads will not be accepted, but members may re-submit the same advert each month if they wish.
5) E-mailed adverts may optionally include one photograph of the item(s) being offered. Images must be attached as a jpg file, at least 800 pixels wide and of good quality. By submitting any image you warrant that you own the copyright and that you permit the RSGB to use it in any way. We will endeavour to publish photographs with ads as space permits but cannot guarantee to publish any particular photograph.
6) Adverts will be published at the first available opportunity but no guarantee can be given as to when a particular ad will appear.
7) The RSGB believes that it is inappropriate for members trading in radio equipment in any way to place members' ads. We therefore regret we are unable to accept such ads, although we do welcome these in the 'Classified' advertising section of *RadCom*.
8) The RSGB accepts no responsibility for errors or omissions, or for the quality of goods for sale or exchange.
9) Members' Ads are accepted and published in good faith.
10) Members' Ads are accepted at the sole discretion of the Editor, whose decision is final.

WARNING

Members are advised to ensure that the equipment they intend to purchase is not subject to a current hire purchase agreement.

The 'purchase' of goods legally owned by a finance company could result in the 'purchaser' losing both the goods and the money paid.

Members' Ads also appear on the Members-Only website at www.rsgb.org/membersonly/membersads.

RADCOM MEMBERS' AD REQUEST FORM

Only use this form if you are unable to send your advert by e-mail. E-mailed adverts are free. A charge of £5 is made to cover administration costs for Members Ads submitted by post. Photocopies of this form are acceptable. Posted ads must not exceed 40 words. Please fill in all details, especially your name, callsign, phone number, town and your signature or your advert may not be accepted.

☐ I enclose a cheque for £5 payable to RSGB

☐ Please charge £5 to my credit card

Number ☐☐☐☐-☐☐☐☐-☐☐☐☐-☐☐☐☐

Expiry date MM-YYYY Issue number (Switch only) ☐☐

Name

Callsign

Phone

Town

Signed

Date

Section: ☐ FOR SALE ☐ WANTED

CLASSIFIED ADS

Classified advertisements 58p per word (VAT inc.) minimum 14 words £8.12. All classified advertisements must be prepaid. Please write clearly. No responsibility accepted for errors. Latest date for acceptance is 1st of the month prior to publication.

Copy to: Chris Danby G0DWV, Danby Advertising, Fir Trees, Hall Road, Hainford, Norwich, Norfolk, NR10 3LX Tel: 0870 904 7377 Fax: 0870 904 7378 E-mail: adsales@rsgb.org.uk

Payment to: RSGB, 3 Abbey Court, Priory Business Park, Bedford, MK44 3WH

FOR SALE

ISOLATED DATA INTERFACES
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ALL PREVIOUS MODELS STILL AVAILABLE. See RSGB Reviews SEPT 09 RADCOM.
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X-TALS 3.560/7.030/10.106/10.245/14.060MHz £5-95/set Pr Carrier 10.7MHz +/-1.5kHz, 9.0MHz +/-1.5kHz £3-95/pair 7x9MHz Matched ≤30Hz £6-95/set P&P £1-50 + VAT. Many freq ex-stock. vincentvoy@hotmail.co.uk 0208 391 0545

CTCSS, DTMF and PIC kits, low prices, all in stock, low postage costs, www.cstech.co.uk

WANTED

UNWANTED VALVE AMPLIFIERS, working or not. Known makes only (Kenwood, Yaesu, Drake, Linear Amp, etc), not homebrew. Cash paid. Contact Peter G3ZRS on 01482 862323 or e-mail: g3zrs@hotmail.co.uk

AERIALS

THE ROTARY DUAL BEAM PRO 40-10m
16ft overall. A break through in compact antenna design! www.proantennas.co.uk

GROUND MOUNTED I-PRO HOME 40-10m
5m tall vertical dipole, minimum visual impact! www.proantennas.co.uk

GET READY FOR SPRING! XMAS OFFERS to RadCom readers on our top selling products, the rotary "Dual Beam Pro" and the vertical "I-Pro Home". www.proantennas.co.uk

PORTABLE 2M ANTENNAS from £24.95. The choice of experts. Ideal for SOTA! Details www.sotabeams.co.uk Telephone 01625-425700.

