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RadCom

The Radio Society of Great Britain Members' Magazine

£3.95 Vol 81 No. 8 August 2005

E-H antennas

Don Field, G3XTT, takes a close look at these controversial antennas and discovers if they can compete with a full-size dipole on the low bands p22

Remote HF operation

David Gould, G3UEG, describes his five-year project to develop systems for the complete remote operation of an HF station p80

The Peter Hart review

Peter Hart, G3SJX, inspects the new Acom 1010 HF linear amplifier p19

GAREC 2005

A report on the first Global Amateur Radio Emergency Communications conference p8

(Pictured: Hans Zimmerman, F/HB9AQS)

INSIDE

WATERS & STANTON — UK'S L

New Matlock Opening Hours: 9am-5pm Tuesday to Friday, 10am-4pm Saturday, Closed Monday

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Saturday 10th September

Stalls from Icom, Kenwood, Yaesu, the RSGB FunBus, and a Boot Sale too! Starts at 10am

Garmin C320 GPS
Car Navigation System

3.5" 16-colour screen pre-loaded with UK & Ireland Street maps!

Touch Screen - Speech Prompts - Route in Seconds - ETA and Speed - Built-in antenna - Screen Suction System - Quick Release - Internal Lithium Pack for out-of-car route planning - 12V Cigar Lead - USB cable - Europe Route Maps on CD - 128Mb Card - Auto Zoom - Future Map updates via Garmin

£399.95 B

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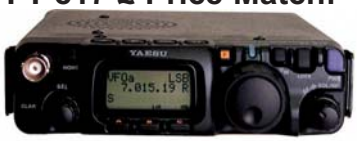
All finance subject to status written quotation on request.

Team Up with Yaesu & Buddipole

FT-817 £ Price Match!



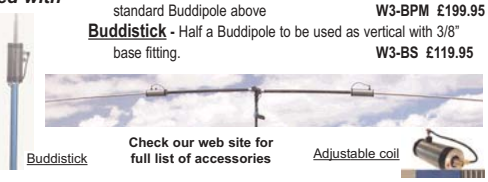
We will match or beat any UK advertised FT-817 price on UK sourced stock and give you £20 off buddipole systems listed opposite. Ends 31/8/05

£20 Discount!
On Buddipole systems when purchased with FT-817

Buddipole - 40 - 2m 250W loaded dipole just 4.6m long max and packs down to approx 55mm. Includes balun and 25' coax with BNC. **W3-BP £179.95**

Mini Buddipole - as above but packs down to nearly half od the standard Buddipole above **W3-BPM £199.95**

Buddistick - Half a Buddipole to be used as vertical with 3/8" base fitting. **W3-BS £119.95**



Check our web site for full list of accessories

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NEW HANDS-FREE MOBILE SYSTEM

Supplied with easily detachable lead to match your radio - so you can change radios in the future with ease!

Delivery expected in July

More Great Ideas!

£39.95

Code WM-S

An economical way of staying legal. Flexible boom microphone mounts under sun vizor bolt and PTT box mounts on gear changer. All powered from rig mic socket!

Icom HF Transceivers

ICOM IC-756 PRO MkIII

Top of its range HF transceiver. HF & 50MHz, features large colour LCD with spectrum scope, auto ATU and 32-bit floating point DSP unit. **£2099 C**

IC-7800 £6400 C
Flagship HF 200W transceiver. 200W max. The ultimate receiver - the ultimate design! AC psu built in.

IC-7800-PACK £6995 C
The superb transceiver as above plus 17" flat screen, keyboard and SM-20 base microphone.

IC-7400 £1299 C
HF/VHF 160m - 2m transceiver 5 - 100W. SSB CW FM AM. 12V DC. Nice big display. Lovely price.

IC-706 MkIIGDSP £769 C
It's unbeatable. 160m - 70cm (up to 100W HF) yet so small with detachable head. The ultimate mobile.

IC-718 £449 C
This is a budget class radio HF 16 - 10m at a price that belies its performance. Beautiful display.

IC-703 *Free IC-703 Logbook* £539 C
Take an IC-706, reduce power to 10W max and get rid of VHF. 160 - 6m of pure QRP joy!!

NEW IC-7000 £Phone!
The new IC-7000 is **NOT a replacement** for the IC-706 but is a very much up-market design. It is in a box about the same size as the IC-706 but very much like an IC-756 in concept. This will be **THE mobile rig** that others will have to aspire to!!.

Kenwood HF Transceivers

KENWOOD TS-2000

Top-of-the-range Kenwood transceiver. HF/VHF/UHF or up to 23cm with the optional module. Built-in auto ATU, DSP and its unique TNC. **£1389 C**

TS-2000
The station in a box. 160m - 70cm with every feature imaginable inc. DX cluster. Kenwood fans dream rig.

TS-2000X £1799 C
Take the TS-2000 and add a superb 23cm module. The best 23cm we know of plus all other bands!

TS-B2000 £1299 C
Designed for the 21st century. You get HF - 70cm with PC software for direct PC control. It works great.

TS-570DG *Low Price* £799 C
The best budget radio at the price. Superb 100W from 160m to 10m. As used by Peter Waters, G3OJV

TS-50S £595 C
A great rugged mobile for 160m to 10m with up to 100W output. Also a great price.

TS-480SAT *Special* £699 C
HF 160m - 6m with remote front panel. Large enough for base use, small enough for mobile. Big display

TS-480HX *Special* £799 C
Take the TS-480SAT, remove the auto ATU and offer a beefy 200W output. That's a really potent package!

Yaesu HF Transceivers

YAESU FT-1000 MKV

200W HF transceiver, EDSP, Collins filter, auto ATU, 220V AC PSU-Acknowledged as one of the finest DX rigs on the market. Superb tailored audio and the ability to select Class A bias for dramatic signal purity. **£2099 C**

FT-1000 FIELD £1699 C
The HF choice for DXers. With this rigs reputation on DXpeditions what more persuasian do you need?

FTV-1000 £729 C
6m 200W module for the FT-1000 range. Probably the ultimate for 6m DXing.

FT-897D £649 C
160m - 70cm self-contained portable. 100W and up to 20W from optional internal batts.

FT-857D £579 C
160m - 70cm mobile with up to 100W output. Lovely tuning control from remote head unit - and great price!

FT-847 £999 C
Complete station in a box! 160m - 70cm - up to 100W (50W 2m/70cm). Great for satellite work.

FT-840 £399 C
Is there any other radio that comes close to this price? One of our all-time best sellers. 100W 160m - 10m

FT-817ND £Phone C
The ultimate QRP self-contained radio. Up to 5W output 160m - 70cm. New low price. UK warranty.

FT-817DSP £589 C

Warning - as a regular advertiser you can be sure all our stock is genuine UK warranted. Check serial numbers!!

Carriage Charges: A=£2.75, B=£6, C=£10

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Icom VHF/UHF Mobile/Base

ICOM IC-E208

VHF/UHF FM Dual Band Mobile Transceiver

**Freq range 144-146MHz, 430-440MHz Tx*
**55/50W (3 pwr steps each band)*
**Wideband Rx 118-173, 230-549 & 810-999MHz*

£239 C

IC-910H £1099 C
2m / 70cm 100W Base station all - modes with option for 23cm module (**UX-910 £359**)

IC-910HX £1249 C
As above but with 23cm module ready fitted and a big saving as well.

IC-2200H £199 C
2m 55W FM mobile with rugged construction and with digital option.

IC-2725E £269 C
Icom's dual band 2m / 70cm radio. Very easy to operate and install and a lovely detachable head.

Kenwood VHF/UHF Mobile/Base

KENWOOD TMD-700E

2m/70cm dual band mobile transceiver with APRS. Does not need extra high cost boards to function. Only extra if required is a compatible GPS receiver. **£439 C**

TM-G707E £269 C
Dual Band 2m & 70cm with detachable front

TM-V7E £359 C
Dual Band 2m & 70cm with 50/35W output

TM-271E £189 C
Dual Band 2m FM 60W mobile transceiver

Yaesu VHF/UHF Mobile/Base

YAESU FT-7800E

**2m/70cms Dual Band Mobile*
**High power 50W 2m /40W 70cms*
**Wide receive inc. civil & military air-band *CTCSS & DCS with direct keypad mic.*
**Detachable front panel *1000 memories plus five one-touch*

£229 C

FT-2800M £159 C
*2m FM Mobile transceiver * High power 65W * Capable of VHF wideband receiver

FT-8800E £269 C
*2m/70cmDualband FM Mobile transceiver * 50W 2m, 35W 70cm * Wideband receiver

FT-8900R £339 C
*2m, 70cm, 6m & 10m Quadband FM Mobile transceiver * Independent dial for each band

Watson Mini Mag Antenna

WSM-270 £19.95 B

Dual Band 2m/70cm mobile whip. 2.5dB gain and 1.5:1 VSWR.).8m long. Complete system including 3.5m cable. No drilling involved. Powerful micro magnet in base. Simple and very effective.

Icom VHF/UHF Handhelds

IC-E90 Special!

The new E-90 offers triple band coverage of 6m, 2m and 70cms. Up to 5W output and rx cover-age from 495kHz - 999MHz makes this a very attractive rig.

£199 B

NEW IC-V82 Digital Handy

Phone for discounted price!

Kenwood VHF/UHF Handhelds

KENWOOD TH-F7E

• 144-146MHz Tx/Rx: FM
• 430-440MHz Tx/Rx: FM
Up to 6W out with Li-ion bat-tery and **"scanner" style coverage from 100kHz to 1300MHz** including SSB on receive! This is a great radio to have at all times when you are on your travels. **£239 B**

TH-D7E £299 C
2m/70cm dualband FM handheld transceiver with data communications

TH-G71E £179 C
2m/70cm dualband FM handheld transceiver

TH-K2E £139 C
2m FM 5W portable transceiver c/w Ni-MH battery/charger

TH-K2ET £145 C
2m FM 5W portable transceiver c/w Ni-MH battery/charger

TH-K4E £139 C
70cm FM 5W portable transceiver c/w Ni-MH battery/charger

Yaesu VHF/UHF Handhelds

YAESU VX-7R

Totally waterproof! Wide Frequency coverage from 500kHz to 900MHz AM/FM. Dazzling 132x64 dot matrix display providing easy-to-read frequencies and infor-mation plus pictorial graphics. **£269 C**

VX-2E £119 C
2m/70cm miniature handheld transceiver with LiON battery/charger

VX-110 £94 C
2mhandheld transceiver with 8-key keypad NiCd & charger

VX-150 £99 C
2m handheld transceiver with 16-key keypad NiCd & charger

Alinco VHF/UHF Handhelds

DJ-V5E £159 C
2m/70cm FM 5W dualband handheld transceiver

DJ-193E £91 C
2m FM transceiver no keypad, Ni-Cds & charger

DJ-195E £99 C
2m FM transceiver with keypad Ni-Cds & charger

DJ-C7E £124 C
2m/70cm credit size FM handheld

Linear Amp UK HF Linear Amplifiers

RANGER 811H

**1.8 - 29.7MHz*
**800W CW or SSB, 400W RTTY*
**Uses 4 x811A vertically mounted*
**Drive 10 - 100W*
**Toroidial AC Power Transformer*
**6:1 Reduction Drive on Tuning Controls *"Near Silent" Papst Cooling fan *Front-panel ALC Adjust Control *Built-in AC 230V @ 8A Supply*

£945 B

CHALLENGER III £1795 C
HF linear amplifier 10-160m WARC 100W in 1.5kW out

Ameritron HF Linear Amplifiers

AL-1200XCE £2499.95 C
HF linear amp 10-160m 1.5kW

AL-1500XCE £2799.95 C
HF linear amp 10-160m 1.5kW

AL-800HXCE £2699.95 C
HF linear amp 10-160m 1.5kW

AL-82XCE £2399.95 C
HF linear amp 10-160m 1.5kW

AL-80BXCE £1399.95 C
HF linear amp 10-160m 1.5kW

AL-811HXCE £849.95 C
HF linear amp 10-160m 500W (3x811A)

ALS-500MXCE £769.95 C
HF linear amp 10-160m 500W solid state

ALS-600X £1299.95 C
HF linear amp 10-160m 600W (export only)

SGC HF Linear Amplifiers

SG-500 £1399.95 C
"Power Cube" 1.6-30MHz 500W solid state

Yaesu HF Linear Amplifiers

QUADRA (VL-1000) £3795 C
HF + 6m linear amp. 1kW comes with PSU

Tokyo Hy-Power HF Linear Amplifiers

HL-1KFX £1399.95 C
HF linear amp. 1.8-29.7MHz 500W PEP max, solid state

HL-2KFX £2695.95 C
HF +6m linear amp 1.8-29.7MHz + 50MHz 1kW PEP max, solid state

HL-100BDX £429.95 C
HF+ 6m linear amp 3.5-29.7 & 50MHz 1-10W in 100W PEP solid state

WATSON VALUE

NEW STOCK & OFFERS

W&S European Locator Map

Full colour European Locator Map with new countries and callsign prefixes. Available in high gloss finish with a choice of three sizes. These maps will grace any shack, charts are provided to show how to calculate your locator from latitude and longitude.

A2 Size (LOCW-MAP) £4.99 A
A3 Size (LOCD-MAP) £2.99 A
A4 Size (LOCS-MAP) £1.99 A

YAESU FT-60E

NEW

**Wide band Reception 108-520MHz & 700-999.990MHz (Cellular blocked)*
**New Emergency Automatic ID System*
**High 5W Power Output*
**Ni-MH Long-Life Battery FNB-83 (7.2V,1400mAh)*
**Programmable Keys for user convenience*
**Split CTCSS/DCS and DCS Encode-Only Capability.*

£179 B

NEW MFJ-935B /936B "Magic Circle" Loop Tuner

This is the most amazing antenna we have seen in years. For optimum results take a wire around 1/5th wave long, bend into square loop (14ft on 20m = 3.5ft square) and attach to MFJ-935. Result: Ultra low indoor noise and VK, ZL & W all on SSB! That's what we achieved in one day's operation! 20m loop works on 15m as well. Now in Stock! Great for QRP and portable as well.

MFJ-935B is portable version with smaller meter internal coil. **£179.95** **MFJ-936B** has larger meter and is ideal for base use. **£229.95**. You use your own wire to make loop (approx 1/5 wave total length for lowest band) or purchase **MFJ-57B** with cross arm and wire for 20/17/15m - approx 2ft per side **£39.95**. **MFJ-58B** has addition of wire for 40/30m **£54.95**

Watson Mobile Antenna's

ANTENNAS

W-2LE	1/4 wave 2m 0.48m 200W	£9.95 B
W-285	5/8th 2m 1.33m long 200W	£14.95 B
W-77LS	2m/70cm 0.42m 50W	14.95 B
W-770HB	2m/70cm 1.1m 200W	24.95 B
W-7900	2m/70cm 2m/70cm 1.58m	£32.95 B
WSM-270	Dual band mini magnetic	£19.95 B

BASES

WM-08	8cm diam magnetic	£9.95 A
WM-14B	14cm diam magnetic	£12.95 A
W-3HM	Hatch mount	£14.95 A
ECH	Cable kit	£10.95 B

NOTE: All antennas have PL-259 ends. Mag mounts have cable attached. Hatch mount needs ECH cable.

Carriage Charges: A=£2.75, B=£6, C=£10

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MANSON SDC-2010

NEW

£9.95 A

* Cigar Plug-in DC adaptor
* 1.5 - 12V DC 1.5 Amps
* Stabalised and protected.
* 7 - way DC adaptor set.
* Matches most Yaesu / Alinco sockets.
* Works from 12 V or 24 V vehicle systems.

POCKET MORSE READER

MFJ-461

Reads CW
Just hold near receiver speaker

£79.95 B

That's right - just hold this self-contained decoder near your speaker and see the text scroll across the screen. Absolutely amazing

SG-2020ADSP QRP 20W HF Radio

160m - 10m
0.1 - 20W
Full DSP
Diecast Chassis

Perfect for QRP. SSB / CW and DSP processing. Passband down to 100Hz. Built-in SWR meter and electronic keyer. Max Tx drain 4A. Size 15 x 6.5 x 18cm. 680g.

£589.95 B

Antenna Accessories

Dipole Bits

Kevlar	Strong 400lb strain line 200ft	£22.95	A
FW-PVC-50	50m clear PVC 2mm wire	£39.95	A
Flexweave	50m multi-strand 2mm wire	£29.95	A
HDCW	50m hard drawn 16g copper	£14.95	A
Insul-8	Black ribbed insulator	£0.99	A
WDC-50	SO-239 dipole centre insulator	£6.49	A
Egg-m	Medium ceramic egg insulator	£2.15	A
Egg-s	Small ceramic egg insulator	£1.75	A
WS-2580	25pcs 3" ladder line spacers	£9.99	A

Diamond 50 Ohm Balunas

BU-50	1:1 1.7MHz 40MHz 1.2kW	£26.95	A
BU-55	1:1 3.5MHz - 75MHz 500W	£34.95	A

Antenna Traps (pairs)

TR-200	200W 14MHz (20m)	£44.95	B
TR-200-10	200W 10MHz (30m)	£47.95	B
TR-200-7	200W 7MHz (40m)	£49.95	B
TR-200-3.6	200W 3.6MHz (80m)	£53.95	B
TR-1000-141kW	14MHz (20m)	£59.95	B
TR-1000-101kW	10MHz (30m)	£61.95	B
TR-1000-7	1kW 7MHz (40m)	£64.95	B
TR-1000-3.61kW	3.6MHz (80m)	£73.95	B

German Made High Quality Baluns

HB-1-200	1:1 3.5 - 30MHz 200W	£25.95	B
HB-4-200	4:1 3.5-30MHz 200W	£25.95	B
HB-6-200	6:1 3.5 - 30MHz 200W	£25.95	B
HB-1-1	1:1 3.5 - 30MHz 1kW	£34.95	B
HB-4-1	4:1 3.5 - 30MHz 1kW	£41.95	B
HB-6-1	6:1 3.5 - 30MHz 1kW	£41.95	B

Remote 4:1 1.5kW Balun

REM-BAL	For coax to ladder line match	£45.95	B

Patch Leads

WPL-70	V low loss 75cm PL-259	£6.95	A
WPL-50	Standard 50cm PL-259	£2.99	A
WPL-50BNC	BNC version of above	£2.99	A
HQ-66	66cm RG-213 PL-259	£4.99	A
HQ-10m	10m long PL-259	£14.99	A

SGC External Auto ATU's

SGC SG-231

1 - 60MHz. 3 - 100W pep (50W CW). Min wire length, 7m. 50 Ohm feed. Needs 12V at approx 900mA.

£349.95 C

SG-239 £189.95 C
Mini auto ATU 1.8 - 30MHz 1.5 - 200W PEP primarily for long wires - non waterproof. 12V DC

SG-231 £349.95 C
1.8 - 60MHz 100W PEP. A great random wire tuner that you can use outdoors. 12V DC

SG-237 £299.95 C
1.8 - 60MHz 100W PEP. Great for mounting outdoors and feeding long wire. Waterproof. 12V DC

SG-230 £339.95 C
1.8 - 30MHz 200W PEP. The original design that handles end fed or coax unbalanced. Waterproof. 12V

SG-235 £749.95 C
3.5 - 54MHz. A hunky 120W PEP tuner that handles long wires. Great outdoor design. Waterproof.

Icom External Auto ATU's

AH-3 £479.95 C
1.8 - 28MHz. A hunky 120W PEP tuner that handles whips or wire longer than 2.5m. Waterproof.

Alinco External Auto ATU's

EDX-2 £289.95 C
1.8 - 30MHz 150W long wire tuner designed for use with DX-70 transceiver. Waterproof.

MFJ Internal Auto ATU's

MFJ-993

**Auto ATU with digital data display *1.8-30MHz *Long wire, coax & balanced line *300W SSB, 150W CW *Cross needle metering*

£209.95 C

MFJ-991 £179.95 C
1.8 - 30MHz auto ATU. Similar to MFJ-993 but no digital display. Works with any HF transceiver. 150W PEP

MFJ-994 £349.95 C
1.8 - 30MHz high power auto ATU. 600W PEP / 300W CW. Tunes wire, coax and balanced feed.

SGC Internal Auto ATU's

MAC-200 £259.95 C
1.8 - 60MHz 200W PEP. Wire, coax and balanced feeder. Features auto antenna switching.

SG-237PCB £279.95 C
1.8 - 60MHz 100W PEP. Same as SG-237 but without housing for building into your own housing.

SG-211 £189.95 C
1.8 - 60MHz works off internal dry cells. Zero drain wait state. 60W PEP. Ideal for portable (Min 1W).

Yaesu Internal Auto ATU's

FC-20 £249.95 C
1.8 - 60MHz 100W matched for FT-100/Ft-847. Desk top unit to match transceivers. Coax systems only.

FC-30 £249.95 C
1.8 - 60MHz 100W. Designed for use with FT-857/FT897. Coaxial input / output.

FC-40 £239.00 C
1.8 - 60MHz 100W. New waterproof ATU designed for use with FT-897 / FT-857 and mobile operation.

Icom Internal Auto ATU's

AT-180 £349.95 C
1.8 - 54 MHZ ATU designed for IC-708. Plugs directly into transceiver for seamless operation. Coax only.

Kenwood Internal Auto ATU's

AT-50 £319.95 C
1.8 - 30 MHZ 100W ATU specifically designed for use with TS-50 transceiver. Coaxial only.

Cushcraft HF Antennas

MA5V £239.95 C
Vertical 5-band 20m - 10m. No separate radials needed. 250W. Self-supporting. 4.48m tall.

A3-S £469.95 D
The classic 20 15 10m 3-el beam. 2kW 8dB gain. 8.45 el. Turn radius 4.72m. F/B ratio 25dB.

A3-WS £379.95 D
Dual Band 3 el beam for 17m & 12m. 2kW. El length 7.66m. Turn radius 4.4m. Gain 8dB. F/B ratio 25dB.

A4-S £569.95 D
Tri-band 4 element Yagi. for 20m - 10m. DXers delight. 2kW . 8.9dB gain F/B 25dB. Turn radius 5.49m

R-8 £469.95 C
8-band vertical 40m - 6m. No separate radials needed. 1.5kW. Height 8.7m

R-6000 £329.95 C
6-band vertical 20m - 6m. No separate radials needed. 1.5kW. Height 5.8m. Great small garden ant.

MA5B

£369.95 C
5-band 2 El mini beam. 20m - 10m 2kW. Elements 5.2m Turn radius 2.7m. (Dipole on 17/12m) 5dB gain

Diamond HF Antennas

DIAMOND CP6

Covers five popular HF bands and the 6m band. Low angle radiation makes it ideal for DX work. Outperforms dipoles for long distance contacts and compares favourably with beams located 10m+ above ground.