M0CVO ANTENNAS HF, VHF and UHF antennas, fixed or portable. Full details at: http://www.m0cvoantennas.co.uk

SCAM 12M TELESCOPIC PNEUMATIC MASTS. Ex military masts; all checked working, but choice of standard (unspecified performance), or refurbished with all new seals and O rings. Details from m0rbs@btinternet.com

CARDS & DESIGN

QSLERS 100 FULL COLOUR CARDS £24 including design and postage. 1000 full colour cards £75 inc postage. M0DOL Chris, 24 Westridge, Northampton NN27RA

LOW COST AND HIGH QUALITY QSL cards by LZ1JZ QSL PRINT http://www.LZ1JZ.com

MISCELLANEOUS

CALL IN ON THE UK 'GOOD NEWS' CHRISTIAN NETS! Every Sunday morning at 8am local on 3747kHz, 2pm on 3747 or 7147KHz (propagation) and 144.205 SSB at 3pm sharing Christian fellowship. Go to www.wacral.org for more information or contact G3XNX at 51 Alma Road, Brixham, South Devon, TQ5 8QR, Tel: 01803 854504 or derekg3xnx@talktalk.net

EQUIPMENT

VHF/UHF ACCESSORIES and aerials, TVI filters, 4m & 6m transceivers.
GAREX ELECTRONICS PO Box 52, Exeter EX4 8WX Tel: 07714 198374
www.garex.co.uk

REPAIRS to all amateur and vintage RX/TX cost effective service phone or call in for details. Kent Rigs, 52, Salisbury Road, CHATHAM, Kent, ME4 5NN, 07903 023437

RELIABLE REPAIRS for all amateur and vintage equipment. Professional service, reasonable rates. Call: 01807 580376 email: radiorepairs@btconnect.com

COMPUTER SOFTWARE

MEMORY MANAGEMENT SOFTWARE FOR YAESU RADIOS. http://www.g4hfq.co.uk bob.freeth@g4hfq.co.uk (01425) 618092

CONTEST LOGGERS - SD by EI5DI.
RSGB and international contests.
HF €25, VHF Free. www.ei5di.com

BUSINESS CARDS

CLASSIFIED ADS

JOTAJOCKEY

(with apologies to Lewis Carroll)
G3MGS / GB8CS

T'was JOTA, and the wily hams
With wires and coax paced the green.
All flimsy were the SOTA poles
And the helpers keen.

"Beware the standing waves my son,
From aerials that will not match,
Beware those nasty RF burns
And trailing leads which catch."

He took his microphone in hand,
Long time a QSO he sought,
So rested he with a cup of tea
And stood a while in thought.

"CQ CQ - anyone will do!"
The noisy band went snicker snack.
"This band is dead". "Try 10 instead,
Before the scouts get back."

Then, as in pensive mood he stood,
The scouts, in countless numbers came
To gain a Radio Communicator badge
Between their boisterous games.

"Now, has thou learnt thy prefixes
And logged the necessary calls?
You need to send a greetings text
Before you leave the hall."

T 'was JOTA and for another year
The smiley hams decamped the site.
All loaded up with Kenwood gear
They drove into the night.

SPORT RADIO

Bob, G4BWB / 9V1RA

I wonder if there are others who, like me, find the term 'Sport Radio' slightly inappropriate and, perhaps, a little irritating. I suppose that in the wider sense of the definition, radio could indeed be included as a 'sport', in the same way as a local Townswomen's Guild cake making contest or a regional barber-shop choir contest could. But that might be overstating things a little.

In December's Sport Radio column we do find various sporting references to Super Leagues, 80m Sprints and a sentence that tells us that the World Radiosport Team Challenge is the amateur radio equivalent of the Olympic Games - but beyond agreeing that the Olympic Games does take place every four years and is therefore equivalent in that sense, I'm fighting to find a further significant comparison. There was also a picture of Geoff Plucknett, G4FKA eyeing up a wicket before bowling what looked like a yellow ball, whilst narrowly being missed, or perhaps grazed, by a stay javelin but it was all pushing the limit of my imagination somewhat, in trying to fit 'Sport Radio' just within the traditional vision of a sporting event such as the Tri-Nations Cup, a Test Match or a Formula 1 race.

I'm not suggesting an alternative name other than 'Contest Radio', which is more in line with what it used to be called and indeed comfortably describes the activity, just as the separate column for ARDF adequately does. At least if we had a different name, I wouldn't feel obliged to wear a track-suit to participate. Perhaps others may have suggestions for a more appropriate name.

SIMPLE TRANSMITTER KITS

Eric Edwards, GW8LJJ

Reading some of the letters and comments about simple transmitter designs and recently the article on the Design Notes pages 38 to 40, *RadCom* October 2010, prompted me to submit this information that other Members may find useful.

Class E is a very good way of transmitting with PA stage efficiencies in excess of 80% and some even claim 90%. This means that a 50W CW transmitter can be built to work on a lead acid 12 volt (13.8V) battery. A modulator can be added, albeit in linear mode, to provide up to 25W (100W PEP) of AM on 80m. Using two lead acid batteries (27.6V) it is possible to put out 50 watts resting carrier (200W PEP) on AM. An AM Top Band transmitter can also be made using these designs. An accompanying 'superhet' receiver can complete a portable AM station on either, or both of these bands.