**Bands: 3.5 -50MHz *Power: 200W *VSWR: Better than 1.5:1 *Socket: SO-239 *Height: 4.6m *Radials: 1.8m rigid adjustable*

£239.95 C

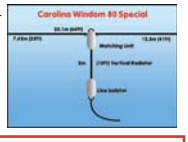
Radio Works HF Antennas

CW-160 £129.95 C
8-band 160m - 10m dipole with 22ft vertical radiating feeder. 1.5kW. Balun fed. 265ft long.

CWS-160 £119.95 C
Compact 8-band 160m - 10m dipole with 22ft vertical radiating feeder. 1.5kW. Balun fed. 133ft long.

CW-80 £89.95 C
7-band 80m - 10m dipole with 22ft vertical radiating feeder. 1.5kW. Balun fed. 133ft long.

CWS-80 £109.95 C



Compact 7-band 80m - 10m dipole with 22ft vertical radiating feeder. 1.5kW. Balun fed. 66ft long.

G5RV Plus £59.95 C

Rugged 2kW balun matched G5RV with 102ft element and 31ft ladder line. Requires ATU. Made in USA

Hustler Base Antennas

6-BTV £229.95 C
80 - 6m 6-band vertical. 7.3m tall 1kW. Can be used at ground level with earth stake. Ideal small gardens

5-BTV £199.95 C
80 - 10m 5-band vert. 7.64m tall 1kW. Can be used at ground level with earth stake. Ideal small gardens

4-BTV £169.95 C
40 - 10m 4-band vert. 6.52m tall 1kW. Can be used at ground level with earth stake. Ideal small gardens

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80 / 40m high performance vertical. 1kW PEP 9.75m tall. Self supporting for ground mount use.

HF6V £299.95 C
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HF9V £349.95 C
9-band 80 40 30 20 17 15 12 10 6m vertical 1kW 7.9m tall. Use radials or ground mount

Buddipole Products

HF Portable at its Best

W3-BP £199.95 B
40m - 2m adjustable dipole. 250W and max length of 4.65m. Packs down to 65cm approx.

W3-MBP £199.95 B
Sames as W3-BP but packs even smaller.

W3-BS £134.95 B
40m - 2m vertical is half a Buddipole. Ideal for QRP and rucksack - as used by Peter Waters G3OJV.

Peter Waters says: *I think these products are great. Superbly engineered and very efficient.* Options include adaptor for dipole to decorators pole £6.95, Field tripod £89.95, 2.45m telescopic mast £49.95, mini tripod for Buddistick.

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Screwdriver style adjustable HF QRP whip 40m - 70cm. 150W PEP. Max extended 185cm approx

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Electrically tuned version of the above. Requires around 9V - switch control box not included.

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Add on 80m coil to extend the LF coverage of the MP1 and MP2.

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RadCom
RADIO COMMUNICATION

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Contents

August 2005

p8 – At the GAREC emergency comms conference: VU2DBP, VU2RBI, G4MWO

p35 – Henry Baker, back home from Tibet

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.

GENERAL MANAGER AND COMPANY SECRETARY:
Peter Kirby, FCMI, MISM, G0TWW

HONORARY TREASURER:
Position vacant

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RSGB matters

OFCOM LICENSING CONSULTATION

At the time of going to press, seven of the planned 18 regional meetings to discuss the consultation have taken place. The meetings, which are being hosted by the President Jeff Smith, MI0AEX, and the General Manager, Peter Kirby, G0TWW, supported by the regional teams, have to date been consistent in the views being put forward by those attending. The majority view from the floor is one of caution at the Ofcom proposal of a 'free licence for life'. Most amateurs attending see this as a degradation of their status and, although opinions are mixed over the length of term of the licence, amateurs seem to want to continue paying a fee for the licence. This opinion is also reflected in the feedback received from club meetings attended by the RSGB regional teams and e-mails and correspondence received at RSGB HQ.

The RSGB continues to have a number of key objectives:

- To maintain the status of amateur radio and radio amateurs in the UK;
- To maintain the requirement for examination and to ensure the continued security and integrity of the examination and licensing systems;
- Ensure that the requirement to hold a licence is maintained;
- Protect the integrity of the AR licence database;
- Safeguard the future of the hobby.

The RSGB still feels that a five-year renewable licence is the best option to achieve the above objectives. The Society does not wish to take on a position regarding the cost of such a licence; fee or no fee is for the amateur radio community to decide. However, the Society does recognise that a five-year renewable licence would attract a fee, although it disagrees with Ofcom's opinion that the fee would be a disincentive to holding a licence.

WHAT TO DO BEFORE 12 AUGUST

The RSGB is keen for all radio amateurs to be involved in the consultation. Remember at the start of the consultation Ofcom failed to recognise that amateur radio had a voice in the UK. Failure to respond will strengthen Ofcom's view that radio amateurs do not care about the wellbeing of their hobby. The RSGB urges all amateurs, members and non-members to obtain a copy of the consultation document. It asks that you read the document carefully and answer the questions. Remember it's your individual views on the future of licensing that Ofcom want. Ensure you post or e-mail your replies to Ofcom (not the RSGB) by 12 August 2005. You can obtain a copy of the consultation document by telephoning Ofcom on 020 7981 3000 or by downloading the document from the Ofcom website at www.ofcom.org.uk

PRESIDENT TO SERVE AN EXTRA YEAR

At its May meeting, the National Council, in recognising the unique situation facing amateur radio at the moment, agreed it was important that stability was maintained amongst the key officers dealing with the issues on a day to day basis. The National Council agreed unanimously that the current Presidential term be extended by one year until 31 December 2006. In accepting and agreeing to serve for a further year, Jeff Smith, MI0AEX, becomes the first President to serve a three-year term of office since the late Alf Gay, G6NF, who served from 1941-1943.

RSGB CHANGES ITS FINANCIAL REPORTING DATE

At its meeting in May, the Board approved a recommendation from the Management Committee to change the financial reporting date from 30 June to 31 December. This will bring the Society's financial year in line with the RSGB calendar year, which already runs from 1 January to 31 December. To facilitate the change, the current financial year will run on until 31 December 2005. The change also means a change in the timings of the Society's Annual General Meeting. The next AGM will take place in March/April 2006.

CONGRATULATIONS!

Congratulations to the following RSGB members who successfully upgraded to the Intermediate licence by taking the exams on 17 May and 13 June:

D Maydew, M3AVH; K Ralph, M3CXO; K Galley, M3DKD; A Jasper, M3DMF; I Greathead, M3HSU; P Holmes, M3IEH; B Sykes, M3IHF; D Young, M3IKB; T Anderson, M3IKH; N Hickson, M3ILM; F Cappleman, M3IQV; J Wilson, M3IVK; J Talbot-James, M3IVM; A Pickett, M3IXK; D Vanstone, M3JMV; M Brett, M3JTX; G Coleman, M3JYK; E K Hewitt, M3KEH; D Lake, M3LAK; A Lotek, M3LPA; A P Hill, M3OTG; J Hirst, M3OVL; A Cooper, M3TXC; P Gibson, M3TZO; S J Smith, M3VVW; E Wilson, M3WYY; G Cook, M3XXZ; E Maddex, M3YPK; M Dumpleton, M3YYD; M Cotton, M3ZAC; D Hardwick, M3ZDH; M McMinn, MM3MFR; P Elias, MW3AQV; J Jones, MW3JTL; M Digby, MW3UCR; D Hardy; J Matheson; G Glasgow; T Flynn; L Short; A Szamosy; L Shand.

ALL CHANGE AT *RADCOM*

This is the last issue of *RadCom* to be edited by Steve Telenius-Lowe, G4JVG. Steve is taking early retirement and, at the age of 50, is leaving these shores to start a new life in Malaysia with his wife Eva, 2E1FHJ. They are moving to Sabah, where Steve plans to get on the air as 9M6/G4JVG. Steve has worked for the RSGB since 1995, initially as news editor on *RadCom* and *D-i-Y Radio*, then as editor of *(Ham) Radio Today*, before being appointed editor of *RadCom* in 2000.

Alex Kearns will be the new *RadCom* editor and he starts work on the September issue. Alex is 32 years old and has been working as editor of *European Semiconductor* magazine, the leading journal for the European computer chip making industry. He said, "It is a great honour to be given the chance to edit *RadCom*, the leading magazine for amateur radio enthusiasts in the world. I am hugely excited about editing this fantastic publication and I hope that this enthusiasm will be evident in upcoming issues of the magazine."

SLOGAN COMPETITION

WIN! A YEAR'S FREE MEMBERSHIP OF THE SOCIETY

In addition to the GB4FUN vehicle, the RSGB now also owns a van which is used for transporting stock such as books and membership packs to rallies and other events around the country. Until recently a van was hired on each occasion it was required, but when the opportunity arose to acquire a second-hand van at reasonable cost it was too good an opportunity to miss. The van has just been driven back the 1000km from Friedrichshafen and this was a 'golden opportunity' for it to be used as a mobile advertisement for amateur radio.

The van has already been painted with the RSGB logo and website (see photo), but we are now looking for a slogan which can be used on the van to promote amateur radio to the general public - something catchy enough to grab the attention of a passing pedestrian or motorist so that they will want to go to the RSGB website to find out more about this hobby. The slogan should be short enough to be painted on the side or back of the van.

Send us your ideas for a slogan which fulfils these criteria. The best slogan will win one year's free membership of the RSGB for its author, while a runner-up will win a £10 RSGB book token. All entries become the copyright of the RSGB and no royalty will be paid. You *must* be a current member of the RSGB on the closing date of the competition (31/8/05).

Write your slogan or slogans on a postcard or the back of a sealed envelope and send them to: Slogan Competition, RSGB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE, to arrive not later than Wednesday 31 August 2005. You may send as many entries as you like - and don't forget to put your own name and callsign or membership number on the entry! The winners will be announced in the October *RadCom*. Good luck!

Put your slogan here . . . The RSGB van.

NOMINATIONS INVITED FOR G5RP TROPHY

The G5RP Trophy is an annual award to encourage newcomers to HF DXing. However, the award is not limited to youngsters or the newly-licensed - the HF DX bug can bite at any age, or after many years of experience on other bands. If you are an established HF DXer, and want to recommend someone to be awarded the G5RP Trophy for 2005, now is the time to send in your nomination. Your nominee should be an up-and-coming HF DXer who has made rapid progress in the last year and has some real achievements to show, eg a good total of new countries worked or some serious HF DXpedition activity.

This prestigious award will be presented at the RSGB International HF and IOTA Convention in the autumn. Send your nomination to Colin Thomas, G3PSM (QTHR), or c/o RSGB Spectrum Forum at RSGB HQ, or by e-mail to: spectrum.chairman@rsgb.org.uk, to arrive not later than 27 August.

SHORTWAVE DX HANDBOOK – SIGNED COPIES

Ten RSGB members buying the *Shortwave DX Handbook* will receive their copies signed by the author, Enrico Stumpf-Siering, DL2VFR. The 10 signed copies will be sent out at *random* to members ordering the book during August.

DAVID & AUDREY WED

Congratulations to RSGB Board member David Hicks, G6IFA, and his new bride Audrey, M3HWV, who were married at the church of St Mary's on the Hill, Halton, Cheshire, on 18 June. We all wish David and Audrey much happiness together.

PHOTO: SIMON TAYLOR, G1NTX

L to R: Alan Hopkinson, G8OJQ; Mike Hampson, G8RXB; Dave, M0OBW, and Kath, M1CNY, Wilson; David, G6IFA; Dave Ollerhead, G4JMF; Audrey, M3HWV; Greg, G0DUB, and Lisa, M0LSA, Mossop, at the wedding of David and Audrey Hicks. Also attending was photographer Simon Taylor, G1NTX.

MUSHROOM COMPONENTS

Further to the item on page 7 of the July *RadCom*, 'Trade Orders Only', we have now received the following note from Paul Vaughan, G8EJQ, the Director of Mushroom Components: "Mushroom Components has a reputation as a global source of obsolete semiconductors. Whilst most of our business is done overseas, we are more than pleased to help our RSGB and amateur friends in the UK where possible as we have many parts in our warehouse ideally suited to the amateur and hobbyist. We would draw their attention to our general terms and conditions of sale on our website (www.mushroom.co.uk) and also to the special offers page which is updated regularly. Readers will find an enquiry form on the website along with contact names and phone numbers. We may not be able to help you from our own stock, but we may be able to direct you to an associate who can."

QSL BUREAU NEWS

Roy Walsh, G4ZNK, has given up as QSL bureau sub-manager for the callsigns M0GAA - M0OZZ (but not the M0DAA - M0FZZ series). David Mappin, G4EDR, 13 Willow Close, Filey, N Yorks YO14 9NY, has taken over the M0GAA - M0OZZ series of callsigns.

Robert Scott, M0CRY, has given up dealing with the Golden Jubilee 'GQ' cards and M J Andrews, RS187283, 21 Draton High Road, Draton, Norwich NR8 6AQ, has taken over.

DAYTON VISITORS

The following amateurs signed the visitor's book at the RSGB stand at Dayton this year: Kevin, AA3XV; Bruce Newberry, AG4VF; H-H Ehlers, DF5UG; Stefan Specht, DK8OL; Brendan Daly, EI4BB; Nicky Mullally, EI9JF; G0AOH/W5JON; Chris Danby, G0DWV; Les Ashworth, G0KSF; David Bowman, G0MRF; Ian Clabon, G0OFN; Tony Canning, G0OPB; Ivan Davies, G3IZD/N3ZD; Rod Bray, G3KEL; John Dunnington, G3LZQ; Richard Strafford, G3MRT; Peter Waters, G3OJV; R Parsons, G3RBP; Mark Raybould, G3XYS; Fred Handscombe, G4BWP; James Bryant, G4CLF; Sam Jewell, G4DDK; Mark Haworth, G4EID; G4SPY; Andrew Shaw, G6OTZ; Steve Haseldine, G8EBM; Ian Livesey, G8NXJ; Peter, G8UVC; John Swartz, G8YEU; G8YEU; John Clough, GM0MDD; Stewart Cooper, GM4AFF; Allan Duncan, GM4ZUK; Simon Brown, HB9DRV; Hickory, K1BO; Dennis Dura, K2DCD; Ed, K2MFY; Bob, K4DU; Rich, K7SZ/G5CSU; K8EHP; Jim, K8OZ; Scott McDonald, KA9P; John Crabtree, KC0GGM; Brian, KF2YN/G8AFH; Duren Johnson, KR4M; Paul Lonsdale, M0LHR; Tim Barrett, M0TIM/K9VB; Roger Dallimore, MW0IDX; Rick, N1RL; Steve Beckman, N3SB; Tim Ellam, VE6SH/G4HUA; Moizeau, W2SH; Eric, W3DQ; Stu, W4PR; John, W5ZE; Archibald Doty, W7ACD; Donn, W9TOC; Steve Lonsdale.

Supporters of the Radio Communications Foundation

We asked members when renewing their membership to include a donation to help to continue to support the work of the Radio Communications Foundation. The following is the list of those members who have kindly sent in a donation by the deadline date for this issue. Contributions continue to be wanted: if you would like to help, please send your donation to RCF, c/o RSGB HQ.

RCF 'Big Hitters'

G R Gauntlett,G3VLL
J G Anderson, GM0GVO

J D Roberts
B G Davis, 2E0BGD
A S Hill, 2E0HKR
Mr Dickenson, 2M0AXX
G Pesch, DJ2XB
W Gellerich, DJ3TZ
M Hempel, DL9CE
P Martin, EI2CA
J L McHugh, EI8BR
Dr W Piotrowski, G0BOE
D Wilkinson, G0BWO
Mrs E A Hicks-Arnold, G0CDZ
D L Moss, G0DLM
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R Battersby, G0IMB
W Pattinson, G0JCK
G A Lamb, G0LAM
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P Hanson, G0NVY
K W Zak, G0OQI
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D E Nunn, G3JMJ
B Vaughan, G3MCV
J S E Pearce, G3MEC
A R Smith, G3MPB
N Miller, G3MVV
W G Scarlett, G3RXS
W A Gordon, G3SEG
G Gallagher, G3SNV
J R Hey, G3TDZ
L P Best, G3THM
Mid-Warwickshire ARS, G3UDN
M C Foden, G3UPA
M P Coombs, G3VTO
A C Hunter, G3WBF
G W Gardiner, G3WEB
C G Parsons, G3WTU
P R Higton, G3XXR
F Wilson, G3YQA
A Heyes, G3ZHE
C J Hoare, G4AJA
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M J Livingston, G6PIB
J Hunt, G6XRL
B J Taylor, G7CKL
P Edwards, G7MLQ
S J Taylor, G7VGM
J E Agar, G8AZA
M J Palmer, G8BOP
G Lindsay, G8BZL
Dr A J Seeds, G8DOH
J Witherspoon, G8DSM
J Harman, G8GIU
T E Hall, G8HFW
T I P Trew, G8JXV
D J Greenaway, G8LUN
C C Eccles, G8NMK
A D Cleave, G8XQN
D McKee, GI0GPG
Carrickfergus ARG, GI0LIX
W J McCullough, GI4BQI
D F Campbell, GI4NKD
D F Gray, GJ3XOJ
E K Dons, GM0AXY
L R Alexander, GM0LVK
H J L Smith, GM1CQC
J Crowden, GM1VGZ
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G L Palryd, SM5AOG
E D Moustakas, SV1AN
A Athanasiou, SV1UG
J Harvey, VP8PE

The RSGB is also grateful to those many generous members who have sent donations anonymously, or who have asked us not to publish their names.

Paul Gaskell, G4MWO

RSGB Emercomms Coordinator, 131 Greenfield Road,
St Helens, Merseyside WA10 6SH.

E-mail: rcvs@rsgb.org.uk

GAREC 2005

Paul Gaskell, G4MWO; David Smith, G8IDL, and Gordon Adams, G3LEQ, report on the first Global Amateur Radio Emergency Communications conference which took place recently in Tampere, Finland

The light drizzly morning of Monday 13 June saw a unique gathering in the conference suite of the Ramada Hotel in Tampere, Finland. For the first time, nearly 50 delegates representing the amateur radio emergency organisations of 17 countries ranging from the USA, through Europe, Africa, and Asia to Japan had assembled together for GAREC 2005, the first Global Amateur Radio Emergency Communications conference, organised under the umbrella of the IARU, to begin a tightly-packed two-day schedule.

DAY ONE

The first day commenced at 9.00am with an introduction to the conference by its organiser, Seppo Sisättö, OH1VR, who welcomed delegates on behalf of the Finnish amateur radio society, SRAL, the local radio clubs and the city of Tampere, well known for its humanitarian conferences.

This was followed by the Director General of the Department of Rescue Services of the Finnish Ministry of the Interior, Mr Pentti Partanen, praising the support of the voluntary services and wishing the conference well. The next speaker was the Patron of GAREC 2005, Dr Pekka Tarjanne, former Secretary General of the ITU and, as he said to me, "a long-time friend of amateur radio". Dr Tarjanne spoke of amateur radio having new tools and new methods and that we must use these to benefit mankind best, which is what this and future GARECs hoped to do.

The opening session concluded with brief statements from each of the IARU Regional Representatives: Hans-Blondeel Timmermann, PB2T, from Region 1; Rod Stafford, W6ROD, from Region 2, and Jay Oka, JA1TRC, the IARU Region 3 Assistant Secretary, deputising for the Region 3 Representative, Keigo Komuro, JA1KAB, who was unable to attend because of illness. Finally, Hans Zimmerman, F/HB9AQS, the IARU International Emergency Communications Coordinator, the Programme Chairman, highlighted the communications support role that amateur radio played in disasters, working with the emergency services.

RAYNET

The next session covered presentations from delegates on the amateur radio emergency services of their own countries, and described some of the major emergencies in which they have been involved. The UK's Raynet presentation was given jointly by Paul Gaskell, G4MWO, the RSGB Emergency Communications Coordinator, and David Smith, G8IDL, of the Network's Emergency Planning Team. Starting with a brief overview of those UK amateur licence regulations dealing with emergency communications, it described Raynet's history from its formation after the East Coast floods in 1953 to the present day. Featured were several major emergencies which benefited from Raynet involvement. Raynet's coverage of public events and training exercises throughout the year was also described. Other countries presenting included Ireland, the Netherlands, South Africa, Turkey, USA, Sweden, Israel and Japan.

There were of course differences in how amateur radio emergency communications were implemented in other countries, due to the regulations and laws of different national administrations. However, it showed a lot of common ground and factors affecting most amateur radio emergency communications groups existed. National structures were broadly similar, being based on regional units with a national headquarters, often with fixed stations in these areas. The majority of the organisations reported no government funding to assist their activities. Insurance and other operational factors were discussed, such as common frequency areas where emergency communications activity was likely to be found. This was to feature again in later disaster relief presentations. A short dictionary of emergency communications-related expressions in different languages was a suggestion from several delegates. This was for the benefit of explaining on-air to those amateurs whose skills in languages other than their own were rudimentary. Fortunately, top DXer Jukka Heikinheimo, OH2BR, author of *The Radio Amateur's Conversation Guide*, was present at the Conference and offered to look in to this. 72-hour self-contained field deployment kits consisting of HF, VHF / UHF and a portable repeater were also mentioned.

PHOTO: G4MWO.

Mrs Bharathi Prasad, VU2RBI, gave a moving account of her team's disaster relief operation on the Andaman Islands following the 26 December tsunami.

PHOTO: G3LEQ.

The opening assembly on Monday 13 June at the Hotel Ramada in Tampere.

IARU PRESENTATIONS

Each of the IARU Regional Representatives then delivered an over-view of amateur radio emergency communications in their IARU Region and particular strengths and weaknesses. This was followed by IARU Region 1 Emergency Communications Coordin-ator Gordon Adams, G3LEQ, presenting a report he had written for the IARU Region 1 Executive Committee on the current amateur radio emergency communications status in IARU Region 1.

Hans Zimmerman, F/HB9AQS, the Programme Chairman and IARU International Emergency Communications Coordinator, took the floor and indicated that he would be supplying input for the re-writing of Chapter 8 (dealing with emergency communications) of the *IARU Region 1 HF Manager's Handbook* in the light of WRC03 developments. He went on to look at the ITU regulatory framework and confirmed that ITU Resolution 640 had been superseded by the decisions of WRC03. The ITU *Radio Regulations* and *Recommendations* were legally binding internationally, but national administrations could introduce their own restrictions. IARU has sector membership in the ITU-R and ITU-D areas, dealing with Radiocommunications and Development respectively.