If you don't like the idea of designing your own project or tracking down all the pieces needed to follow a design in a book, there are kits available that are sold on a cost recovery basis and no profit, for the radio amateur. There is no excuse now for the constructing amateur not to be able to get on the air within a few days of building these. There is even a 'get you going' service at no charge. Advice is available before, during and after construction.

For further information about these kits visit www.S9plus.com.

SHORT WAVE LISTENER QSL CARDS

Tom, GM4FDM

I write to question the usefulness or otherwise of Short Wave Listener QSL cards. I enjoy receiving QSL cards and I manage over 40 stations. Therefore I receive quite a lot of SWL cards. I even have a special label that I print for use on SWL cards.

As I process my SWL cards separately from normal QSL cards, I take the chance to examine them more closely, and have come to the conclusion that around 95% are worthless as a report or indication of my signals.

For example, each year I undertake a DXpedition where I make many thousand QSOs. Today when processing some SWL cards, I found 12 from German SWLs reporting on QSOs I had made with other German stations, often in the same town. What value is this to me? I work 20 stations in Berlin who tell me I am 599, what good is an SWL report 1 year later to tell me that I was 599 in Berlin.

I used to be an SWL myself (A3699 - that seems like a long time ago) but used to try to give at least a meaningful report of a QSO I had heard. For example it might be useful to send a report to a Japanese station whom I hear working an Australian station at an unusual time or band.

I couldn't help but notice recently on the DX-QSL reflector a German SWL reporting having received a QSL card from the recent T30/T31 expeditions. Whilst I appreciate it might be easier to hear these stations in southern Germany and I don't know what type of antenna the SWL station is using, but on the mornings I tried, I couldn't even hear the DX. It makes me wonder if in fact the SWL was only hearing the station working the DX.

So again, I question the usefulness of SWL reports and the collection of QSL cards. Nowadays many of the administrations have a licensing system without a CW requirement, so it is easier than ever to obtain an amateur radio licence. Why bother any more in being a Short Wave Listener?

Or, am I just being a grumpy old man?

MEASUREMENTS

Bill Tait, MM0BHY

I found Steve Nichols' article on the end fed half wave antenna the most interesting I have read on the subject for some time. Of particular interest was his use of coax as the capacitive element in an LC tune circuit.

One point I do not agree with is his use of the imperial system in calculations. I am sure that nowadays 90% of radio formula calculations will be done by calculator. For this the metric system is far superior and also easier to understand for younger amateurs.

Take for instance Steve's formula for a wire half wave of 468ft/frequency in MHz. The answer in a calculator inevitably results in the decimal part of a foot. Another calculation is required to find out what that decimal part is of 12 inches. I know this is splitting hairs but accuracy is sometimes required.

Fourteen years ago when I gained my amateur licence at sixty eight years of age the formula for the half wave wire dipole was 143 metres divided by the frequency in MHz, in this case a calculator is accurate to one millimetre.

Let us go back to the fundamentals of why this formula is used. The concept is much easier to understand using the metric system. This is because electromagnetic waves travel through free space at 300,000000 metres per second. As this equates to 300MHz at

one metre wavelength and one MHz at 300 metre wavelength the concept is easier for beginners to understand than is the case if we were dealing with feet and inches, which are not easily related to wavelengths.

WORKING HF

John W Hepburn, 2E0SCO

In response to 2M0BVN's letter, 'Your First QSO and working HF' in the September *RadCom*, I agree with Ian, sometimes on the HF bands it gets hard to work some of the distant DX stations. The way I work the bands is to bypass the 'in your face' 5/9 radio rattling stations. With doing this I have been fortunate to work a JA3, K6 and 4X stations on 14 and 18MHz using 50W with a vertical antenna. I am not the nervous type on the mic, I get in there with the best of them. My station info is on www.qrz.com. I have multiple sclerosis and am in a wheel chair and find radio a great way to make friends.

HOSPITAL RADIO WITH A DIFFERENCE

Paul Carter, G7ODJ, Sec Warrington ARC

Question: How do you keep a radio amateur in touch with the outside world whilst confined to a hospital bed?

Answer: Simple! Supply him with a D-Star radio and the internet.

This is exactly what happened to Warrington ARC member Dave, M0TUB when he was suddenly admitted to hospital in October 2010. As soon as his club friends heard about his unexpected stay with the NHS, an Icom E-92 D-Star handheld was dispatched to the ward. David was instantly converted to the digital mode whilst dealing with an influx of greetings from well wishers via the local GB7WC repeater.

Expressions of regret at being unable to attend the regular Tuesday night club meeting were also in evidence however, especially from Jeff, G1DYN, who was anticipating input from M0TUB during his talk about the YP3 Super Antenna.

The solution? Live streaming of audio and video via webcam from the Warrington ARC Clubroom to a dongled laptop at Dave's bedside, enabling full participation and answering of questions – all in between chatting up the nurses, of course!

Thankfully, Dave, M0TUB has since been discharged from hospital and has allegedly been seen heading towards his nearest D-Star supplier…

PASSING EXAMS

Peter Munson, M6PRM (pending new callsign).

I thought you may be interested in my journey into amateur radio and in particular the help received from South Normanton and Alfreton District Amateur Radio Club (SNADARC).

In April this year I was on holiday in the Shetland Isles where I visited a radio enthusiasts' exhibition, the collection was mainly older radio sets that I remember form my youth. The owner was a keen amateur radio enthusiast and had pamphlets on how to join RSGB and get involved.

As it was about 60 years ago when I built a crystal set, I decided I would like to find out more about this fascinating hobby.

When I returned to Derby I searched (via the web) for amateur radio clubs in my area, which included Derby & District ARS and Nunsfield House. As Nunsfield House was the easiest to contact I soon had an e-mail from Ken Frankcom, G3OCA suggesting I meet him as we lived very close to each other.

I had, of course, by then bought a transceiver so that I could listen to various bands and quickly learned the much repeated word – Contest.

Ken pointed me towards SNADARC who were running Foundation courses. I first met SNADARC members at Junction 28 Rally and was quickly signed up for a Foundation Course. Russell Bradley, G0OKD, SNADARC Chief Instructor was very helpful and advised me what to read and explained the examination structures. When I attended the Foundation Course at South Nomanton I was surprised at the help I received from many members. I completed the course and have since joined the club who area very friendly and very helpful.

I have just passed my Intermediate examination and I am currently studying, again with SNADARC, for my Advanced licence.

So thank you very much all members of SNADARC for all your help and encouraging new potential amateur radio enthusiasts to study and take relevant licences. Without your help I would still have been thinking about it.

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FAKE SEMICONDUCTORS

Joe Bell, G4PMY

I am unsure just how many of the membership are engaged in construction or homebrew these days, but I thought I would write to *RadCom* and mention the growing problem of counterfeited semiconductors. This is becoming a major headache in the commercial world and obviously nets lots of profit for the perpetrators behind the fraud.

High cost RF and digital semiconductors are the main targets and the difference between the real thing and the fake is getting harder to spot, until that is you switch them on! The presentation of the devices is deceptively accurate with good packaging to boot. We now batch sample by jig testing before placing into stock any new purchase. Just Google 'counterfeit transistors' to see examples.

Even the big suppliers have been taken in, but I would always advise to purchase from a known source that would test before distribution, or at least refund if a problem is found.

MEMORIES

Mike Baker, G3TMB

I was interested in the letter in the September issue of *RadCom* from John, G3UCQ commenting on a letter from Ron, G1DER re ZC4 stations in Cyprus.

I wrote to Ron at the address listed in qrz.com only to have the letter returned 'Addressee left address 3 years ago'! So I think the best thing I can do is repeat here the letter I sent.

"Hi there Ron

"I am writing to you to tell you how my interest was roused when read your letter in the August edition of *RadCom* about your experiences in Cyprus, especially your mention of ZC4MO. I had many QSOs with them along with other stations in Cyprus from about 1965 and through the 70s. The last card I have is dated 15/4/89 when I suppose they started to leave.

"The guys I remember talking to (on AM by the way!) were Les, Bob, Andy (who liked to be called Kirk), mainly on 10m when it really was wide open. I was using a 2-el homebrew quad at 25 feet, 25 watts to a Geloso G210 transmitter, a Geloso G209 receiver and as a matter of fact going through my logs for those dates on Sundays we had 5-way QSOs with WB2ZMK, K2UTC, ZF2RX, ZC4MO and yours truly! My quad stayed on the States and the Cyprus boys were off the back of the antenna and everyone most of the time could hear each other. Boy what conditions!!

"ZC4MO's address was POB 216, Famagusta. Other stations worked were ZC4TX Pete 259 Signals Sqdn Ham Radio Club Episkopi dated 16/4/66 and, as a matter of fact, I have a little picture of that station cut out of the old Bulletin.

"Other stations were ZC4TJ Brian Episkopi, ZC4ZN Guido Dhekelia and ZC4RF Eastern Sovereign Base Area Dhekelia."

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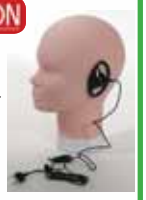

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