The World Summit on the Information Society (WSIS) is a political forum, but it is an opportunity to give amateur radio some visibility to those responsible in governments eg our tsunami response. These governments would be sending delegates to WRC07, hence the importance of the proposed Conference statement to the forthcoming WSIS. Hans said the importance of amateur radio emergency communications was in the acute and recovery phases of a disaster, as it was vital to have the skills to establish communications between A and B without being dependent on infrastructure. The key to this was maintaining preparedness by less dramatic involvement, such as public service events and exercises.

The weather was dry for the social event of the Conference; a short evening cruise on Lake Näsijärvi, one of several surrounding Tampere.

PHOTO: G3LEQ.

The GAREC 2005 delegates after the closing session.

DAY TWO

The second and final day of the Conference commenced with a couple of short presentations from Mark Wood, G4HLZ, of the British Red Cross Society who told us about Cell Alert - a means of alerting via a mobile phone's cell broadcast channel. The system is reckoned to be impervious to cell overload as it does not use any of the traffic channels and can also be targeted to groups and areas. The main thrust is for it to be used for warning populations of impending disasters, such as tsunamis. Currently discussions revolve around getting phone companies to accept it.

Also featured was a short presentation on ITAP - the Inter-agency Telecommunications Action Plan - a concept intended to enhance inter-agency communications, particularly targeted at the voluntary societies. Hans Zimmerman, F/HB9AQS, then outlined communications within the UN infrastructure and said that HF was still a major backbone between field offices, HF e-mail being used. Field workers were generally not radio-orientated, so routine training for these was necessary and things had to be kept simple: it was hard trying to steer them away from the cellphone philosophy. This is why radio amateurs are important in being able to set up basic communications immediately - because they know how to do it! Visibility and publicity for amateur radio emergency communications are therefore very important.

The Conference's WSIS statement was the next major item. A draft statement had already been prepared by the Conference organisers and following input from the body of the Conference, including the fact that support for amateur radio and the spectrum it uses should be integrated, a small working party was formed to complete the document. Next followed short discussions on a general amateur radio emergency communications leaflet, along the lines of the IARU leaflet on amateur radio. The subject of emergency communications manuals was aired and organisations offered copies of their own to assist compilation of an overall manual in the future. Discussion followed on input to WRC07 and particularly attempts to reclaim the final 100kHz on 40m, so that all Regions had the same 7000 - 7300kHz allocation. Gordon Adams, G3LEQ, indicated that there had been interest expressed in going for an expansion at 10000kHz as an alternative, but that this raised WRC Agenda issues.

Several organisations who had been involved with major disasters then made presentations on their responses. Algeria and Turkey had both suffered numerous earthquakes and they reported on their responses. These were presented by Afif Benlagha, 7X2RO, and Aziz Sasa, TA1E, respectively. Then came the eagerly-awaited presentations from India, Sri Lanka and Thailand on their tsunami response. Leading this off was Mrs Bharathi Prasad, VU2RBI, of the National Institute for Amateur Radio in India (NIAR), who, as well as being involved in emergency communications and being a well-known DXer, is also an excellent ambassador for amateur radio. This resulted from the amateur radio tsunami disaster activation in the Andaman and Nicobar Islands, whereby she has since appeared on a number of global TV news channels. Asantha Illesinghe, 4S7AK, and Kusal Epa, 4S7KE, presented the response of the Sri Lankan amateur radio society, RSSL, and a contribution was also provided concerning the response of the Thai amateur radio society RAST. In all of these cases, HF and VHF/UHF had been utilised and more recently *Echolink* too. Space prevents greater elaboration on these presentations, but they and others can be found on the Internet (see 'Web search' below). There are also further details on the main IARU emergency communications website's report on GAREC, which may also be accessed from the RSGB's Emergency Communications website home page.

THE 'TAMPERE FREQUENCIES'

The speakers in this section highlighted the need for spectrum for emergency communication nets in those HF bands which had to be utilised during the tsunami response. Nets were scattered frequency-wise and it was necessary to publish the net frequencies in order to request stations to keep these frequencies clear. This, together with mentions of similar problems earlier in the Conference, caused the body of the meeting to request that the Conference put forward a formal recommendation. This states "that the next competent conferences of IARU Regions 1, 2, and 3 should consider the establishment of a Centre-of-Activity Frequency for emergency traffic in the 15, 17, 20, 40 and 80 metre bands." The formal recommendation goes on to propose that, "in recognition of the long tradition of the city of Tampere in emergency telecommunications, and as the host of GAREC-2005, the Conference proposes furthermore that Centre-of-Activity frequencies determined in the sense of the above proposal shall be known as The Tampere Frequencies".

It was felt that such Centre-of-Activity frequencies envisage no problem with casual usage, but the establishment of regular non-emergency communications-related nets is discouraged - in a similar vein as with other special interest frequencies, in order that the frequency may be made widely known and its purpose clear in the mind of operators using those bands. Early indications show support from established DXers and advice on suitable band areas has been suggested. Hans Zimmerman, F/HB9AQS, asked that we work together with each country's band-planners and other interested parties, such as DXers, to identify suitable practical Centre-of-Activity frequencies.

Whilst the above HF Centre-of-Activity Formal Recommendation was being drafted by a small working party, a short presentation was made by John Corbett, G3TWS, and David Palmer, G4PFX, of Christian Technical Services (CTS) on the VITA (Volunteers in Technical Assistance) store-and-forward satellites and basic e-mail for isolated African communities to assist them in their emergencies.

In response to a number of requests about the UK 5MHz experimental frequencies, Gordon, G3LEQ, explained the process that we had gone through in the UK and showed a presentation assembled by G4MWO on Near Vertical Incidence Skywave (NVIS) propagation.

The finally formulated WSIS Statement and the HF Centre-of-Activity Recommendation were placed before the meeting and agreed upon. Seppo Sisättö, OH1VR, the Conference Organiser, then started the closing session, thanking all the delegates for their attendance, input and hard work and wished them a safe return journey. He indicated that there was a strong probability there would be future regular GARECs and following group photographs the delegates dispersed.

My thanks to David Smith, G8IDL, and Gordon Adams, G3LEQ, for their assistance in compiling this report. ♦

WEB SEARCH

GAREC PowerPoint presentations	www.rientola.fi/oh3ag/garec/material.html
IARU Emergency Communications site	www.iaru.org/emergency
RSGB Emergency Communications site	www.rsgb.org.uk/emergency
WSIS	www.itu.int/wsis

GB0TOL from Tower of London for Museums Weekend

Radio amateurs locked up in the Tower

Left to right: Adult Sgt Ralph Bateman, M5EHG; Cpl Emily Livesey, M3IJL; Sgt Helen Southall, M3JXI; Cdt Sam Sanders, M3JIK; Cpl Sarah Peregrine, M3JZE, and Chief Yeoman Warder John Keohane, BEM.

Five radio amateurs were locked up in the Tower of London over the night of 18 / 19 June. No, they had not been transmitting treasonous material nor causing TVI to Her Majesty's television, instead they were there to put the world-famous landmark on the air during International Museums on the Air weekend.

Cadets Sgt Helen Southall, M3JXI; Cpl Sarah Peregrine, M3JZE; Cpl Emily Livesey, M3IJL; and Cdt Sam Sanders, M3JIK, all from 126 (City of Derby) Sqn and supervised by Adult Sgt Ralph Bateman, M5EHG, set up GB0TOL under the watchful eye of Chief Yeoman Warder John Keohane, BEM. The station was set up in a military style 10-man tent in a small fenced off garden area on the riverside wharf, just behind the gun positions from where the gun salutes are fired. Using a Yaesu FT-8100 to 2m/70cm vertical, and an FT-100 to a G5RV antenna, most contacts were on 2m although some were made on 40m, including QSOs with six other museum stations. Overnight the station personnel were accommodated in the Lanthorne Tower, situated within the inner wall of the Tower of London.

US experimenters to gain 500kHz band

The USA Federal Communications Commission has issued the experimental call letters WD2XSH for use on 500kHz by the ARRL 600 Metre Group (http://500kc.com). Members of the experimental group are eagerly anticipating the issue of the licence itself, which will allow them to commence operation on 500kHz. When transmissions have started, reception reports via the experimental group's website will be welcomed.

Amateur radio podcast

'Podcasting' - in which broadcasts are downloaded from the Internet for later playback on Ipods - has been much in the news recently. You won't be surprised to hear that there is now an amateur radio podcast. If you have a broadband Internet connection, you may want to give it a try. Type www.podcast.org in your web-browser, and type 'Amateur Radio' in the search field and you will see a list of 'This Week in Amateur Radio International' bulletins. Click on the links and make sure your speakers are turned on.

Ofcom publishes Spectrum Framework Review conclusions

Ofcom published the conclusions of its Spectrum Framework Review on 28 June. The report sets out Ofcom's approach to the future management of radio spectrum in the UK.

The Spectrum Framework Review set out four key recommendations to achieve Ofcom's duties and aims, and Ofcom now says that it will, over time, apply this market-led approach to more than 70% of the radio spectrum. However, the report also states that Ofcom will maintain existing regulatory controls:

- where signals cross international boundaries;
- where international mobility is critical, for example in aviation and maritime; and
- where the UK has agreed to harmonise spectrum use in line with important multinational accords.

Ofcom will continue to monitor and act against interference between spectrum users. It will introduce trading and liberalisation in a phased way, intervening where necessary to make sure that these initiatives do not result in excessive harmful interference for other users.

Dutch students to attend AMSAT-UK Colloquium

A delegation of 16 students from the Delft University of Technology in the Netherlands will be attending the AMSAT-UK International Space Colloquium, which is being held at the University of Surrey, Guildford from 29 to 31 July. The students are currently building an amateur satellite called Delfi-3C (www.delfic3.tudelft.nl) which will carry a 70cm to 2m linear transponder and is scheduled for launch at the end of 2006. A presentation on this exciting new amateur satellite will be given to the Colloquium. To book a place at the colloquium download the booking form available at www.uk.amsat.org/Colloquium and send it to Sophie Haigh, e-mail: s.haigh@sstl.co.uk; tel: 01483 689888; fax: 01483 689503.

The Dutch students with a model of an Arianne launcher.

Morse operators to get their heads examined

Dr Piers Cornelissen of the University of Newcastle upon Tyne is carrying out research into the human brain. He and his team are looking for volunteers who can transmit and receive Morse code to see which areas of the brain are involved in this activity. Volunteers would undergo a brain scan using the MRI (magnetic resonance imaging) equipment at Oxford. The experiments are expected to take place during the autumn months. Volunteers would be paid for their participation and have their travelling costs reimbursed. If you are interested, please contact Dr Piers Cornelissen, tel: 0191 222 6250; e-mail: p.l.cornelissen@ncl.ac.uk, to find out more.

Ham on *Big Brother*

Viewers of the Channel 4 TV 'reality' show *Big Brother* may like to know that one of the inmates was a radio amateur. 27-year old Eugene Sully, G0VIQ, from Crawley entered the *Big Brother* household on 24 June and was immediately spotted wearing an RSGB T-shirt! Eugene's profile can be found on the *Big Brother* website at www.channel4.com/bigbrother/housemates/housemate_news.jsp?id=14

NEWS BRIEFS

- The International Lighthouse and Lightship Weekend 2005 (http://illw.net) takes place on 20/21 August. Last year 376 lighthouse and lightship stations were active during the weekend and the target for this year is to have 400 stations on from around the world; as of 15 June 154 stations in 31 countries had confirmed their participation. If you wish to join in, there is a registration form on the website.
- Jack Kilby, the man who invented the microchip, has died from cancer at the age of 81. The Texan inventor's development literally changed the world and led eventually to the development of the Pentium processor.
- The Royal Signals ARS will be running GB6VIJ during August. A free certificate is available (send two 2nd class stamps to the manager, G0SWY QTHR, e-mail g0swy@aol.com)

Is Morgan the youngest M3 yet?

Martin Durkin, G0TFH, Foundation course tutor for the Burnley ARC writes to ask if Morgan Roe is the youngest UK amateur? Morgan passed the Foundation exam at the age of 6 years and 4 months, along with other successful candidates Lauren Dixon, aged 9, and Catherine Mathewson and Melanie Entwistle, who are both a little older. The course was held at Burnley ARC over a period of 14 weeks, with extra work prior to this done by the parents of the two youngsters.

Back, left to right: Melanie Entwistle, Catherine Mathewson, Arnold Benns (Burnley ARC chairman). Front, Lauren Dixon, Morgan Roe.

Audio documentaries

Brian Vaughton, G0HRH, a retired BBC documentary editor, has released two projects which, although not connected with amateur radio, do show what one amateur does in his spare time when not playing radio! The first is an audio cassette tape, *Life... As It Was*, which captures through the voices of Devon country folk a way of rural life that it now but a distant memory. The other is a CD, an audio documentary called *The Weavers' Tales* which celebrates the 250th anniversary of the manufacture of the first Axminster carpet. Further details from Brian, G0HRH (QTHR), or e-mail: brian.vaughton@btopenworld.com

Radio classes in Bath

Preparations are under way for another round of radio communications courses in Bath. *RadCom* columnist and RSGB author, Steve Hartley, G0FUW, and Mike Coombs, G3VTO, have been running courses in the city for a number of years now and their students always seem to manage better than average pass marks. Steve and Mike are helped out by a team of past students and local amateurs, including Ian Carter, G0GRI, from the Trowbridge and District ARC, who acts as Exam Secretary.

This year's round starts with a Foundation course running every Thursday evening for seven weeks from 8 September. An Intermediate course will follow and then one for the Advanced level in 2006. The courses are run on a cost-only basis so the more students recruited, the cheaper it will be. Assessments can also be arranged for self-study students. Full details can be obtained by contacting Steve on 01225 464394 (most evenings 7.00 - 9.00pm and weekends) or via e-mail - see 'Newcomers' News' on page 42.

Ex-student, Dennis Carter, M1NED, explains SWR to Foundation candidate Jason Lakey, now M3HZI, in Bath last year.

Well-known amateur radio software developer SK

Peter Halpin, PH1PH (formerly PE1MHO and G7ECN), has become a Silent Key. Three years ago Peter was given a short time to live after being diagnosed with cancer. He defied all the doctors and lived for an active three years longer than was expected. He will best be remembered by his contribution to the development of the 'Ham Radio Deluxe' software written by Simon Brown, HB9DRV / GD4ELI, as well as his successes on 6m. In 2003 Peter and Simon were jointly awarded special RSGB 90th Anniversary prizes for their significant contribution to the development of amateur radio technology.

Peter Halpin, PH1PH (right), receiving the RSGB 90th Anniversary Award from Bob Whelan, G3PJT, at the 2003 RSGB AGM.

Club and regional news

1 Scotland South & Western Isles

COCKENZIE & PORT SETON ARC
12, Junk sale, 6.30pm.
20, Lighthouse Weekend, Barnes Ness GB2LBN. Bob, GM4UYZ, 01875 811723.

2 Scotland North & Northern Isles

MORAY FIRTH ARS
26, BBQ at Kingston Beacon. Geoff, MM5AHO, 07770 726 759, www.mfars.co.uk

3 North West

CHESTER & DARS
6, The secrets of the Samurai. Derrick, M1SUM, 0151 3561572.
SOUTH MANCHESTER R & CC
5, 'Modern RF Integrated Circuits', Chris, G3ZDM.
12, Grouse evening.
19, Aerial matching discussion.
26, Future of amateur radio discussion. Ron, 0161 969 3999.
STOCKPORT RS
2, 16, SSB Field Day preparations. David, M1ANT, 0161 456 7832.
THORNTON CLEVELEYS ARS
1, On air.
8, Auction.
15, Quiz.
22, Radio direction finders, Mick, G4EZM.
29, No meeting. Jack, G4BFH, jack.duddington@btinternet.com

4 North East

HALIFAX & DARS
16, Talk by Charles, G2FKZ. Tom, M0TKA, 01484 715079.
HORNSEA ARC
3, 'Foxhunt' at 7.30.
10, Activity night.
13, Driffield Steam Rally station.
17, Talk by G8SMB.
24, Activity night.
31, SSB Field Day preparation. Richard, G4YTV, 01964 562498, g4ytv@aol.com
KEIGHLEY ARS
25, Visit by RRM Geoff Darby. Kath, G0OSA, 01535 656155.
SHEFFIELD ARC
8, Portable evening, Whiteley Woods.
22, Planning evening.
29, No meeting. Nick, G4FAL, 0114 255 2893

5 West Midlands

BROMSGROVE & DARC
5, Surplus sale. Chris, M0BQE, 01905 776869.
CHELTENHAM ARA
5, Electronic logging, Derek, G3NKS. Pat, G3IKR, 01386 792542.
COVENTRY ARS
5, BBQ at club venue.
12, On air, novice class, CW practice.
19, Night out.
26, On air, novice class, CW practice. John, G8SEQ, 024 7627 3190.
GLOUCESTER AR & ES
15, Summer picnic.
29, /P operating from escarpment site. Tony, 01452 618930 (daytime).
MID-WARWICKSHIRE ARS
23, 'Foxhunt' on 145.350 (horizontal), 10.30am. Bernard, M1AUK, 01926 420913.
SALOP ARS
4, Summer social.
11, 'Wireless in the Midlands', Bill, G3CAQ.
18, Rally preparation.
25, 'Antenna tuning', G8PZS & G8DIR. Fred, G3NSY, 01743 790457.
TELFORD & DARS
10, Video.
17, Telford Rally planning (all members).
24, Quiz, G0EYX.
30, Field work at HQ (all welcome, bring stout gloves). Mike, G3JKX, 01952 299677, mjstreetg3jkx@aol.com

6 North Wales

CONWY VALLEY ARC
3, Visit to HM Coastguard station Holyhead.
7, 'Wireless in Wales', David Jones. Wynne, GW6PMC, 01745 855068.
DRAGON ARC
1, 'More uses for your oscilloscope', Stewart, GW0ETF.
31, Visit to RAF Valley. Leslie, 01248 470606.
NORTH WALES RS
11, 'How to build a repeater', David, MW1DSB.
18, Foundation.
21, Lighthouse / Lightship Weekend.
25, 'Knots and lashes', Ron, GW6ZDH. Ted, GW0DSJ.
PORTHMADOG & DARS
18, The FTdx9000, Paul Bigwood, Yaesu UK (non-members welcome), Porthmadog Yacht Club at 7.30pm for 8.00pm prompt. MW0RHD, bobmw0rhd@onetel.net
WREXHAM & DARS
2, BBQ.
16, 'Antennas suitable for DF', Steve, MW1STE. Mark, MW1MDH, markmdh@btopenworld.com

7 South Wales

BARRY ARS
26, Fun trip to Flatholm Island. Glyn, GW0ANA, 01446 774 522
CARMARTHEN ARS
Note: meetings in August cancelled. Club re-opens in September. Martin, GW3XJQ, 01994 453495.

8 Northern Ireland

No club news details provided.

9 London & Thames Valley

AYLESBURY VALE RS
10, On air, discussion evening. Roger, G3MEH, 01442 826651, roger@g3meh.com
COULSDON ATS
8, BBQ. Steve, G7SYO, 01737 354271.
CRAY VALLEY RS
4, 'FT-817: shack-in-a-box', G8ITB. Richard, G7GLW, 07831 715797, rcains@btinternet.com
CRYSTAL PALACE R & EC
5, On air. Nick, 020 8689 2145.
HODDESDON RC
2, Antenna experiments.
16, Bring and show.
30, Video. Don, G3JNJ, 020 8292 3678.
READING & DARC
11, Chill out in the bar. Pete, G8FRC, 01189 695697.
SILVERTHORN RC
5, Club camp. Les, G0CIB, 07980 275081.
SOUTHGATE ARC
11, BBQ in the Spinney. Mike, M0ASA, 020 8366 0698.
STEVENAGE & DARS
2, HF operating.
9, Basic antennas, Paul, G8IUG.
16, Construction competition launch.
23, SSB Field Day preparations.
30, Antenna analysers & dip meters, Rob, G2BKZ. Neil M0ARH, 01438 217077.
SURREY RCC
1, Defence of the UK from enemy bombers, John Downs. Ray, G4FFY, 020 8644 7589.
SUTTON & CHEAM RS
18, Mini antenna workshop, Martin, M1MRB. John, G0BWV, 020 8644 9945, info@scrs.org.uk

10 South & South East

ANDOVER RAC
2, Component identification quiz, G8ALR.
16, Kite antennas, G4YVM. Nicky, 2E1NAC, 01722 718457.
BASINGSTOKE ARC
1, DFing micro-transmitters.
28, 'Foxhunt'. Frank, M0AEU, barc@2lo.info
FAREHAM & DARS
3, On air & natter night.
17, Open discussion.
24, The VSWR bridge, Mick, G4ITF.
31, Bank Holiday quiz, Mick, G4ITF. enquiries@fareham-darc.co.uk
FARNBOROUGH & DRS
10, Internet linking, Harry, G7KNK. Alan, M5AMN, 01252 682447.
HASTINGS E & RC
17, BBQ. Gordon, 01424 431909, gordon@gsweet.fsnet.co.uk
HORNDEAN & DARC
2, Social evening.
13, BBQ, limited tickets available.
23, 'History of Portsmouth's Commercial Road', Peter Rogers. Stuart, G0FYX, 023 9247 2846.
HORSHAM ARC
4, Talk by Alister, G3ZBU. David, G4JHI, 01403 252202.
MID-SUSSEX ARS
5, Chairman's BBQ.
12, Table top sale.
19, Radio night.
26, RSGB, DRM Gavin, G6DGK. John, G6XTW, 01273 588556.
SOUTHDOWN ARS
1, Propagation talk and demonstration, Chris, G4ZCS.
21, Lighthouse weekend from Belle Tout. John, G3DQY, 01424 424319, vaughdqy@aol.com
TROWBRIDGE & DARC
17, Natter night. Ian, G0GRI, 01225 864698 (evenings / weekends)
WORTHING & DARC
3, Antenna maintenance, hints and tips.
10, Plans for lighthouses weekend.
17, BBQ.
24, Discussion on current radio topics.
31, Book evening. Roy, G4GPX, 01903 753893.

11 South West & Channel Islands

APPLEDORE & DARC
15, BBQ. Brian, M0BRB, brian.jewell@ic24.net
CORNISH RAC
4, Main meeting. John, G4LJY, 01872 863849.
HOLSWORTHY ARC
3, ATUs, Mike, G4NCU. David, 01288 353561, m3eoq@hotmail.com
PLYMOUTH RC
7, Summer Field Day and BBQ.
9, Preparation for lighthouses weekend.
20, Lighthouses weekend. Frank, G7LUL, frank@foxonezero.fsnet.co.uk
SOUTH BRISTOL ARC
3, Computer & software clinic.
10, BBQ.
17, Darts match.
24, 'Foxhunt'.
31, On air. Len, G4RZY, 01275 834282.
SOUTH DORSET RS
20, 21, Lighthouse weekend, Nothe Fort. Carol, carolonfraggle@tiscali.co.uk
THORNBURY & SOUTH GLOUCESTERSHIRE ARC
3, Pedestrian 'foxhunt'. Stan, G0RYM, stang@talkgas.net
YEOVIL ARC
4, Talk by Colin, G3TSK.
11, 'It's foreign to me', M1FFO.
18, Photo quiz, M0WOB.
25, Practical workshop evening. Adrian, G4JBH, 07834 922858, g4jbh@btinternet.com

12 East & East Anglia

CHELMSFORD ARS
2, Table top sale, Colin, G0TRM. Martyn, G1EFL, 01245 469008, or via club website.
HARWICH ARIG
10, Video. Tony, G4EYE, 01255 886065.
HILDERSTONE ARS
7, 'Work the world on a wok' charity event.
28, 70cm 'foxhunt' & BBQ, Hardres Court. G3JIX, 01304 813175.
LEISTON ARC
2, Cheese and wine. Paul, M3MIG, 01728 746044, m3mig@aol.com
LOUGHTON & EPPING FOREST ARS
5, 'Building the Elecraft K2', Dave, G3VGR.
6, 7, Foundation licence course, Intermediate assessments.
12, Foundation licence exam.
19, HF data night on air. Marc, G0TOC, 020 8502 1645, e-mail: info@lefars.org.uk
NORFOLK ARC
10, DX field evening, club site.
12, BBQ, Roger, G3LDI.
24, Members' car boot / table top sale. Reg, G0VDO, 01603 429269.
SOUTH ESSEX ARS
3, Echolink demo, Dave, G4UVJ.
17, Quiz, Mark, M3POW. Dave, southessex.ars@btinternet.com

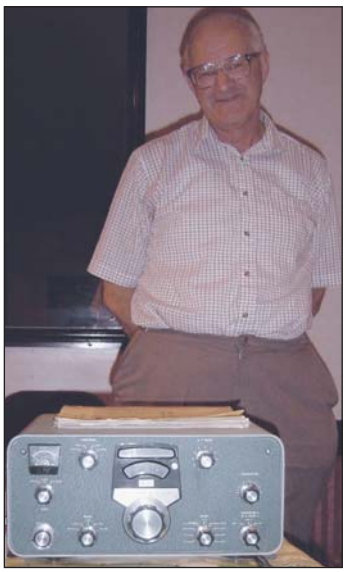
13 East Midlands

DERBY & DARS
2, Junk sale.
16, VHF/UHF DF practice at Allestree Park. Martin, G3SZJ, 01332 556875.
EAGLE RADIO GROUP
9, Walk across New Zealand pt3, Tony, G3RKL. Terry, G0SWS, 07979 733640.
HUCKNALL ROLLS-ROYCE ARC
5, Wireless networking, Adrian, G7WFM.
12, Antenna working party.
19, BBQ.
26, Forum. Keith, G6NHY, 07929 916 642, hrrarc@ntlworld.com

Items for club news should be sent to the RadCom Office at HQ to arrive by the 26th of the month, ie approximately a month before publication (eg 26 January for the March Issue). News items should be sent in writing (fax, letter or e-mail: gb2rs@rsgb.org.uk) by the club secretary or the person responsible for publicity. Post cards for this purpose are available from RSGB HQ. A database of all meetings is shared between *RadCom* and GB2RS, so information only needs to be sent once.

NEWS FROM CHELMSFORD

On 2 August the Chelmsford ARS (www.g0mwt.org.uk) holds a Table Top Sale; all good condition amateur, audio, electronic, electrical, photographic, computer and associated equipment may be offered for sale. Admission is free to buyers; tables for sellers are £3. Entry for sellers is at 6.30pm and for the public 7.30pm. The sale takes place at the Marconi Social Club, Beehive Lane, Great Baddow. Parking is free and a bar is available. Further information from Colin Page, G0TRM, tel: 01245 223835; e-mail: colinpage@ukgateway.net



Last year a classic Heathkit receiver was on offer.

♦ The Sandford Mill Radio Museum in Chelmsford is open to the public on 7 and 21 August between 2.00pm and 5.00pm; admittance and parking free. Exhibits include spark transmitters from the late 1890s to high power commercial transmitters from the 1960s. There's a good selection of valves and early TV broadcast cameras. Recent additions include Donald Imber's, G0VIS, ship's radio equipment and a ship's radio room. The Chelmsford ARS operate GX0MWT from inside the preserved wooden hut that housed the original 2MT broadcast station. Further information from Martyn Medcalf, G1EFL, tel: 01245 469008; e-mail: info2005@g0mwt.org.uk

PHOTO: MARTIN HIGGINS, MM0DUN

Fourteen members of the Dundee Amateur Radio Club enjoyed a visit on 10 May to the Broughty Ferry Lifeboat station. A talk was given by the Coxswain, Jim Hughan, followed by a tour of the inshore lifeboat and the Trent Class Lifeboat.

The Mayoress of Bromley, Mrs Anne Manning, talking to Geoff Milne, G3UMI

BROMLEY AMATEURS CELEBRATE VE DAY ANNIVERSARY

The Victory Social Club of Hayes, Kent, was formed after a VE Day street party and has now celebrated its 60th birthday. Among other events they held a Diamond Jubilee children's party in the club grounds on 7 May. The Bromley & DARS (www.bdars.org) ran GB6VSC at the party to celebrate the day's events. Members were on hand to answer questions about amateur radio from those attending the party and to demonstrate that amateur radio is alive and well and a corridor for entrants to technical industries.

The Mayoress of Bromley, Mrs Anne Manning, visited the Bromley & DARS's demonstration. She was greeted by committee members who answered her questions about the hobby. A number of visitors took the microphone and passed greetings messages to amateurs across Europe.

The club meets every third Tuesday evening of the month at the Victory Social Club in Kechill Gardens, Hayes.

NEWS IN BRIEF

♦ The Bolsover & DRS is organising a special event station to commemorate the birthday of Peter Fidler, a Bolsover man who helped chart a large area of Canada, over the weekend of 13 / 14 August. GB2PF will be operated from the grounds of the Coalite Sports and Social Club off Moor Lane in Bolsover. Further information from David Ackrill, G0DJA, tel: 01246 824994; e-mail: dave@g0dja.co.uk

♦ The Barry ARS Society is taking part in two radio trips to Flatholm Island in the Bristol Channel: from 28 July to 1 August for the RSGB IOTA contest and again from 26 to 31 August for the club's 'fun trip' to Flatholm. Barry ARS meets every Tuesday at 8.00pm at Sully Sports and Leisure Club, Vale of Glamorgan. Further information from Glyn Jones, GW0ANA, tel: 01446 774522.

♦ The Loughton and Epping Forest ARS's new website (www.lefars.org.uk) is now up and running. All salient information on L&EFARS is now easily accessible and more content will be added over coming weeks. Further details about the club from Marc Litchman, G0TOC, tel: 020 8502 1645 or mob: 07743 456058; e-mail info@lefars.org.uk

♦ Swansea ARS will participate in the Lighthouses on the Air weekend 20 / 21 August when the lightship Helwick will be activated from near the new National Waterfront Museum in Swansea Marina. Details from Roger, GW4HSH, tel: 01792 404422.

♦ The Dundee ARC is pleased to announce that Dave Higgins, 2M0HGN, successfully passed his Advanced exam and is now MM0HGN.

PORTHMADOG CLUB COMES OF AGE

The Porthmadog & DARS commemorated its 21st anniversary with a special event station on 15 May from its monthly meeting venue on the quayside in Porthmadog. Despite a low number of contacts, members enjoyed the day and are considering holding another operating day later in the year. A special QSL card (pictured) has been produced by Gwilym Phillips, MW3WMP, showing the view towards the Madoc Yacht Club from where the station was operating.

Colin Higgins G3NRQ, during his talk on maritime navigation at Eagle Radio Groups June Meeting.

NARC WIGAN

The first M3 Foundation course at the Northwest Amateur Radio Club (NARC) at Upper Morris Street Working Men's Club, Wigan, was held on 17 May with five students taking the plunge. Instructors Paul Seddon, G6LDZ, and John Gibson, 2E0AWR, were very pleased as all five students passed with flying colours. The latest Foundation licensees are Steven Wall, Pauline Campbell, Luke 'Skywalker' Roxburgh, Dean Howe and David Wall. NARC is hoping to be starting an Intermediate course later in the year with, hopefully, some of the latest M3s taking part. The club meets every Tuesday from 7.30 to 11.00pm; everyone welcome.

BLYTH AMATEUR RADIO CLUB

This small but well-established club (www.blythamateurradioclub.co.uk) has been in existence for over 25 years, helping members to both obtain a licence and learn Morse code. It is very keen to welcome new members and to provide technical help for whatever aspect of our hobby interests the individual concerned. Amateur radio has, in the past, lead to jobs in electronics for some club members. Meetings are held at Newsham Community Centre every Wednesday evening from 7.00-9.00pm and the club is well equipped with radio and test equipment.

BRAINTREE CLUB'S 30TH ANNIVERSARY SPECIAL EVENT

The weekend of 21 / 22 May saw the Braintree club (www.badars.org.uk) run special event station GB0BTA to celebrate the club's 30th anniversary. Members arrived on the Friday afternoon to help set up the station in a pleasant location on a local farm. By late afternoon they were operational from 80m to 70cm using a variety of antennas and many contacts were made. On the Saturday evening a BBQ was held for which it stayed dry although it was very chilly. Earlier in the day club members endured stormy conditions that nearly saw the club's tent take off. Only prompt action by a couple of members who hung on to the tent's frame averted a near disaster! On the Sunday afternoon openings on 6m and 4m to Eastern Europe were enjoyed using just half-wave verticals at 30ft. Keith, G4MIU, commented, "We had a great time and also managed to get into the local newspapers, so a very successful weekend all round."

Blowing up a storm at the Braintree club's 30th anniversary special event.

ANOTHER 'FIRST' FOR HARROGATE LADIES' COLLEGE ARS

When Harrogate Ladies' College (HLC) started its Foundation course earlier in the year, six of the students expressed a wish to learn Morse code in parallel with the theory sessions. By the time of the examination in May, all six had reached a speed of at least 5WPM so it was thought that it would be good to make the first QSO after receiving their callsigns on CW! Shah, M3YUE, made a QSO with SM5CBC on 40m after putting out her first CQ. The remaining five also completed their first contacts using CW - who says Morse is a dying mode?

2005 marks 25 years of amateur radio examination classes at HLC and the 11 successful students this year (100% pass rate) take the total YL callsign holders to 116. The annual 24-hour activity as GB2HC has also been in operation for 25 years, just under a quarter of the time since the school was built in 1904 at the dawn of the hobby.

BUSY TIMES FOR WORTHING CLUB

Members of the Worthing & DARC (www.wadarc.org.uk) manned the signals room and GB2NFM in Newhaven Fort to commemorate Victory in Europe over the late May bank holiday weekend. The public were able to view a display of vintage amateur radio equipment and WWII domestic radios. There was huge activity both on VHF and the HF bands with visitors talking to amateur radio stations across Europe and inter-G. Nearly all visiting youngsters took to the challenge of tapping out their names in Morse code on the oscillator and each was awarded a colourful certificate of achievement which they proudly took home. WADARC wishes to thank the very hard work undertaken both by the museum's excellent staff and its members Eric, G4KIT; Eddie, G0ECW; John; Denzil, G3KXF, and Pedro, 2E0ZOA; it was a stunning weekend of activities.

The Adur East Lions Club staged the Adur Vintage Transport Rally at Buckingham Park in Shoreham by Sea and Worthing & DARC set up special event station GX1WOR at the event. Geoff, 2E0EKB, was keen to get proceedings under way and was operating in the open air until the membership had erected the display gazebo which was walked over to Geoff's position and secured to the ground as he was making contacts on 40m.The bands were in good shape with many inter-G stations eagerly responding to the call, followed by stations from many countries around Europe.

Further details on the club from Roy and Joyce Bannister, tel: 01903 753893, or e-mail info@wadarc.org.uk

The Taunton and District Amateur Radio Club's new intake of candidates for amateur radio exams: Back row: Phil Bennett (Foundation); John Raffill, M3JOP; David Davies, M3JOI; and Mike Thyer (Intermediate); Front Row: Mike Tunney, M3TOA; Marsh Pridmore, M3HJZ (Intermediate); Peter Newton (Foundation). The photograph was taken just after the start of the Intermediate class on 15 June. It is proposed to start the Foundation class in September.

Summer 2005
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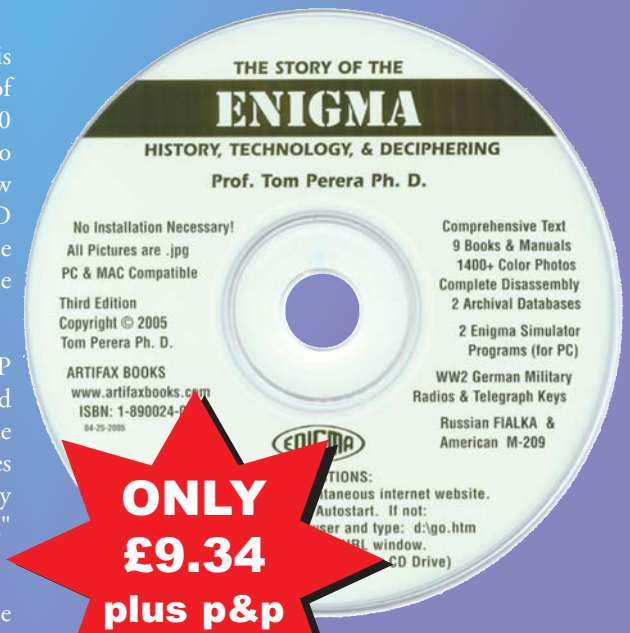
This CD has been assembled by Tom Perera W1TP who is a leading expert on Enigma machines and frequently gives lectures and demonstrations on the subject. Tom also travels the world locating examples of WW-2 Enigma Cipher Machines and has recently found the fascinating Russian Cold War era "Fialka" cipher machine which is also detailed on the CD.

At 642MB there is far in this CD than can be displayed here. This is simply a mountain of material for anyone interested in the subject of Enigma machines and thoroughly recommended.
Non members price £10.99 plus p&p



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MFJ-948 £119.95 B

Another all-time best seller, this 300W ATU covers 1.8 - 30MHz and handles wire, coax and balanced feed. It is widely used for base station use. Cross-needle meters make adjustment very easy and precise.

MFJ-914 £56.95 A

Not so widely known, but very useful for all HF solid state radios. Place this in series with your coax feed and it allows you to tune antennas that your internal ATU could not manage - like G5RV on some bands. Great idea.

MFJ-910 £22.95 A

If you are interested in mobile operation you will know that the feed impedance of the antenna is very low - you just the VSWR down low! Put this in series and the VSWR comes way down - just switch for best match 3.5 - 30MHz 200W

MFJ-991 *New Auto ATU* £179.95 B

This ATU is very similar to the MFJ-993 but only handles 150W, does not handle balanced feed and has no antenna switch or LCD display. The bare bones at a great price!

MFJ-1026 £149.95 B

A little know product that could transform your listening pleasure. This is designed to remove electrical noise by phasing it out and it really works! Can fit in-line with transceiver. Radio signals remain whilst local eletrical noise is greatly reduced!

MFJ-417 £49.95 B

A budget Morse tutor that is extremely small and convenient to carry. Sends characters, text and can even simulate QSO's from its data base! Runs from 3 - 35 wpm using internal battery (not supplied). Has headphone socket and volume control. Great buy!!

MFJ-704 £42.95 B

Yet another MFJ item that should be in your shack. A low pass filter cleans up the output of your transceiver and reduces the risk of interference to a wide range of domestic products. A small price to pay for peace and quiet. This one handles up to 1kW with bandpass range of 1.8 - 30MHz.

MFJ-969 £169.95 C

This 300W ATU covers 1.8 - 60MHz and matches long wires, coax and balanced feeder. The cross-needle meter makes adjustment easy and it has a great PEP circuit.

MFJ-901B £72.95 B

If you are looking for a 200W ATU from 1.8 - 30MHz with a tight budget, this is the job. 200W rating and handles wire, coax and balanced feed. Needs and external VSWR meter or you can use the one in your rig.

MFJ-902 £65.95 B

We sell these by the bucket load because they are a great design. This ATU is known as the Travel Tuner and measures just 9- x 60 x 80 (mm). 3.5 - 30MHz 150W. It will handle wire or coax systems. MFJ-902H adds balanced feed. **£99.95**

MFJ-974 £159.95 C

If you are using or want to use balanced feeder, then you are best to get a dedicated balanced tuner for best efficiency. This new unit from MFJ will give you just that. Covering 1.8 - 54MHz it will handle 300W and also tune end fed wires. Lovely build quality, smooth tuning and cross-needle metering.

MFJ-16010 £46.95 B

Our Director, Peter Waters, G3OJV, has used this ATU for years. Basically designed for wire use or coax, it covers 1.8 - 30MHz up to 200W. Its an ideal portable unit and measures just 110 x 83 x 55mm

MFJ-382 £39.95 B

MFJ's amplified speaker is a great way of extending the use of your handheld radio or scanner. It will deliver ip to 1W of good quality audio and can be powered from an internal battery (not supplied) or external 12V supply. A mono to mono lead is included.

MFJ-260C £33.95 B

Every station should have a dummy load and this one 1kW for 10 secs befoe cooling or 100W for ten minutes. 50 Ohms 0 - 600MHz. **MFJ-260CN** is similar but with "N" socket. **£44.95**

MFJ-1704 £59.95 B

Antenna switching is an important part of any station and for low loss results you need a coaxial type. This one is a 4-way design with beautifuly positive movement. |SO-239 DC-500MHz, 2kW and up to 60dB isolation.

MFJ-949 £135.95 B

One of the all-time best sellers, this 300W ATU covers 1.8 - 30MHz and handles wire, coax and balanced feed. It also features a built-in dummy load. Cross-needle meters make adjustment very easy and precise.

MFJ-971 £89.95 B

Designed for portable work, this ATU can handle 200W from 1.8 - 30MHz and has a power meter that reads FSD 300W 30W or 6W. Cross needle indicators allow you to prescisely match coax, wire or balanced feeder.

MFJ-904H £109.95 B

The complete travel tuner is all you will ever need for portable or mobile use. 3.5 - 30MHz balanced, wire or coax. And the dual meter makes adjustment a breeze.
180 x 60 x 80 (mm).

MFJ-993 *New Auto ATU* £209.95 C

At last, an auto ATU that is low cost, and handles wire, coax and balanced feeder. Covering 1.8 - 30MHz up to 300W and includes and antenna swich. It learns as it goes and remembers previous settings for speedy tuning. You also get digital and analogue readings and an optional audio indicator for those with poor sight.

MFJ-392B £22.95 A

The headphones are of the classical design with padded earpieces and have great soundproofing properties. The tailored response is ideal for radio communications and are provided with adaptor to fit 3.5 or 1/4" stereo sockets.

MFJ-418 £69.95 B

Morse code is still probably the most effective and simple way to communicate - and great fun. Now you can learn it easily and quickly by using this decoder. Carry it in your pocket and learn anywhere. has headphone socket. **MFJ-461** is similar but instead, reads morse when you hold it near a loudspeaker. **£84.95**

MFJ-267 £129.95 B

This is one piece of test equipment that should be in every operator's shack. Only into a dummy load can you get accurate transmit power capability. This one handles up to 1.5kW with 3 power ranges and accurate PEP mode. It can even be left in circuit as there is a thru switch to the antenna! What a great idea!

MFJ-269 £269.95 B

This analyzer covers 1.8 - 170 / 415-470MHz and has the same basic specifications as the MFJ-259Z but is not supplied with batteries, power supply or dip loop. However, it has a very wide UHF range that extends its usefulness to adjusting helical antennas etc. Just connect to antenna or coax and see the truth. A great idea!

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Acom 1010 HF linear amplifier

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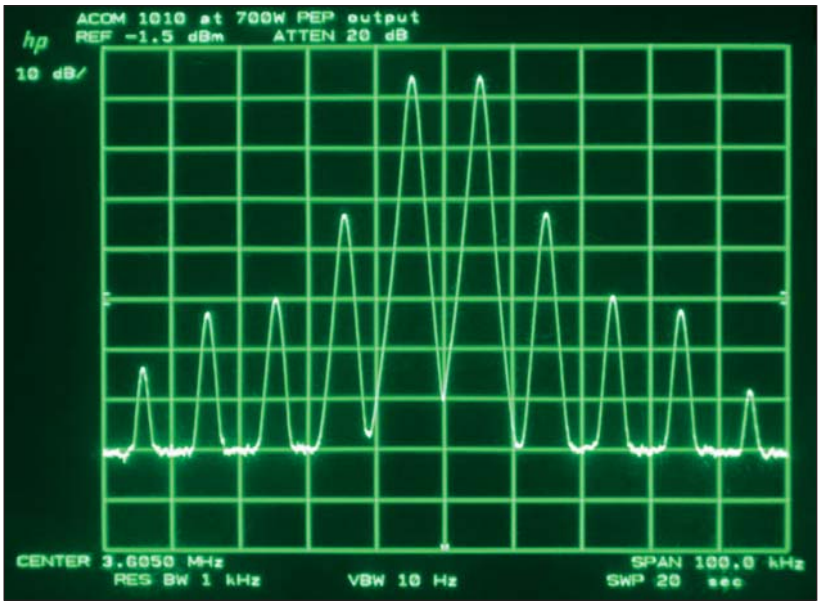
Acom is a Bulgarian company which has been developing and manufacturing linear amplifiers for the amateur market for some time now. They have deservedly acquired a reputation for making amplifiers of quality with conservatively rated designs and extensive use of fault protection features. Initially they supplied Alpha with their 91β model which proved to be a very popular and cost competitive amplifier. In 1999 Acom launched the 2000A amplifier under their own brand name. This real top of the range amplifier boasted over 1.5kW output from an automatically tuned valve design. In 2001 Acom launched the 1000 model, a 1kW amplifier manually tuned covering the HF and 6m bands. These amplifiers were both reviewed in the March 2001 issue of *RadCom*.

Acom's latest product is the 1010 amplifier. This is their lowest cost linear, a compact desktop design covering the HF bands 1.8 to 30MHz at a power output level of 700W PEP on CW and SSB modes or 500W on constant carrier modes such as RTTY. The UK importers, Vine Antenna Products, kindly provided a unit for review.

LEFT:
Overall view.



BELOW LEFT:
Fig 1: Two-tone SSB spectrum plot at 700W PEP output power.

FEATURES

The Acom 1010 is a self contained amplifier with the RF assembly and PSU in one box measuring 40.6W x 15.0H x 31.5Dcm and weighing 16kg. It uses a single GU74B / 4CX800A valve to deliver a conservative 700W PEP output from 50 - 70W of drive. A push button on the front panel reduces power output and dissipation on constant carrier modes such as RTTY. All the Acom amplifiers are based around the GU74B / 4CX800A Svetlana ceramic-metal tetrode which is available at significantly lower cost compared with the 3CX--- series of ceramic triodes or the glass 3-500.

The amplifier uses conventional tune, load and bandswitch controls and a handy tuning aid allows simple and rapid tuning. This is called TRI (True Resistance indicator). Three LEDs indicate the correct setting of the loading control. A centre green LED indicates correct loading and yellow LEDs on either side indicate whether the loading control should be rotated to the left or right, flashing if the setting is greatly incorrect. The tuning control is set for maximum output power. A line of 16 LEDs indicates the power output in 50W steps, green to 700W and red above this to 800W. A separate shorter line of LEDs indicates reflected power from non 50Ω loads, the amplifier successfully matching loads up to 3:1 VSWR. Setting the correct tuning and loading is simple and straightforward and initial start settings are given in the manual. Two antennas may be connected to the amplifier and a front panel switch selects between them.

The amplifier is switched from the transceiver via a 'ground to transmit' line. Around 7mA current flows when this line is shorted and the open-circuit voltage is +12V. The linear is fully compatible with semiconductor switching. Although not specified for QSK operation, the internal relays are quite fast in operation and there is no clipping of characters at speeds of at

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By Robert Lomas

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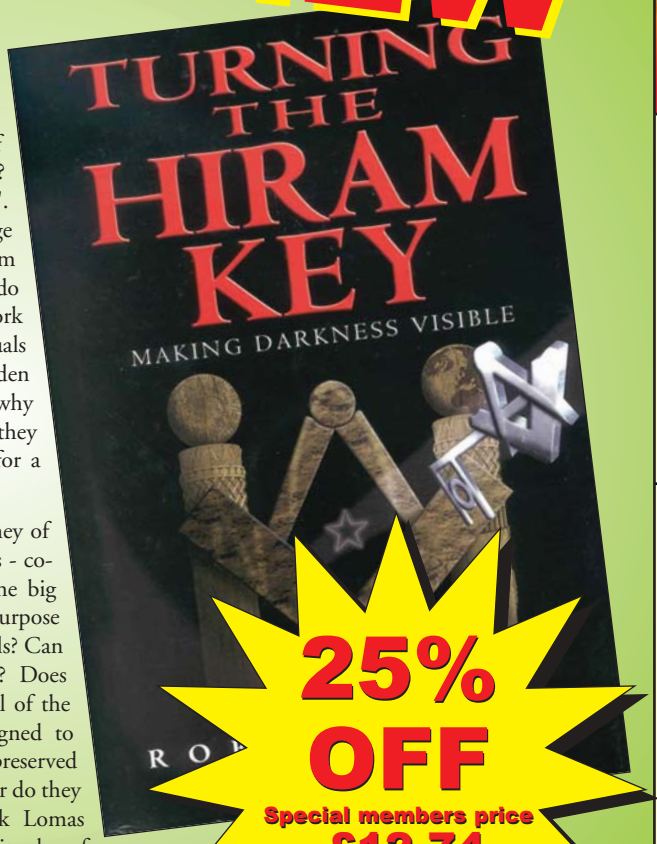

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Turning the Hiram Key invites readers to join a gripping journey of discovery to find the real secrets of Freemasonry. Robert Lomas - co-author of best-selling The Hiram Key - has finally tackled the big unanswered questions about The Brotherhood...What is the purpose of Freemasonry? What do Masons gain from working the Rituals? Can anybody benefit from the spiritual teachings of The Craft? Does Freemasonry hold the secret to unlocking the hidden potential of the human mind? Are Masonic rituals simple moral plays designed to encourage people to behave well? Are they a secret tradition preserved from a long lost civilisation? Are they meaningless formalities? Or do they serve a deeper purpose? In this ground-breaking new book Lomas describes his personal journey through the mystical rituals of Freemasonry. Drawing from personal spiritual insights, hidden Masonic texts and modern scientific knowledge, he reveals why people join Freemasonry, what they expect to find and how they benefit.

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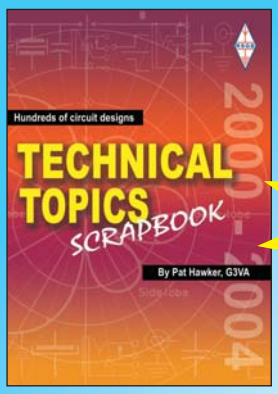

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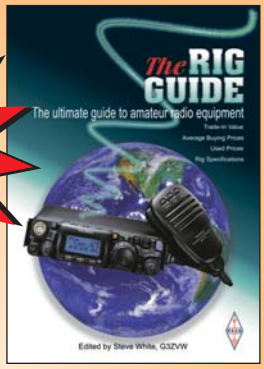

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least 20WPM on QSK CW. The antenna changeover relays are of conventional construction, not vacuum types, and protection circuitry sequences operation and prevents switching back to receive if RF output power from the linear amplifier is present. However, it is still possible to switch the amplifier to transmit if RF drive is present so it is important that the driving transceiver correctly sequences its control line to prevent premature wear of the relays. Most commercial transceivers should be satisfactory in this respect.

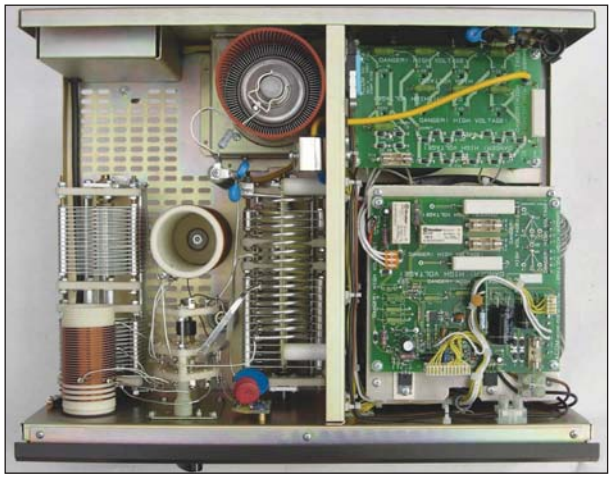
Circuitry is incorporated to protect the amplifier from potentially damaging conditions. Excess grid, screen and anode current usually as a result of overdrive or incorrect tuning is reported on fault status LEDs and excess reflected power from a poor antenna VSWR indicates red on the reflected power display. A trip is initiated if these overload conditions become severe. A service mode may be enabled which uses the LED displays to indicate certain operating parameters including control grid current, anode current and screen grid voltage.

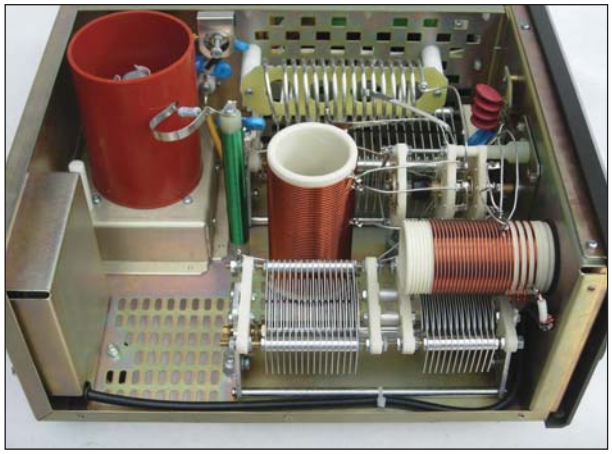
CONSTRUCTION

The amplifier is constructed on a steel frame with a wrap around case. Interlocks disconnect the AC power and short the HT to ground when the case is removed. A dividing screen separates the RF deck from the power supply and the control circuitry is located fully shielded behind the front panel. The output network components are substantially rated with ceramic insulated tuning capacitors, bandswitch and inductors. Full cabinet forced air cooling is provided with the centrifugal blower mounted internally on the side of the grid box. Air is drawn in through the bottom of the case, through the output tuning components, passed the transformer and PSU circuitry and into the grid box. The air is then forced through the valve anode via a rubber chimney and vented out through the top of the case.

The valve operates in grounded cathode with a cathode resistor to provide some RF negative feedback. The drive power is applied to a 50Ω resistor across the control grid giving a broadband match without any input bandswitching and yielding a low input VSWR across the whole frequency range. The amplifier uses a Pi-L output tuning network for good harmonic rejection and this will match into antenna VSWRs up to 3:1, increasing the useable bandwidth of many antennas and removing the need for an antenna tuner in certain situations.

A heavy duty transformer dominates the power supply unit and is inrush current protected. Acom claims that the power supply is tolerant of mains voltage fluctuations, dips and spikes and suitable for use with generators on field days and DXpeditions.





TOP: Top view with cover removed, showing RF section (left) and PSU (right).

CENTRE: PSU section, showing power transformer.

ABOVE: The RF assembly.

An 18-page operating manual is provided, covering operation in detail with brief notes on maintenance and a simplified schematic diagram.

PERFORMANCE

Measurements were made on the amplifier under CW and two-tone SSB conditions. As the linearity of the amplifier is potentially better than most transceivers, care must be taken to use a low distortion two-tone drive source. This was fabricated using two transceivers operating on CW with 10kHz frequency spacing coupled together with a high-power hybrid coupler. This arrangement yielded around 80W PEP drive power with residual intermodulation products at -50dB.

The Acom 1010 delivered 700 watts output with 60 to 70 watts drive power and 400W output with around 40W drive. The bargraph LED power meter was quite accurate, generally within one LED (50W). The input VSWR was excellent, well within specification measuring 1.15 worst case on the higher bands. The harmonic output measured -50 to -55dB on the lower bands rising to -60 to -70dB on the higher bands. Two-tone distortion levels measured -32 to -34dB for the third order products at 700W PEP output and around -50dB for fifth order. These are referenced to the PEP level and are a little outside the specification of better than -35dB. The two-tone output spectrum on 80m is shown in **Fig 1**.

After switching on the amplifier, it takes 2.5 minutes for the valve to heat up before the amplifier is ready to use. Being used to the instant availability of 3-500 valve linears, this can seem interminable if you are in a hurry. The amplifier performed very well. It was docile and easy to tune with the help of the TRI tuning aid which enabled the correct tuning point to be rapidly and simply set. I found the bandchange switch to be rather stiff which may be a problem for those with arthritic fingers. The blower is fairly quiet in operation and should not be that obtrusive. When driven hard the amplifier can get fairly warm, but it performed flawlessly.

CONCLUSIONS

This latest power amplifier from Acom should be a popular choice for those requiring a well-built and well-protected HF amplifier conservatively meeting UK power limits. Delivering 700W output power from around 60W drive it is attractively priced at £1195 from UK distributors, Vine Antenna Products, Taranaki, Four Crosses, Powys SY22 6RJ; tel: 01691 831111; e-mail: info@vinecom.co.uk ♦

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'Venus 80' and 'Venus 160'

Despite some initial scepticism, low-bands expert Don Field, G3XTT, concludes that these controversial antennas for the low bands really do work - at times very nearly as well as a full-size dipole.

When I was asked if I would review the E-H antennas for 160 and 80m from Arno Elettronica of Italy (the 'Venus 160' and 'Venus 80' models), I approached the matter with great interest, but also some trepidation. The theory behind the working of E-H antennas is controversial, to say the least, and has been the subject of some quite intense correspondence in 'Technical Topics' and elsewhere.

The 40 and 20m versions of these antennas were reviewed in *RadCom* by the late Bob Henly, G3IHR [1]. Since then, Martin Lynch & Sons have become the official UK importer, and the range of E-H antennas has been expanded to cover all the HF amateur bands. G3IHR was to review the LF versions but, sadly, passed away before the work was complete [in this article, the term 'LF' is used informally - as it frequently is by many amateurs - to mean the 160 and 80 metre bands, and not 136kHz, the only 'true' amateur LF band - *Ed*]. This is where I came in. I have no intention of entering the technical debate, as better qualified people than me have already crossed swords on the subject. However, as an LF enthusiast I was keen to see whether, for those without the space for a full-size LF antenna (which means the majority of UK amateurs, I suspect), the E-H antenna would be a suitable substitute. Both the 80 and 160m antennas are just 8ft in length, which is a far cry from the 67ft or so height required for an 80m quarter-wave vertical or 135ft length for an 80m dipole (and twice these dimensions for topband).

Below:
A 'display model' of the 80m E-H antenna at ML&S, with the outer plastic covering literally cut away to show the antenna elements.

THE E-H ANTENNA

For more background, take a look at [1] or the E-H Antenna website (see 'Web search' below). The website is run by Ted Hart, W5QJR, driving force behind these antennas. For a counter view, you may wish to consult the relevant page on W8JI's website. There is also a dedicated Internet forum where a great deal of relevant discussion takes place. In simple terms, imagine the antenna as two large copper plates along with various tuning components. To make the system more practical, the plates are rolled into the form of a tube, and the whole antenna encased in weatherproof plastic with, I'm pleased to say (because I've been caught out with this on other commercial antennas), a small drain hole to allow any condensation to drain away. The cut-away photo gives you some idea of what the internal construction is like, while other photos show one of the antennas in situ on my tower. Overall, the construction quality appears to be excellent.

Far left:
Although tiny in terms of wavelength, the 160m and 80m E-H antennas are still fairly substantial objects, as shown here by Bob, GU4YOX, at the UK importer, ML&S.

Left:
The 160m E-H antenna mounted on the author's tower at 35ft AGL. The 80m version is exactly the same size.

Installation is simplicity itself. The instructions are a rather quirky (in places) translation of the Italian, but perfectly clear. Each antenna comes with brackets to fix it to a mast of up to 1.5in diameter, and all you then need to do is to connect a coax feed line (there is an SO259 connector at the base of the antenna). It is recommended that the antenna is well in the clear, avoiding metallic guy wires and other metal objects if at all possible.

I should point out at this stage that each of the E-H antennas is single-band, so that, if you wanted to cover all nine bands from 160 to 10m, you would need nine antennas and nine, preferably widely-spaced, supports. In practice, many amateurs buy E-H antennas for the odd band(s) they cannot otherwise cover. For example, an amateur with a tribander may decide to put up an E-H antenna for 30m and perhaps one for 40 or 80m. Personally, I would have preferred the LF versions to come with brackets that would fix to a 2in mast, as most of my hardware is geared around that size, and the weight is non-trivial (4.9kg for the 80m version and 5.5kg for the 160m version). The manufacturers might also consider using green plastic rather than white so that the antenna merges better with its surroundings, but no doubt that's a matter of personal choice!

Don Field, G3XTT

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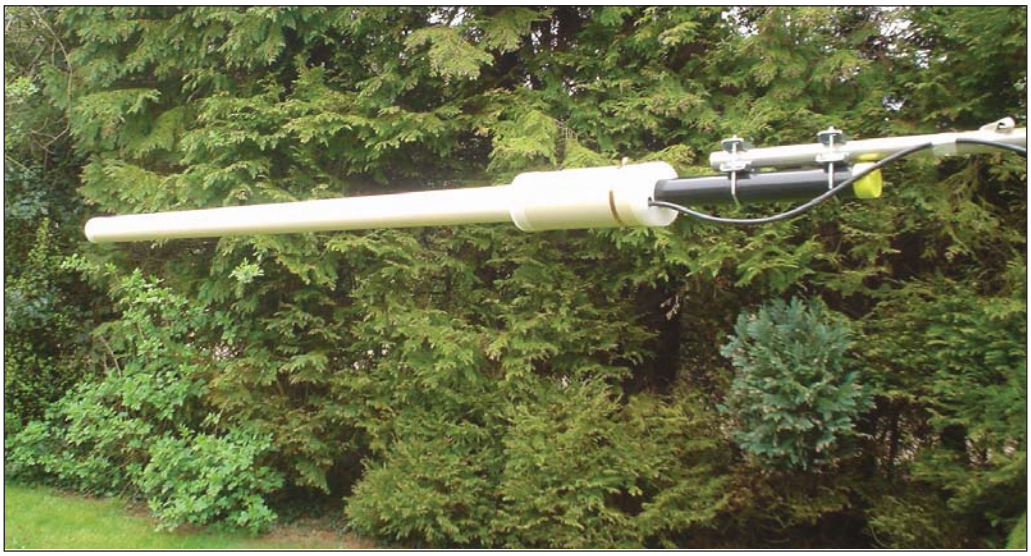
E-mail: don@g3xtt.com

E-H antennas

Editor's note: This article is dedicated to the memory of Bob Henly, G3IHR, who was a keen experimenter with home-made E-H antennas and who reviewed the Arno 40m and 20m versions for *RadCom* in 2003. He had been using the Venus 80 and Venus 160 antennas but sadly died before he could write up the results of his tests.



The E-H antenna on the author's tower, luffed over to show mounting arrangements.

TESTING THE 80m ANTENNA

There is a single model for 80m, with a claimed 2:1 SWR bandwidth of 170kHz. An adjustable copper tuning sleeve around the antenna allows the tuning range to be adjusted to any part of the band. In my case I set the lower end of the 2:1 range at 3500kHz, and found the 2:1 bandwidth to be 180kHz, ie slightly better than specification. SWR at resonance was close to 1:1. Power rating of both the 160 and 80m antennas is 2kW on SSB and CW and 500 watts on continuous modes (RTTY, AM). This should be more than adequate for use in the UK, and I found that I could run 400 watts into the 80m antenna without difficulty. To my surprise, I was able to adjust the tuning sleeve with the tower luffed over, and the resonance didn't change measurably once the tower was vertical and the antenna raised to about 35ft. I felt that a clear location at 35ft or thereabouts would be fairly representative of those with limited garden space. If you could get an antenna much higher you could start seriously considering a full-size inverted-L or something similar.

The specification claims that performance is within 3dB of maximum over a 350kHz range which means, theoretically, that you could cover the whole 80m band by adjusting the resonance to the centre of the band and using an ATU, but personally I would be reluctant to do this as there are likely to be very high voltages present at the antenna away from resonance and damage may ensue (see 160m comments, below). Bear in mind that an ATU only improves the SWR as seen at the transceiver, but does nothing for the situation at the antenna itself.

I used the antenna on 80m CW, comparing its performance on both transmit and receive with my full-size 80m inverted-Vee dipole (centre at about 45ft). I was easily able to work around Europe, with good signal reports, putting some semi-rare DX into the log (ZB2FK in Gibraltar and ZA1AA in Albania, for example). Received reports suggested a one- to two-S unit difference between the E-H antenna and the dipole, and a more accurate test with a local amateur, using a calibrated attenuator, indicated that the E-H antenna was 6 - 8dB down on the dipole. I consider this a good result for an antenna that is so much smaller. My usual 'rule of thumb' is that performance starts to fall off rapidly once an antenna falls much below two-thirds of full-size, but the E-H antenna gave the lie to this. In comparison, I have been singularly unimpressed with small loop antennas that I have had the opportunity to try out in the past.

One of the claims for the E-H antenna is that it can often be better than a full-size antenna on receive, as noise pickup can be lower. I didn't notice this effect, one example being V51AS (Namibia) who I worked on my dipole with solid if weak copy of his signal, but who was barely audible on the E-H. But that was an extreme case. I was able to copy 9G5SP (Ghana) solidly on the E-H antenna, but didn't persevere with trying to work him as the pile-up was huge. It was unfortunate that I came to the review rather late in the LF season (for reasons explained in the introduction), when activity was well down, but nevertheless I felt able to get a good feel for how well the antennas performed.

My overall impression was that the 80m E-H antenna performed remarkably well for its modest size and, with time, a DX-oriented user could reasonably expect to work DXCC (100 countries) or better, particularly if a linear amplifier were used, as this plus the E-H antenna would be roughly equivalent to running 100 watts to a full-size antenna. Not a bad solution, where space is limited. Indeed, because the E-H is essentially a shortened vertical dipole, with vertical polarisation there would almost certainly be occasions where it would outperform a low dipole.

TESTING THE 160m ANTENNA

The 160m antenna is exactly the same size as the 80m E-H, and has a claimed 2:1 SWR bandwidth of 40kHz, and a 3dB bandwidth of 70kHz. Two versions are available, to

cover the 1830 - 1850kHz range (some adjustment of the centre frequency is possible) or the high end of the band (nominally 1913 - 1933kHz).

I used the 1830 - 1850kHz version, installed in exactly the same location as the 80m antenna had been, and extended my 80m dipole for 160m for comparison purposes. The resulting dipole had to be somewhat bent at the ends to fit in my garden, but this is probably a good comparison as that is the best that many users could manage on topband.

My initial measurements showed a 2:1 SWR bandwidth of just 20kHz (consistent with the 1830 - 1850kHz working range claimed in the brochure, though not with the claimed 40kHz 2:1 SWR bandwidth), with a best SWR of 1.6:1, somewhat higher than I would have expected. Some correspondence with the supplier suggested that it would be helpful to disconnect other feeders and ensure that there were no other antennas in close proximity, but I was unable to improve on this result.

But the question was, how would it perform? Initial results were extremely promising. Tests with my local amateur friend suggested that the E-H antenna was no more than about half an S-point down on the dipole. The two antennas were fairly close together (getting two topband antennas several wavelengths apart would require considerably more real estate than I have!) so there may have been a degree of mutual coupling. To overcome this, during the tests I removed the 160m dipole and replaced it with the 80m dipole and this had no discernable affect on the signal received from the 160m E-H. So as far as I could tell, any mutual coupling was insufficient to affect the overall conclusions.

The first few QSOs around the UK and Europe indicated that the E-H antenna worked well, with little or no observable difference between it and the dipole. I was also pleasantly surprised to notice (contrary to my experience with the 80m version) that received signals were much clearer due to less noise pick-up. Indeed, the first contact I made, with an OE7 station (Austria) would not have been possible on the dipole because he was inaudible under local noise.

Where I did have some difficulties was in experiencing some sort of flashover at higher power levels, despite my having taken care not to exceed 400 watts into the antenna. As previously stated, in the brochure it is rated at 2kW for CW and SSB operation (though even the manufacturer had recommended keeping output power below 500 watts, so the brochure figure appears overoptimistic).

In conclusion, as a receive antenna the E-H allowed me to hear stations that were inaudible on my main antenna. Used at the 100 watt level, it would appear to give results remarkably close to a compromise 'full size' antenna and therefore probably no more than an S-point or two down on even a pretty good 160m antenna. This is far better than I had anticipated when I first saw the antenna and realised just how compact it was. However, I would be somewhat concerned at the relatively narrow bandwidth of the antenna and would be reluctant to use one at much more than the 100 watt level, for fear of damage.

An alternative method of mounting the E-H antennas: directly on to a 1.5in dia pole.

CONCLUSIONS

Testing antennas can never be a truly objective process, unless one has access to a professional antenna range. The nearest I can come to this is by asking a local amateur, close enough not to be significantly affected by propagation effects etc, to undertake careful signal strength measurements. Beyond this it is a case of listening and making QSOs on the band, and trying to gauge how effective an antenna is, based in my case on some 37 years of LF operation. Unfortunately, during the period of the tests, lowband propagation and activity was disappointing, but I feel that I can make some reasonably informed comments.

I came away from the tests favourably impressed with the E-H antennas, whatever the pros and cons of the theoretical debates that have been raging. For those with limited real estate the LF bands present a formidable challenge and these antennas appear to offer a very workable solution, allowing contacts throughout Europe and even to more exotic DX when propagation allows. Word has obviously got around, too - while I was at Martin Lynch & Sons collecting the review antennas they took orders for five more E-H antennas and received two phone calls from satisfied users. No, I don't think they laid that on solely for my benefit!

Many existing users chose the E-H antennas because they are unobtrusive enough to get round practical or official restrictions on larger antennas, and it does appear that most customers are very happy with their purchases. However, I have some concerns about using the 160m antenna at higher power levels. The prices start to add up if you choose to run E-H antennas on several bands, but the use of one or two to complement your existing antenna system may well prove to be a worthwhile investment.

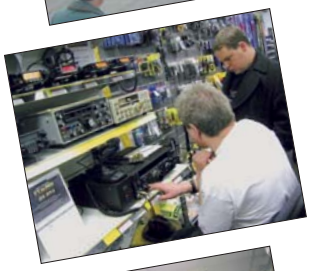
My thanks to Martin Lynch & Sons (tel: 0845 2300 599) for their loan of the review antennas, and to Arno Elettronica for technical support. The Venus 80 and Venus 160 each cost £179 from ML&S. ♦

REFERENCE

[1] 'The Arno Elettronica E-H Antennas', H R Henly, CEng FIEE MBCS, G3IHR, *RadCom*, September 2003, p21.

WEB SEARCH

E-H Website (Ted Hart, W5QJR)	**www.eh-antenna.com**
W8JI on E-H antennas	**www.w8ji.com/e-h_antenna.htm**
Internet E-H Forum	**http://groups.yahoo.com/group/eh-antenna/**



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70cms	(Boom 12")	**£19.95**
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These very popular antennas square folded di-pole type antennas

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(Boom 45") (Gain 8dBd) **£49.95**
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- Impedance: 8Ω
- Power: 3 Watts nominal/5 Watts max
- Size: 95 x 95 x 65mm
- Lead: 2m with 3.5mm jack plug fitted

PMR-250 ..... **£10.95**
- Impedance: 8Ω
- Power: 3 Watts nominal/5 Watts max
- Size: 65 x 130 x 80mm
- Lead: 2m with 3.5mm jack plug fitted

PMR-712 ..... **£14.95**
- Impedance: 8Ω
- Power: 3 Watts nominal/5 Watts max
- Size: 120 x 120 x 40mm
- Lead: 2m with 3.5mm jack plug fitted
- Includes mute and audio noise filter

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Heavy Duty Aluminium (1.8mm wall)
with a lovely push-fit finnish to give a very strong mast set
1¼" single 5' ali pole.....**£7.00**
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1½" set of four (20' total approx).....**£34.95**
1¾" single 5' ali pole.....**£12.00**
1¾" set of four (20' total approx).....**£39.95**
2" single 5' ali pole.....**£15.00**
2" set of four (20' total approx).....**£49.95**

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RG58 best quality standard per mt.....**35p**
RG58 best quality military spec per mt.....**60p**
RGMini 8 best quality military spec per mt.....**70p**
RG213 best quality military spec per mt.....**85p**
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7-core rotator cable per mt.....**£1.00**
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SO239 Chassis socket (Square).....**£1.00**
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N-Type Chassis scoket (Square).....**£3.00**
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N-Type Double female.....**£2.50**
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Please add just £2.00 P&P for connector only orders
PLEASE PHONE FOR LARGE CONNECTOR ORDER DISCOUNTS

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SO259 fitting.....**£12.95**
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HF Yagi

HBV-2 2 BAND 2 ELEMENT TRAPPED BEAM FREQ:20-40 Mtrs GAIN:4dBd BOOM:5.00m LONGEST ELEMENT:13.00m POWER:1600 Watts.....**£399.95**

ADEX-3300 3 BAND 3 ELEMENT TRAPPED BEAM
FREQ:10-15-20 Mtrs GAIN:8 dBd
BOOM:4.42m LONGEST ELE:8.46m
POWER:2000 Watts.....**£329.95**

ADEX-6400 6 BAND 4 ELEMENT TRAPPED BEAM FREQ:10-12-15-17-20-30 Mtrs GAIN:7.5 dBd BOOM:4.27m LONGEST ELE:10.00m
POWER:2000 Watts.....**£599.95**
40 Mtr RADIAL KIT FOR ABOVE.....**£99.00**

HF Verticals

VR3000 3 BAND VERTICAL
FREQ: 10-15-20 Mtrs
GAIN: 3.5dBi HEIGHT: 3.80m POWER: 2000 Watts (without radials)
POWER: 500 Watts (with optional radials).....**£99.95**
OPTIONAL 10-15-20mtr radial kit.....**£39.95**

VR5000 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN: 3.5dBi HEIGHT: 4.00m RADIAL LENGTH: 2.30m (included). POWER: 500 Watts.....**£189.95**

EVX4000 4 BAND VERTICAL FREQ:10-15-20-40 Mtrs GAIN: 3.5dBi HEIGHT: 6.50m POWER: 2000 Watts (without radials)
POWER: 500 Watts (with optional radials).....**£119.95**
OPTIONAL 10-15-20mtr radial kit.....**£39.95**
OPTIONAL 40mtr radial kit.....**£14.95**

EVX5000 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN: 3.5dBi HEIGHT: 7.30m POWER: 2000 Watts (without radials) POWER: 500 Watts (with optional radials).....**£169.95**
OPTIONAL 10-15-20mtr radial kit.....**£39.95**
OPTIONAL 40mtr radial kit.....**£14.95**
OPTIONAL 80mtr radial kit.....**£16.95**

EVX6000 6 BAND VERTICAL FREQ: 10-15-20-30-40-80 Mtrs GAIN: 3.5dBi HEIGHT: 5.00m RADIAL LENGTH: 1.70m(included) POWER: 800 Watts.....**£299.95**

EVX8000 8 BAND VERTICAL FREQ:10-12-15-17-20-30-40 Mtrs (80m optional) GAIN: 3.5dBi HEIGHT: 4.90m RADIAL LENGTH: 1.80m (included)
POWER: 2000 Watts.....**£319.95**
80 MTR RADIAL KIT FOR ABOVE.....**£89.00**
(All verticals require grounding if optional radials are not purchased to obtain a good VSWR)

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(Hi grade heavy duty Commercial Antennas)

UTD160 FREQ:160 Mtrs LENGTH:28m POWER:1000 Watts.....**£49.95**
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MTD-2 (2 BAND) FREQ:40-80 Mtrs LENGTH: 20Mtrs POWER:1000 Watts.....**£54.95**
MTD-3 (3 BAND) FREQ:40-80-160 Mtrs LENGTH: 32.5m POWER: 1000 Watts.....**£99.95**
MTD-4 (3 BAND) FREQ: 12-17-30 Mtrs LENGTH: 10.5m POWER: 1000 Watts.....**£44.95**
MTD-5 (5 BAND) FREQ: 10-15-20-40-80 Mtrs LENGTH: 20m POWER:1000 Watts.....**£89.95**
(MTD-5 is a crossed di-pole with 4 legs)

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STANDARD LEADS
1mtr RG58 PL259 to PL259 lead.....**£3.95**
10mtr RG58 PL259 to PL259 lead.....**£7.95**
30mtr RG58 PL259 to PL259 lead.....**£14.95**
MILITARY SPECIFICATION LEADS
1mtr RG58 Mil spec PL259 to PL259 lead.....**£4.95**
10mtr RG58 Mil spec PL259 to PL259 lead.....**£10.95**
30mtr RG58 Mil spec PL259 to PL259 lead.....**£24.95**
1mtr RG213 Mil spec PL259 to PL259 lead.....**£4.95**
10mtr RG213 Mil spec PL259 to PL259 lead.....**£14.95**
30mtr RG213 Mil spec PL259 to PL259 lead.....**£29.95**
(All other leads and lengths available, ie. BNC to N-type, etc. Please phone for details)

ALL PICTURES ARE FOR REFERENCE ONLY

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The 68th RSGB Commonwealth

The full results and comments on the 2005 running of this, the RSGB's oldest contest.

Conditions were a bit mixed for this year's contest. Some entrants felt that conditions were better than expected at this point in the solar cycle, whilst others were very disappointed. In fact, as the solar flux chart shows, the contest coincided with a significant peak. Many found 10 metres absolutely dead, although some lucky (or skilful) souls found a good opening between the UK and Australia towards the end of the contest. Nonetheless, the lower frequency bands naturally provided a substantial proportion of the traffic, and overall scores are down from their peak of a few years ago. That said, the 174 entrants submitted logs containing details of a total of 26,739 separate QSOs, and 794 individual callsigns appear in the list of stations worked. The spread of activity across the five bands reveals no surprises - 80m provided 10% of the contacts, 40m 24%, 20m was the busiest with 38%, 15m gave 25% and a faltering 10m just 3%.

As usual, those parts of the Commonwealth with a large amateur population provided much of the traffic, notably Canada (20% of the logged callsigns), Australia (8%) and New Zealand (5%), whilst the UK contributed 59%. At the other extreme there was welcome activity with one resident station each from Zimbabwe, Zambia, Norfolk Island, East Malaysia and the Falklands. A total of 58 different Commonwealth call areas were worked by participants during the contest.

There was a strong effort from ZS75PTA, a special station commemorating 75 years of the Pretoria Radio Club, which caused problems for a few logging programs (it counts as ZS0). A few intrepid expeditioners escaped the UK winter to set up in warmer climes - Dave, G3TBK, as J88DR in St Vincent and Bob, VP9/G3PJT, in Bermuda. Strangely, nobody felt inclined to make a similar trip to VE8 or VY1 - maybe next year? One of the downsides of operating BERU from such a spot is the unwanted attention of non-Commonwealth callers who, quite understandably, want a 'new one' in their log and fail to understand or heed the "BERU only" message. No such problems for those of us with a common G prefix!

This year there were also four ex-Presidents of RSGB active in the contest: G3RZP, VK4OQ (G3HCT), VP9/G3PJT and G3BJ. A contest with such a pedigree attracts many devoted entrants over the years, such as 86-year old Lindsay who has been in every BERU since 1977 as VK5NLC, VK5EZ and now VK2YN. However, such a close-knit community notices when a regular is absent. One such missing stalwart this year is Frank, G2QT, who has been unwell for some time. Get well soon Frank, you were missed!

OPEN SECTION

Congratulations to Vlad, 9H1ZA, for taking first place in the Open category and winning the Senior Rose Bowl. Although the second-placed station VC3A (operated by Ron, VE3AT) found more Band-Call Areas, it was the sheer number of QSOs that kept Vlad out in front. In third place is Dave, VO1AU, whilst Steve, ZC4LI, is fourth. UK residents seeking warmer climes take the next three places in the form of Bob, VP9/G3PJT; P3J (Alan, G3PMR), and J88DR (Dave, G3TBK). Interestingly, there are no top 10 places for any station from the southern hemisphere - presumably the combination of conditions and distance from other centres of activity took their toll.

In the competition for the Col Thomas Rose Bowl, awarded to the highest-placed UK station in this section, Andy, G4PIQ/P, came out ahead, and is in eighth place overall - he certainly delivered on last year's comment of "must do better"! He was hotly pursued by Dave, G4BUO, and Don, G3BJ, who take the remaining top 10 places.

RESTRICTED SECTION

This year saw a very welcome increase of over 30% in the number of logs received for this section. Bob, VE3KZ, takes first place in the Restricted category and wins the Junior Rose Bowl. Barry, VK2BJ, makes the highest showing for a station from south of the equator, taking second place, ahead of 9M6BG, operated by Brett, VR2BG. Three further stations from Ontario appear in the top 10 - Yuri, VE3DZ, in fourth; Bert, VE3QAA in fifth; and Roger, VE3ZI, in seventh. Splitting them are two more southerners - Steve, VK6VZ, who is sixth, and Mike, ZL1MH, who comes eighth. The next four spots were

HQ Stations

Pos	Callsign	80m	40m	20m	15m	10m	Bonus	Score	BCAs	QSOs
1	GB5CC	131/22	169/52	230/67	161/45	61/14	200	7691	119	750
2	ZL6A	20/19	101/43	144/45	60/33	10/10	150	4439	88	337
3	VK4WIA	15/15	38/33	175/33	39/33	2/2	116	3615	69	269
4	VE7RAC	13/8	46/33	78/26	90/35	8/6	108	3299	64	234
5	VO1RAC	15/15	66/20	105/20	29/19	1/1	75	2504	45	215
6	VU2UR	0/0	23/19	28/26	23/18	4/4	67	1700	54	78

Open Section

Pos	Callsign	80m	40m	20m	15m	10m	Bonus	Score	BCAs	QSOs
1	9H1ZA	124/21	276/58	300/62	289/47	13/13	201	8898	114	1002
2	VC3A	111/33	231/66	271/57	259/41	1/1	198	7911	122	873
3	VO1AU	169/28	246/60	274/44	144/41	4/4	177	7554	113	821
4	ZC4LI	71/9	210/35	256/55	211/37	102/17	153	7196	94	850
5	VP9/G3PJT	80/22	219/58	235/54	164/33	7/7	174	6875	111	705
6	P3J	63/15	191/43	247/50	178/35	49/19	162	6809	107	728
7	J88DR	75/17	187/44	203/51	182/41	38/19	172	6765	111	685
8	G4PIQ/P	50/29	109/63	122/69	85/55	17/17	233	6505	137	383
9	G4BUO	48/27	90/60	123/69	88/59	16/16	231	6419	136	365
10	G3BJ	51/30	88/57	121/69	80/56	17/17	229	6311	139	352
11	ZL6QH	43/25	152/49	201/49	90/43	16/14	180	6013	112	502
12	ZL4BR	21/20	100/53	188/49	69/43	12/12	177	5391	104	390
13	VE7CC	35/26	113/48	222/44	67/34	13/12	164	5374	107	450
14	G4OBK	35/22	66/46	109/68	59/44	14/14	194	5275	125	282
15	G3LET*	31/20	87/59	86/63	60/41	9/9	192	5139	117	267
16	VE2AYU	86/22	63/21	238/40	120/20	0/0	103	4433	63	507
17	G3WPH*	30/20	49/38	75/54	42/33	6/5	150	3967	97	202
18	VE3VHB	29/17	75/34	102/36	78/35	1/1	123	3867	86	285
19	VO1HP	45/17	120/28	185/25	82/15	0/0	85	3795	58	433
20	ZL2AZ	31/25	65/38	60/35	37/29	16/14	141	3791	90	210
21	G3IAF*	26/19	55/42	47/40	40/33	5/5	139	3605	97	173
22	VE7UZ	18/13	75/44	71/27	56/28	9/9	121	3472	82	231
23	9J2BO	2/2	31/22	67/25	166/32	83/9	90	3466	60	351
24	ZS75PTA	4/2	36/26	57/39	121/31	27/12	110	3357	77	245
25	G4FAL	13/11	30/28	61/46	46/36	8/7	128	3320	92	158
26	G0RTN*	16/13	44/38	44/38	39/31	7/7	127	3284	89	150
27	VK4XA	13/12	37/29	91/42	37/30	9/3	116	3231	74	187
28	G4CZB	18/13	43/36	49/44	29/23	8/8	124	3208	89	147
29	G3KKP*	16/13	30/25	60/51	30/26	5/5	120	3096	83	141
30	ZL6FF	19/18	66/43	52/33	18/17	0/0	111	2952	64	155
31	G3KMQ	13/13	34/29	55/45	26/21	7/7	115	2951	79	134
32	VK4BUI	6/6	36/30	78/43	22/20	6/5	104	2811	70	147
33	M0AJT	18/13	27/21	57/42	31/25	4/4	105	2751	76	135
34	G3OAY*	11/11	30/27	45/41	21/17	4/4	100	2543	70	112
35	VE3EZP	27/16	47/34	52/24	32/16	3/2	92	2542	65	158
36	VE7VF	8/6	30/23	38/20	60/27	10/10	86	2411	64	152
37	GM0OGN*	2/2	15/12	66/48	28/26	4/4	92	2395	63	112
38	ZB2EO	0/0	61/9	103/32	64/23	1/1	65	2343	40	229
39	G3LIK	7/6	27/21	57/41	27/19	2/1	88	2289	60	119
40	VE4YU	5/4	21/17	59/26	39/33	2/2	82	2268	53	126
41	VE1AYY	52/13	17/11	150/26	11/9	0/0	59	2264	38	229
42	G3MPB*	6/6	23/21	45/37	24/19	3/3	86	2191	61	101
43	G4FKA	11/10	16/10	41/32	34/27	3/3	82	2143	57	105
44	G0FYD	2/2	22/20	52/43	22/15	4/4	84	2130	56	99
45	ZS1EL	0/0	3/3	45/16	108/25	46/14	58	2126	42	202
46	G3VDL*	7/6	18/14	41/34	29/22	6/6	82	2089	58	101
47	G0HIO*	9/8	21/20	34/29	14/13	2/2	72	1798	51	80

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Contest, 2005

hotly contested by UK stations, and coming out just in front is John, G3LZQ, who receives the Ross Carey Rose Bowl, ahead of Colin, G4CWH.

HQ STATIONS

Seven HQ stations participated this year, representing all continents except Africa and South America. To dispel the notion that all HQ entrants are "super stations", it is interesting to note that VU2UR was running only 35 watts to an inverted-Vee antenna, with no computers for logging, and had to endure several power failures during the 24 hours. Well done to Arasu, VU2UR, who was also using the contest to teach Lalit, VU2LB, how to compete - all-in-all, a perfect example of ham-spirit in action. However, the leading HQ station is GB5CC, operated by Fraser, G4BJM, who finished more than 3000 points ahead of his antipodean rival ZL6A, where ZL1AIH and ZL1BHQ shared the operating.

JOHN DUNNINGTON TROPHY

There is a new trophy to be awarded this year in the shape of the John Dunnington Trophy for the highest-placed UK station using 100 watts or less to single-element antennas. Stations in both Open and Restricted sections are eligible, but, sadly, many UK stations did not give enough details with their entry to decide whether they could be legitimately included. Such administrative details do nothing to detract from the fine performance by Peter, G3LET, who wins the trophy

Left, top to bottom: Peter Hobbs, G3LET, winner of the John Dunnington Trophy, keying with the left hand and manual logging / checking with the right.

Brett Graham, VR2BG, guiding the 9M6BG station to third place in the Restricted section.

Steve Hodgson, ZC4LI, fourth in the Open section from the British Sovereign Base area in Cyprus.

Right, top to bottom: Alan Jubb, G3PMR and 5B4AHJ, taking his P3J contest station to sixth place in the Open section.

Brian Miller, ZL1AZE, recipient of the Commonwealth Medal, operating at the ZL6QH super station.

Hans Kappetijn, ZS6KR, used the special callsign ZS75PTA commemorating 75 years of the Pretoria Radio Club.

48	VE3HX	16/14	19/16	36/13	36/19	1/1	63	1769	46	107
49	G4KHM*	1/1	25/20	33/29	18/14	4/4	68	1740	49	81
50	G4BGW	0/0	9/9	41/34	22/17	6/6	66	1698	49	78
51	G3TEV	3/3	17/14	35/30	13/12	4/4	63	1605	47	72
52	M3CVN*	5/3	14/14	39/30	18/15	0/0	62	1579	39	76
53	VE1LS	16/11	25/13	52/14	42/9	0/0	47	1572	30	135
54	G3BFP	2/2	9/9	37/26	24/21	2/2	60	1560	43	74
55	VK4XY	14/12	22/18	22/19	10/9	1/1	59	1478	45	69
56	VE1AWP	0/0	70/10	114/17	0/0	0/0	27	1423	14	184
57	VK2NU	7/7	32/27	20/19	3/3	0/0	56	1399	42	62
58	G3ZGC	8/8	12/12	23/22	12/11	2/2	55	1385	44	57
59	ZF2NT	7/7	25/20	9/9	12/12	6/6	54	1373	38	59
60	VE3OM	0/0	21/16	35/21	19/13	0/0	50	1364	35	75
61	G3HKO*	5/3	8/7	35/26	16/14	3/3	53	1355	38	64
62	G3NAN*	7/7	22/18	24/19	4/4	2/2	50	1284	35	61
63	VA6XDX	6/6	19/15	28/19	13/8	0/0	48	1269	29	67
64	G0UVX	9/9	24/18	15/12	5/4	1/1	44	1130	30	54
65	ZL2TX	21/19	10/9	19/13	0/0	0/0	41	1065	28	50
66	VE3AR	12/8	12/10	20/11	24/9	0/0	38	1043	27	69
67	G4SLE*	1/1	13/11	16/14	18/12	5/2	40	997	29	53
68	MW0YDX*	1/1	0/0	22/20	17/15	2/2	38	953	25	41
69	ZL2AOH	7/6	19/14	19/14	4/3	1/1	38	948	27	50
70	VP8NO	0/0	4/4	14/9	18/13	4/4	30	798	21	40
71	VK3KE	0/0	15/14	21/13	4/4	0/0	31	772	23	40
72	VA3IX	0/0	19/14	11/8	11/6	0/0	28	735	19	41
73	G3XWK*	3/3	3/3	10/9	13/12	1/1	28	705	21	30
74	G3JJZ*	1/1	8/6	10/9	8/7	2/2	25	698	23	29
75	VE3XAT	0/0	0/0	21/16	14/11	0/0	27	688	17	35
76	G3YMC*	0/0	7/7	9/8	7/7	3/3	25	623	25	26
77	VA5SAM	2/2	0/0	3/3	10/9	0/0	14	350	13	15

Restricted Section

Pos	Callsign	80m	40m	20m	15m	10m	Bonus	Score	BCAs	QSOs
1	VE3KZ	46/17	107/33	183/50	171/33	0/0	133	5131	89	508
2	VK2BJ	23/23	127/48	211/37	39/29	6/5	142	4837	91	406
3	9M6BG	2/2	55/22	203/43	80/39	22/20	126	4291	81	362
4	VE3DZ	29/20	90/29	169/34	158/22	0/0	105	4273	69	446
5	VE3QAA	36/16	111/32	141/34	115/32	0/0	114	4272	79	402
6	VK6VZ	19/17	125/34	195/46	37/9	30/8	114	4199	78	400
7	VE3ZI	82/25	129/35	101/28	68/20	0/0	108	3985	71	381
8	ZL1MH	21/20	68/39	42/36	36/26	13/11	132	3507	88	180
9	G3LZQ	18/15	34/29	59/47	37/28	12/12	131	3402	93	159
10	G4CWH	15/14	48/34	60/44	43/29	8/7	128	3370	85	173
11	GW3NJW	22/15	39/30	64/44	38/27	8/8	124	3300	83	171
12	VE3FU	42/20	97/26	95/25	47/19	0/0	90	3185	61	281
13	G3GLL	6/6	37/34	53/44	43/35	5/4	123	3150	84	144
14	9H3RN	1/1	60/14	113/27	203/19	1/1	62	3055	47	378
15	VE3KP	43/15	55/21	110/25	113/12	0/0	73	3049	52	321
16	VE2AWR	34/11	120/35	87/20	37/16	0/0	82	3002	53	278
17	G0ORH	10/9	17/17	64/46	45/34	10/9	115	2994	78	146
18	GM0GAV	0/0	48/40	54/45	19/19	5/5	109	2804	73	126
19	GM4KGK*	7/6	24/22	57/45	23/21	4/4	98	2517	72	115
20	G3TJE*	5/5	31/27	44/39	24/22	4/3	96	2446	68	108
21	VK7GN	10/9	107/35	76/20	18/12	0/0	76	2436	48	211
22	G3LHJ	9/8	16/12	55/41	41/23	4/4	88	2353	62	125
23	G3KKQ*	19/16	30/24	30/25	24/21	5/5	91	2344	69	108
24	G3JJG*	8/7	24/20	55/41	25/20	3/2	90	2338	68	114
25=	G3RXP	8/8	14/14	35/32	36/26	9/8	88	2236	67	102
25=	GW4MVA*	11/11	26/22	48/37	20/16	0/0	86	2236	59	105
27	GM3CFS*	7/7	23/22	58/44	14/14	0/0	87	2231	67	102

with his Ten-Tec Omni VI+ and 200ft Sloper plus BiggIR vertical. In second place is Mike, G3WPH, whilst another Mike, G3IAF, is third.

Hardly surprisingly, the top six stations were in the Open section, but three of the next four were competing within the constraints of the Restricted - a very creditable effort. Well done to Norman, GM4KGK, who led this bunch. An asterisk after the callsign in the results table denotes a station competing for this award.

COMMONWEALTH MEDAL

This year the Commonwealth Medal is awarded to Brian, ZL1AZE, for his commitment to the contest over a number of years. Congratulations.

SELECTED SOAPBOX

"BERU is the toughest and most challenging contest in the RSGB Calendar. I was glad when it stopped", G4OBK. "Always an interesting and very enjoyable contest where pre-contest operating strategy planning is important", ZL4BR. "BERU is different from most contests - I always enjoy it ,but it's surprising how many non-Commonwealth countries seem to think they have joined!", G3WRR. "I think that the hardest part of the contest was fighting off the non-participants. Some people will just not take no for an answer", ZC4LI. "This contest still has the 'ambience' of an afternoon of casual DXing!", VO1HP. "Plenty of DX and you don't have to spend all weekend operating to achieve a fair result", G4VXE. "It was fun working out when 10m would be open", G0UKX. "Band conditions were not all that great. Had a blast anyway", VO1TA. "I guess this one is more fun from outside the UK as there are more stations to work! An exotic holiday would be just the thing. Thanks to the DXpeditioners who enhance the event no end", G4FAL. "Nice friendly contest", G3LIK. "I just love the Restricted section - great for busy family people", VK6VZ. "Set the alarm to local when the clock was on GMT, got up at 2.00 in the morning instead of 6.00! Not a good start!", VP9/G3PJT. "One disaster after another leads me into the restricted section", G3RFH. "Just prior to our sunrise on Sunday, the amplifier went QRT with a huge bang and also blew the shack fuse. The sun was high in the sky by the time I recovered from this event, so I missed much of the grey-line short-path opening to Europe", ZL6QH. "Bags of trouble at the start - ice shorted out beam connections", G3YEC. "Suggest the Committee bring back single-band entries to promote activity on 10m, for example", VE3HX. "Would be great to have a QRP section in the future!", G3YMC. "Nice to work VK for the first time", M5ALG. "Not a full-blown operation, just a bit of S&P and play with propagation. Surprised at the lack of Caribbean activity", VP8NO. "VK9NS gave me an all-time new country!", G0RTN. "I was amazed how well the serious contestants could pull my QRP signal out of the noise", G4ARI. "Had to work on Saturday, so that killed the contest for me", G4TSH. "I have never been aware of so much jamming in BERU", G3HKO. "Very poor conditions, but to work ZL6 on 80m - what a dream!", G3ZGC. "Great event as usual with the cheapest antenna-farm going!", G3KKP. "Oh, to be able to put up a nice beam aerial", M0AJT. "Used *SD* contest program which worked flawlessly", VE7NS. "Used *WinTest* for the first time, worked superbly", G4BUO.

ADJUDICATION

Thankfully, a large proportion of the logs arrived in Cabrillo format, thus needing minimal intervention. There were, as always, several other, rather esoteric, formats submitted, but nearly all were successfully converted into a useable form for cross-checking. It is in everybody's interest to submit in a standardised format; for the adjudicator there is less work, and for the entrant less chance of errors being accidentally introduced during the editing process.

As a first-time adjudicator, I was surprised to realise just how many people work hard for 24 hours in a contest, but fail to spend a few extra minutes glancing through the final log before submission. A significant number sent logs that did not include the HQ part of the exchange, and there were some glaringly-obvious callsign errors left uncorrected, all of which led to large deductions in score. However, there were no penalties for logs that showed operation outside the bottom 30kHz of the band, or for errors in date (one entrant's log showed the year as 1995).

My sincere thanks go to Steve, G3UFY, who did the often arduous task of converting paper logs into Cabrillo format for checking. Finally, thank you to 4S7NI, 5B4AGC, G3BPM, G3RWL, VA3DM, VE3NXB and ZS1AJS for submission of checklogs. These are always extremely valuable additions to the adjudication process.

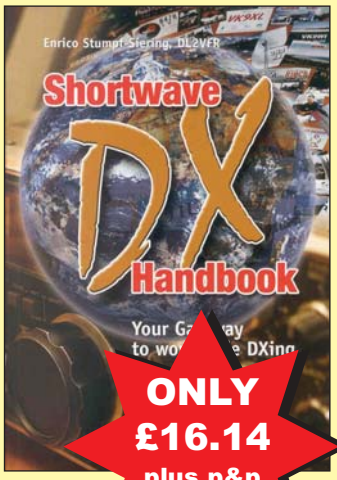
NEXT YEAR

The 69th Commonwealth Contest will take place on 11 / 12 March 2006, starting at 1000UTC. Please take the opportunity to visit the HFCC website for the definitive rules and the BERU website for new, past results and a selection of pictures. ♦

WEB SEARCH

HFCC	www.rsgbhfcc.org
BERU	www.beru.org.uk

28	VA7LC	4/4	11/8	62/31	48/26	8/8	77	2180	49	133
29	G3KNU	2/2	21/20	43/36	23/20	7/7	85	2171	62	96
30	G3RSD*	14/11	24/17	41/34	23/18	0/0	80	2090	57	102
31	G3HEJ*	19/16	30/18	24/19	31/25	5/4	82	2071	57	111
32	G4IUF	3/3	20/18	37/34	28/24	2/2	81	2055	63	89
33	G3VYI	7/6	28/21	36/28	34/20	0/0	75	1983	53	105
34	VK2GR	10/10	47/28	34/25	12/12	0/0	75	1977	54	103
35	VE3JM	32/9	12/9	96/20	62/12	0/0	50	1954	37	202
36	VO1TA	0/0	0/0	265/26	14/10	0/0	36	1936	23	279
37	G4XRV*	9/8	21/21	33/29	14/14	4/4	76	1925	59	81
38	G3TXZ*	11/10	18/18	37/31	13/12	4/4	75	1884	58	84
39	G3OOK	10/10	41/35	11/11	17/15	0/0	71	1813	52	79
40	G3WRR*	3/3	19/17	34/28	26/19	2/2	69	1798	50	84
41	VK6AJ	0/0	18/11	27/23	28/21	20/10	65	1755	48	93
42	ZS6ME	0/0	8/6	60/23	49/13	20/13	55	1751	40	138
43	G4HZV	0/0	16/16	40/32	23/17	2/2	67	1736	50	81
44	G3YEC*	9/9	22/19	36/32	9/8	1/1	69	1728	53	76
45	GW4XXF	4/4	15/13	38/33	16/15	2/2	67	1705	50	75
46	VK2EL	10/10	25/23	44/20	9/9	0/0	62	1638	46	88
47	GW4HBK*	12/11	20/18	17/17	16/13	5/5	64	1619	50	70
48	GW3KJN*	2/1	20/15	40/30	14/12	3/3	61	1567	40	79
49	MU0FAL*	0/0	22/16	21/16	37/24	0/0	56	1505	37	80
50	G3UFY	5/5	17/17	26/25	6/6	5/5	58	1441	46	59
51=	G3HAL*	5/5	18/15	20/19	15/14	1/1	54	1370	41	59
51=	G4VXE	7/7	11/11	23/22	12/12	3/3	55	1370	43	56
53	VE9VAR	1/1	28/12	134/16	13/6	0/0	35	1326	23	180
54	G4DDX*	0/0	3/2	38/32	20/14	3/2	50	1295	34	64
55	VK2YN	12/11	20/14	15/14	12/11	0/0	50	1243	37	58
56	VK6AU	0/0	25/22	29/16	13/10	0/0	48	1238	33	68
57	VE3FH	7/7	19/14	13/10	25/14	0/0	45	1214	30	64
58	G4DBW*	0/0	6/6	32/31	12/11	0/0	48	1206	36	50
59	VE7NS	3/3	21/16	15/13	16/15	0/0	47	1205	34	55
60	G3ZRJ*	8/8	17/16	27/23	0/0	0/0	47	1193	32	52
61	G0UKX*	0/0	9/9	22/20	18/14	3/3	46	1180	31	52
62	G0IBN	4/4	9/8	32/25	9/6	0/0	43	1125	32	54
63	G3KKJ	0/0	13/11	31/21	12/11	1/1	44	1118	32	57
64	G4TSH*	0/0	11/11	25/25	3/3	4/4	43	1073	37	43
65	G0DCK	0/0	2/2	25/22	23/17	0/0	41	1045	32	50
66	G0VDZ*	2/2	4/4	19/17	17/14	3/3	40	1018	29	45
67	G0ADH	0/0	1/1	25/20	14/13	7/6	40	997	30	47
68=	G3RFH*	1/1	2/2	23/19	13/13	1/1	36	908	26	39
68=	VA7ST	0/0	0/0	54/13	20/14	0/0	27	908	18	74
70	M0CYB/P*	1/1	3/3	15/14	18/14	2/2	34	870	27	39
71	M1SMH	0/0	8/8	12/12	11/11	4/4	35	868	29	35
72	G3GMM	0/0	9/8	18/18	10/8	0/0	34	863	25	37
73	G2AFV	4/4	10/10	14/13	8/6	0/0	33	835	26	36
74	VE3BBM	3/3	2/2	29/5	43/14	0/0	24	813	18	80
75	5B4AHO	0/0	15/7	10/7	13/10	6/5	29	795	20	44
76	G4ARI*	1/1	3/3	17/17	11/8	2/2	31	780	22	34
77	G4OBC*	0/0	9/8	0/0	17/14	3/3	25	636	21	29
78	MM0BQI	1/1	3/3	14/13	9/8	0/0	25	623	20	27
79	G0MTN*	0/0	2/2	13/13	10/8	1/1	24	610	19	26
80	G3ICH	0/0	0/0	0/0	29/22	1/1	23	598	16	30
81	VK3KS	17/15	0/0	10/8	0/0	0/0	23	574	15	27
82	VE3LMS	0/0	0/0	20/15	8/7	0/0	23	573	15	28
83	9M2/PA0RRS	0/0	6/4	22/11	0/0	6/4	19	495	13	34
84	M5ALG	0/0	1/1	14/13	6/6	0/0	20	486	13	21
85	G3WQK/P	0/0	4/2	18/13	4/4	0/0	19	483	14	26
86	GW3SB*	0/0	1/1	11/11	5/5	0/0	17	416	10	17
87	G3RDQ*	0/0	0/0	10/9	5/5	0/0	14	350	12	15
88	VE2OWL	0/0	0/0	9/8	5/5	0/0	13	323	7	14
89	G0MRH*	0/0	2/2	6/6	1/1	0/0	9	225	9	9
90	VK5HO	4/4	6/4	0/0	0/0	0/0	8	200	8	10
91	G7HYS*	0/0	0/0	8/8	0/0	0/0	8	198	8	8



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By Enrico Stumpf-Siering, DL2VFR

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/M operation is legal – and

Mike Grierson, an Aviation Safety Inspector, says, "The answer to the question 'how legal is /M operation?' is quite simple. Mobile operation is perfectly legal! Careless driving is not!" Here he takes up the challenge at the bottom of page 23 of the June 2005 *RadCom*...

My introduction to amateur radio mobile operation was in 1960, some four years before I obtained either my driving licence or my amateur radio licence. On joining a radio club, I met an amateur with whom I shared many interests. He owned a black Commer van where he had installed a homebrew transmitter and an ex-WD Command receiver operating on 160m. I was quite fascinated at this new aspect of the hobby, especially as the black van with its large antenna was often mistaken for a police van!

THE EARLY DAYS

When I finally obtained my callsign in September 1964, I recall purchasing a separate mobile licence which cost in the order of 30 shillings; the main licence was just £2. I had passed my driving test some months before obtaining the callsign and hankered to operate mobile. Finances prevented one-man operation, and resulted in a group effort to go mobile and visit the mobile rallies, in those days really mobile picnics. One member owned the car, another built the transmitter, another built the receiver etc. All in all, my amateur radio mobile operating has spanned over 40 years.

In the early days the equipment used in cars was very little different from that used at home; radios were located in various parts of the car, often requiring long arms and elaborate procedures for antenna adjustment. The cars by contrast were very simple to operate, that's if they worked at all; heads under the bonnet were perhaps as commonplace as heads in the radio. The only dangerous situation that I can recall occurred whilst operating portable from the roadside with a 600ft wire antenna on a kite. As the kite descended slowly, the put-put-put of a Lambretta was heard heading towards the same spot. Fortunately we avoided garrotting the rider by a small margin; a salutary lesson indeed.

FIG 1

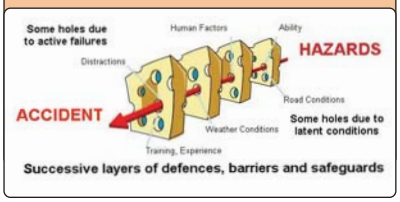

Fig 1
The 'Swiss cheese' model of an accident waiting to happen.

G3MFG/M in his Commer van.

Author G3TSO with 80m mobile installation.

HANDS-FREE

Many years ago I realised that the handheld microphone was not a realistic option in a car; it invariably got in the way whilst gear changing, fell on the floor or couldn't be found, but at least it was easy to drop if the traffic situation demanded it. Boom microphones proved to solve most of the problems, leaving both hands free to operate the car. If radio equipment is adjusted and then left to operate, distractions can be held to a minimum.

As well as driving cars, I fly aeroplanes, where I am required to perform all manner of tasks including operating upwards of five different radios for communications, navigation, identification etc. On top of this one also has to fly the aircraft and lookout. Whilst air traffic is not as dense as road traffic, an aircraft on the nose will probably not be seen until it's a mile away, which at a closing speed of 240 knots is potentially only 15 seconds to impact. The workload in a motor vehicle never approaches the same level.

KEEP THE BRAIN ACTIVE!

When we drive we get bored and we frequently doze. Whether you like it or not there are times of the day when the body works less efficiently than at others, just after lunch being a classic example, especially if you have eaten a meal. Modern cars are too comfortable, heating, air conditioning and comfortable seats leave the driver remote from the conditions he is driving in. Even listening to the broadcast radio can induce lethargy. Modern car radios are far more complicated than their older counterparts (give me two knobs and a set of mechanical presets any day) they are, in my opinion, a major distracter. Lookout in a car is paramount and when the body ceases to be alert, lookout suffers. On a recent company driving course I learned that the average driver only looks about 50 yards ahead of the vehicle, not even the stopping distance! Few drivers have any lookout technique, a scan performed on a cyclic basis as you do in an aeroplane makes you so much more aware of the surroundings and likely events.

I have lost track of the miles covered whilst operating mobile, but in the course of that operation I have remained alert and more aware of what is going on around me than I would have done if I had nothing else to do. The human brain achieves most whilst it is multiplexing, it is a serial rather than a parallel processor and we need to keep it busy to get the most out of it. There used to be a well-known phrase: "if you want a job doing quickly, give it to a busy man!"

I do not believe that amateur radio mobile operation is dangerous if conducted in a sensible manner. In fact my experience indicates that the gentle stimulation that it provides actually optimises the performance of the brain which would otherwise go into a cyclic vegetative state if left to its own devices.

THE SAFETY CULTURE

So often parallels are drawn between amateur radio operation and mobile telephones. They are really not comparable, a phone is

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can be safe!

demanding, it is a duplex conversation where you have to keep up with the person at the other end. The fact that you are engaged in a conversation at all is because there is a requirement to inform, or obtain information, both of which drive the user closer to the saturation point. Amateur radio is simplex, there is no urgency and there are not the same demands on the operator. Playing with and adjusting the equipment can of course be equally distracting and therefore is the act we must minimise.

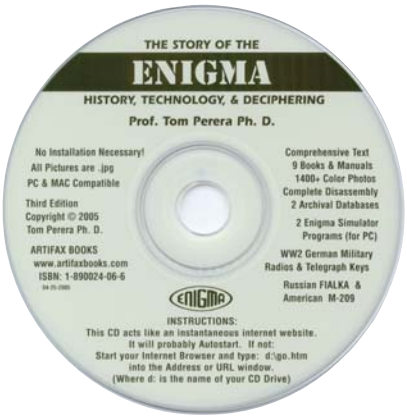
Accidents are not due solely to bad driving, or attitude; there are many terrible drivers who through 'good luck' have never had an accident! Accidents occur when a series of hazards go unchallenged and are allowed to line up, like a beam of light passing through a series of holes in a Swiss cheese (**Fig 1**). We can't all be good drivers all the time, we all make mistakes, we all misjudge things and suffer from cyclic trends that vary our performance. In reality, accidents are exceedingly low for the volume of traffic; compare accident statistics today with the days of the horse and cart!

What we must do is generate an awareness of human factors, a topic seldom mentioned in road safety circles. It now features prominently in aviation following the incident where a 737 landed on the hard shoulder of the M1. Unfortunately, we have developed a safety culture of frightening people into ill conceived actions in the name of safety; do this, don't do that etc: we must be seen to be doing something! Safety helmets that impede hearing and fluorescent jackets that are a fire hazard are two immediate examples.

Let us not ruin another aspect of our hobby by frightening newcomers into not operating mobile in case we finish up in court. We must promote sensible safe operating procedures and techniques. The RSGB should produce a mobile operator's guide listing the dos and don'ts, or is the RSGB frightened it too will be prosecuted for condoning such operation?

It really is amazing how mankind has survived over the centuries knowing all the stupid things we do. And they did it without health and safety. Of course, we trained apprentices in those days! ♦

Book review



THE STORY OF THE ENIGMA: HISTORY, TECHNOLOGY, AND DECIPHERING
Compiled by Prof Tom Perera, W1TP
Reviewed by HQ Staff

Prof Tom Perera, W1TP, started collecting Morse keys when he passed his amateur radio licence examination in 1953 and now has a collection of nearly 3000. He has developed an 'online museum' at www.w1tp.com where these can be seen. During a Morse key hunting trip through Germany, he was asked whether he would be interested in an Enigma machine. As Tom says, "Using all of the skills honed in over 50 years of telegraph key collecting, I was eventually able to talk the owner into selling it." That was the beginning of a series of Enigma hunts that Tom says have rivalled the most exciting big game hunting expeditions imaginable. The hunts have culminated in the creation of this CD entitled *The Story of the ENIGMA: History, Technology, and Deciphering*.

German Enigma machines are extremely scarce. Most estimates suggest that there are fewer than 200 surviving world-wide. At the end of WWII, the British and American high commands issued a directive to destroy every Enigma that could be found, presumably to prevent them from falling into the hands of the Russians. The directive dictated the finder to remove the Enigma's rotors, place a hand-grenade inside the rotor compartment, put the rotors on top and explode the grenade. There are several photographs on the CD showing the remains of Enigmas after this treatment. There is not much left of them!

It is likely that the only Enigma machines that survived were secreted away by German officers and soldiers who, having heard of the 'destroy-on-sight' edict, decided that they might have some future value. They were hidden in attics and basements. By now, the former owners are either dead or very old and their family members do not usually recognise the smallish rectangular oak boxes as containing important pieces of world history.

Some of the material that Tom has collected on Enigmas has found its way on to his online museum, but there is a wealth of additional information that would not work in a website format, or where people with slow dial-up Internet connections would find it difficult or impossible to access the material. The result is *The Story of the ENIGMA: History, Technology, and Deciphering* CD, which crams in 1400 colour pictures, no fewer than nine books and manuals, two Enigma simulators, two huge bibliographic databases, construction projects, the complete story of the Enigma, and even an original 30-minute US Army WWII M-209 cipher machine training film.

The CD works on both PCs and Macs and no installation is necessary. All the photographs on the CD are in jpg format. *The Story of the ENIGMA: History, Technology, and Deciphering* is a labour of love by an extremely knowledgeable collector and Enigma enthusiast. If you have any interest at all in this fascinating area of military history, this CD should be in your collection.

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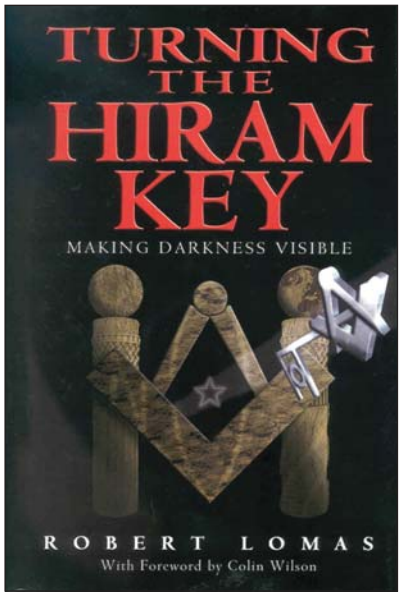

TURNING THE HIRAM KEY: MAKING DARKNESS VISIBLE
By Robert Lomas
Reviewed by HQ Staff

If you are about to leave for your summer holidays and want a change from your usual amateur radio reading, this intriguing new book might be just what you are looking for to while away the hours on the beach.

Some of us who are not Freemasons might have wondered just what their initiation ceremonies entail. How accurate are the dark tales of blood-curdling threats that we might have heard rumour of? Or the strange-sounding rituals of rolled-up trouser legs and baring of breasts?

This book lets you experience the mysteries of those rituals through the eyes of its author, himself a Freemason of many years' standing. There have been many exposés of the world of Freemasonry written over the years, but this book is different. While most works attempt to reveal an imagined sinister or even evil side to the Brotherhood, *Turning the Hiram Key: Making Darkness Visible* helps to balance the view.

Many people in the West have turned to the orient to discover trendy new forms of enlightenment, but the author argues that Freemasonry provides a western spiritual tradition whose time has now come. He explains exactly how Freemasonry works as a means to spiritual self-improvement and why he believes it to be such a good thing to be made a Mason.

It is often claimed that Freemasonry is not a secret society, but rather a society which has its secrets. According to this book, one well-kept secret is that Freemasonry "is a tolerant path of spiritual improvement, totally free of the superstition, political overtones and dogma which surround most religions". So is Freemasonry a religion, a political science, a form of philosophy, or simply a social club? Or perhaps all of the above? This book provides some of the answers, but allows the reader to make up his or her own mind.

Turning the Hiram Key: Making Darkness Visible is available at a special RSGB members-only discount of 25% off the cover price, making it excellent value for a hardback book of nearly 400 pages. It is recommended reading for everyone with an enquiring mind.

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Roger Croston

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Henry Baker, G3EBL 'the man who was not there'- Tibet 1941-42

Having described Sir Evan Nepean's, G5YN, experiences in Tibet [1], Roger Croston was delighted to be contacted by RSGB member 'Tommy' Tomlinson, G3UHW, who was in regular contact with Henry Baker, G3EBL. Soon afterwards he received a letter from Henry Baker himself, who wished to add his experiences to the story of radio in Tibet. At the age of 86, Henry related his tale to Roger Croston.

When I received the letter from Henry Baker via the *RadCom* editor, this ended my five year search for him. There is next to no mention of Henry's army service in Tibet in any archive or publication - it appears as though he was almost not there.

The story starts in 1937, when former Royal Signaller Mr Reginald Fox, a civilian, became the British Mission's wireless operator in Lhasa, the capital of Tibet, following its establishment in 1936. He took over the radio in Deyki Lingka house, originally set up by Corps Signallers Lieutenants Dagg and Nepean. Near the end of 1941, Fox was taken seriously ill and went down to Calcutta for treatment and had to be relieved. He had been in daily radio contact with Henry Baker, who was based in Jubbulpore [Jabalpur], Central Provinces, India, and who would be the ideal stand-in. Baker was given 24 hours leave to consider volunteering, being told, "As there was a war on, if I declined I would be posted there regardless!"

In September 1936 Henry, originally from Ryde, Isle of Wight, enlisted in the Supplementary Reserve, the Hampshire Regiment, Winchester. From there he transferred to Signals at Catterick for training and was posted to India in December 1938. From Karachi, he was sent to Bannu on the infamous North West Frontier where, in six months, 400 men were lost to skirmishing tribesmen. After surviving a gun-carriage explosion during an attack, with subsequent hospitalisation for six months, he took up regular duty at the Command Wireless Station in Jubbulpore, where radio contact with Tibet was regarded as vital by the government of India.

Having 'volunteered' he was examined by three doctors who told him how lucky he was, but who would have marked him "unfit" had he not wanted to go. On 20 October 1941 he was posted 'Destination Unknown' on what would be the greatest adventure of his life.

AN ARDUOUS JOURNEY

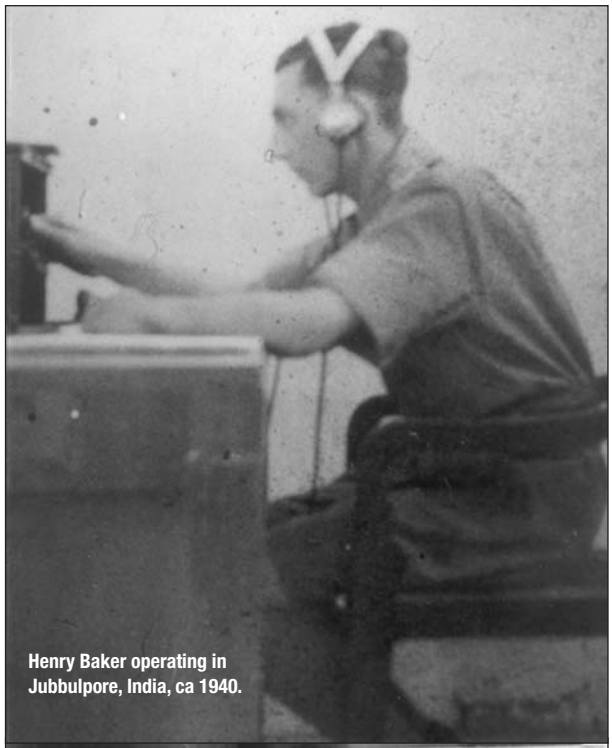
After collecting code and cipher books in Calcutta he proceeded to the Great Eastern Hotel to meet the Civil Surgeon Bhutan and Tibet, Captain Harry Staunton, who turned him down as "Just skin and bone and unlikely to survive a severe winter crossing of the Himalayas." However, Delhi HQ had no other operator available and Baker had to be sent.

They proceeded to Gangtok, Sikkim's capital, to stay with Sir Basil Gould, Political Officer, Sikkim, Bhutan and Tibet, who had led the 1936 Political Mission to Lhasa which had established the radio station there. He told Baker that "Under no circumstances was I to let it be known I was a serving British soldier."

Never having ridden in his life, he set out on the 21-day pony trek to Lhasa. Staunton accompanied him half way, as far as Gyantse in Tibet. An inauspicious start was made: "As my mule put his head down to drink, I promptly fell over its head into a stream." Staunton warned him, "The next two days over the high Himalayan passes would prove if I was going to Lhasa or back to India in a pine box!" Suffering intense cold at heights of over 15,000ft, he survived and "With a very sore posterior reached the fort at Gyantse from where, after several days' rest, I travelled on alone with a young Tibetan family. Absolutely no foreigners were allowed to travel beyond Gyantse without government permission. The going was very hard - breathing was difficult crossing the Karo La pass at 16,600ft."

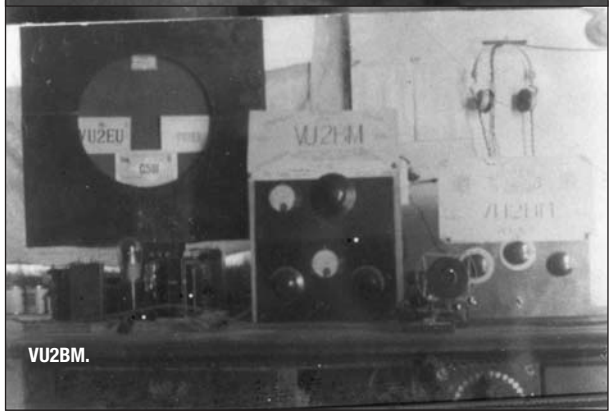
IN LHASA

Arriving at Lhasa's outskirts, Baker was met by Tibetan officials, taken to the British Residency and directed to



Henry Baker operating in Jubbulpore, India, ca 1940.

PHOTO: © HENRY BAKER



VU2BM.

PHOTO: © HENRY BAKER

the radio station - a small brick building - his new home. On the ground floor was an engine driven generator, which charged the batteries supplying power to the buildings and the wireless, which was upstairs in the living quarters.

"As soon as everyone had left, I bolted the large entrance doors, went upstairs and cried like a baby. To think I had volunteered for this, survived the journey and was now completely alone with no-one to talk to - the nearest European was many a day's journey away. I had no idea what to do other than to keep things going and remain in contact with Jubbulpore - VQ4 and VUQ. Each morning I transmitted weather reports and sent ciphered messages from the British Trade Agent, who was a Tibetan. The valves were in a bad state, as were the batteries - a relay in the charger had been wedged with a piece of wood and they had been overcharged, so I sent for replacements. When new ones arrived I emptied the old batteries into the garden but the acid seeped into the Kyi Chu River and killed a whole load of fish, not a good thing to do in a Buddhist country. When the new valves arrived the cartons had been opened and they had been replaced by stones - the Tibetans could be terrible thieves. The Chinese also had a radio in Lhasa, but of such antiquity that it was a wonder it worked at all. Some-times I intercepted it. I used a commercial 15W crystal-controlled transmitter with a mammoth all band antenna strung between trees outside the compound with a long lead-in about 50ft long. During electrical storms its whole length was an array of sparks. I altered and improved it, much to the later annoyance of Fox. The power was from a Petter diesel engine which drove the battery charging equipment for the ten 12V batteries which also supplied 120V DC for lighting. The diesel had to be heated up with a blowlamp before it could be crank started - the only man who could get it going was a local inhabitant."

Baker settled into life in Lhasa and got to know several notables including the Dalai Lama's father and the commander of the Tibetan army.

RECALLED

Early in 1942, Henry was unexpectedly recalled when Fox returned unannounced. Fox had a Tibetan wife and children and he had demanded to return even if it meant dying in Lhasa. So Baker went down to Gangtok, Sikkim, to work radios for Gould until the war's end. "Here I used a 6L6 crystal controlled transmitter of approximately 10 watts tuned with a neon bulb on a long wire antenna as well as an ordinary broadcast receiver equipped with a plug-in oscillator for CW reception. This was also used for mobile communications during diplomatic tours in Bhutan and Assam. Eventually we got an HS1 transmitter and petrol engine which was used for communications and later as a transmitter for a Tibetan-language broadcasting station on a frequency of 9460kHz, used to counter a Chinese transmitter set up in 1943 in Chengtu. Originally, power was from a Chicago Radio portable petrol generator, which used high-octane petrol for high altitudes. At Gangtok I used a Zepp antenna for broadcasting. The broadcast 'studio' was a bungalow built with logs and wattle and daub; the inside was lined with decorative Bhutanese cloth. After the war the HS1 was used for AC3SS ham operation. The 6L6 set up was also used for schedules with most of the tea plantations in Assam."

In November 1945 Baker requested six months home leave to get demobbed, intending to work as a civilian wireless operator for the government of Tibet. Previously, in 1944, the American and British governments had supplied a limited quantity of radio equipment to the Tibetan government with a plan to establish several wireless stations along the Tibetan-Chinese border in an attempt to protect Tibet from Chinese aggression. However, Baker was advised by the Foreign Office not to return, as he could be offered no help in the event of an invasion. (In 1946 Robert Ford, who is also a living witness to an independent Tibet, took up a civilian post there and operated as AC4RF. He was captured and imprisoned for five years by the invading Chinese in 1950 - but that is quite another story).

On leaving Sikkim, Baker received a letter from the British Residency, Gangtok. "To have kept the transmitter and generating plant in more or less constant operation over the last four years was a very considerable feat, accomplished in difficult working conditions and bad weather, and in the face of a perennial shortage of spares and equipment . . . Should regular broadcasting from Gangtok eventually be introduced, it will be on the basis of your pioneering work."

Henry went to Kenya in 1948 as Communications Manager at Nairobi Airport. Later he worked for the Thomas Eddison company in the USA where he also joined the police, ending up as a Justice of the Peace. Today he lives in north-east England and operates on the 20m band as G3EBL.

He has held licences in most countries where he has lived, including W1DKG, K2UOU, VU2BM, VQ4HGB and AC3SS. He is one of the last half-dozen living European eyewitnesses of an independent Tibet, which has endured 55 years of Chinese military occupation. Henry is still well remembered by elderly people in Sikkim and his radio bungalow in Gangtok is still standing, though in poor repair. He was delighted to receive a visit from the Sikkimese state archivist in 2003 who recorded his time there.

The author is grateful for the information he received from RSGB members following his article about Sir Evan Nepean [1]. He would be interested to receive any further information on radio in Tibet before 1950. ♦

PHOTO: © HENRY BAKER

PHOTO: © ROGER CROSTON

PHOTO: © ANNA BALIKCI

Henry Baker in Royal Signals uniform, Lhasa, Tibet, 1942.

Henry's visiting card. (MRSGB stands for 'Member of the Radio Society of Great Britain'!)

Henry Baker, G3EBL, on the air from Gateshead, December 2002.

Henry Baker in 2003, dressed in his 1942 Tibetan gown and standing in front of an AC4YN QSL card and Buddhist 'Thanka' ('Wheel of Life').

An invitation from the Maharaja of Sikkim, 1943.

REFERENCES

[1] 'The Story of AC4YN', by Roger Croston, *RadCom* June 2002, pages 39 - 40.

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MC-58DM DTMF £44.95
PG-4X Ext Cable £61.95
MB-12 Mount £14.95
MB-201 Mount £14.95

£265.00

KENWOOD Handhelds

TH-F7E 2&70 .... £237.00
TH-D7E 2&70 .... £289.00
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THG-71 2&70 .... £219.00
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Plus much more phone...

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YAESU FT-1000MP

HF Base DSP. MkV 200w £2099.00

SP-8 Ext Speaker . £136.95
MD-100 Base Mic . £116.95
TXCO-6 TXCO £124.95
DVS-2 Voice Unit .. £199.95
FH-1 Keypad £33.95
E-DC-20 DC Cable . £11.95

FT1000MP FIELD **£1,699.00**

YAESU FT-847

HF 6m 2m 70cm. DSP. ATU Option

ATAS-120 Act ant . £259.95
ATAS-25 Man ant . £189.00
FC-20 ATU £249.95
FVS-1A Voice Unit £199.95
MH-36D8 DTMF £54.95
MMB-66 Bracket £32.95

2 YEAR WARRANTY **£989.00**

YAESU FT-897D

HF 6m 2m 70cm.100W Transportable

FP-30U AC supply £199.95
FNB-78 Batt pack ... £99.95
FC-30 Ext ATU £249.95

MMB-80 Bracket £15.95

2 YEAR WARRANTY **£649.00**

YAESU FT-857D

HF 6m 2m 70cm.100W. Mobile

ATAS-120 Act ant . £259.95
FC-30 Ext ATU £249.95
MH-36E8J DTMF ... £57.95
CT-39 Packet cab ... £14.95
TCXO-9 TXCO £69.95
YSK-857 Sep kit £45.95

FREE DSP **£579.00**

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HF 6m 2m 70cm. Portable / Mobile

FP-30U AC supply £199.95
FNB-78 Batt pack ... £99.95
FC-30 Ext ATU £249.95
TCXO-9 TXCO £69.95
MMB-80 Bracket £15.95

FREE BATTERY & CHARGER **£449.00**

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2m & 70cms. Dual Band Mobile.

CT-39 Packet Cab .. £14.95
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MLS-100 Spkr £29.95
MMB-60 QR Brack . £18.95
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2 YEAR WARRANTY **£237.00**

YAESU FT-8800/8900

FT-8800 Dual Band Mobile. 2/70
£269.00
Lower than the rest

Quad Band Mobile. 10/6/2/70 **FT-8900** **£329.00**

2 YR WARRANTY

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VHF Rugged Mobile TX.

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HF+6m Flagship 200W. 32Bit DSP.
ATU. LCD Scope.

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SM-20 Base Mic ... £144.99
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PS-125 25A PSU .. £295.95
CT-17 CI-V Conv £99.95
UT-102 Voice unit ... £32.99

2 YEAR WARRANTY **£Phone**
for the latest price

ICOM IC-7400

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SP-20 Ext Spkr £164.99
PS-125 25A PSU .. £295.95
CT-17 CI-V Conv £99.95
CR-338 TXCO £43.48

2 YEAR WARRANTY **£1,279.00**
Inc. SP-21 & SM20

ICOM IC-706 MkII G

HF 6m 2m 70cm 100W DSP Mobile.

AT-180 ATU £329.95
MB-62 Bracket M £17.99
MB-63 Bracket F £9.99
MB-72 Handle £9.95
OPC-581 Sep Cab . £32.99
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VHF / UHF Dual bander FM Mobile.

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MB-58 Bracket R £25.99
MB-65 Bracket C £25.99
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SP-10 Mob Spkr £49.99

2 YEAR WARRANTY **£215.00**

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HF 100W TX. Dual VFO. Auto Notch.

AH-4 100W ATU ... £359.95
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Will tune AR-8200, AR8000 & IC-R10
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HF / VHF PWR SWR meter

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Micro-controlled SWR antenna analyzer **£289.00**

Watson Antennas

Watson W2000
Bands 6m/2m/70cm
Gain 2.15/6.2/8.4dB
Power 200W (50W 6m)
Type 1/2, 2x5/8, 4x5/8
Length 2.5m
£69.95

W-30 2/70 Base	£39.95
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W-300 2/70 Base	£64.95
W-2000 6/2/70 Base	£69.95
WBV-70 4m 1/2 Wave Base	£39.95

Bencher Antennas

Butternut HF-6V
Bands: 80/40/30/20/15/10
Height (Adj): 26 ft (7.9 m)
Weight: 12 lbs (5.4 kg)
Impedance: Nom 50 ohms
VSWR: 1.5:1 or less
£299.95

Butternut HF-2V 40/80m	£229.95
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5 Bands - 80-10m
Height 7.64m - Weight 7.7kg
SWR 1.15:1 - Power 1kW
£179.95

Hustler 4-BTV 4 Band Vert	£149.95
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23cms (1296 Mhz) 55 element 21.5 dbi gain "N" 4.64m long.

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X510 Base 2/70	£124.95
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X-7 - 20/15/10 7el Yagi	£669.95
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A4S - 20/15/10 Yagi	£569.95
A3WS - 12/17 3el Yagi	£379.95
ASL-2010 13-32MHz Log	£749.95
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AT-1000

1KW Auto ATU - 1.8-54MHz - 1-8 secs Tune - Approx SWR Rating of 10:1

£499.95

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£129.95 ***BEST SELLER****

LDG TW-1 TALKING WATTMETER *New*

Speaks Fwd - Rev power in Watts & SWR
Continuous tone for amplifier adjustments
Power range: 0 – 2000 watts PEP

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LDG AT-100Pro *New*

100w Auto ATU - 1.8-54MHz
1-5 seconds Tune - 2 Pos Ant switch

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1:1 or 4:1 Balun - Covers 1.8 - 30Mhz
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Accessories:

K-OTT Kenwood Interface	£49.95
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W4RT Electronics

One-Plug-Power

One-Plug Power is the internal FT-817 battery solution you have been waiting for until now.

OPP-817 £54.95

NEW! 2300 mAh Large Capacity FT-817 Internal Battery Soluion Still use Internal 817 Charger

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NEW!

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One-Big Punch

One BIG Punch (OBP) is a custom add-on accessory for the Yaesu MH-31 microphone commonly used with many Yaesu amateur radios

OBP £49.95

Speech Compressor for the Yaesu MH-31 mic and FT817 FT857, FT897. Improve the TALK POWER.

Hand Mike £57.95

W4RT Electronics Microphone with One BIG Punch Speech Compressor included.

The One BIG Punch is an AF-based speech compressor specifically configured to provide remarkable increase in talk power while maintaining good audio quality. The OBP is NOT a clipper, but a compressor providing great voice compression, high-level limiting, and noise gating. The unit can be mounted inside the MH-31, requires no additional electrical power, and can be turned on or off by using the MH-31's TONE switch.

One-Board-Filter

The One-Board Filter (OBF) affords you the opportunity to have both the Collins CW and SSB mechanical filters available in your FT-817 together!

OBF £229.95

Replace two filters in the space of one. OBF includes the two optional filters and fitting.

Collins Mechanical Filters
for the Yaesu FT-817, 857 & 897.

500 Hz CW - £94.95 ***2.3kHz SSB - £94.95***

This is the option that many, many FT-817 owners have requested. The OBF utilizes Collins Mechanical Filters that are the same as used in the optional Yaesu filters for the FT-817. The bandwidth of the 7-pole CW filter is 500 Hz and the 10-pole SSB filter is 2.3 kHz. The One-Board Filter is NOT available for installation by FT-817 owners. This is not a "do-it-yourself" option. The One-Board Filter must be installed by RADIOWORLD, or a competent engineer . If in doubt please call for details.

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OTT-817 £54.95

It requires no external power and works with both manual and automatic tuners.

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£47.95

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ATX Walkabout PL259	£47.95
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RX - 0.6 to 460 Mhz
TX - 40,30,20,17,15,12, 10, 6, 2m & 70cm

Power Limits 25W PEP 10W Cont.

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* The Miracle Whip will transmit on almost any frequency you are licensed to use including WARC, MARS/CAP, Alaska Emergency, Citizens Band, Marine, and most commercial HF SSB and VHF/UHF channels

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Small 17' 6"	£55.95
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Siro MAG 145 PL	£22.95
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150 WATTS

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300 WATTS

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Linear Amp U.K.

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SGC-237 Porta	£589.95
SGC-237 PCB	£299.95
SGC-239 HF	£185.95
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YAESU

G-2800SDX Rotator	£999.95
G-450C Rotator	£299.00
G-550C Rotator	£309.00
G-650C Rotator	£379.00
G-1000DXC Rotator	£429.00
G-5500C Rotator	£569.00

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Military Spec High grade
50 Ohm coaxial Cable
£69.95 A 100m Drum

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RG-8 75 Metre Drum Special	£39.95
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Flexweave-PVC-50 50m	£39.95
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3 core	£0.45 per Metre
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Newcomers' news

Steve Hartley says, "Lots of input from readers this month. Please keep it coming!"

John, G0MXN, from the Norwich Amateur Radio Club reported that 11 of their Advanced students recently took a mock exam, set up exactly like the real thing as far as time and invigilation was concerned. The tutors were able to highlight areas needing more revision and study. This proved to be a very useful exercise for all concerned but the loudest question from the students was "What is the pass mark?"

Regular readers will know that the pass mark for the Advanced exam has not yet been set but with increasing numbers sitting the exam that situation is not likely to continue for much longer. Furthermore, the second edition of the Advanced level textbook should be on the shelves by now. As well as some reordering of the material, and some additional information for students, the text includes these very important words "the pass mark is around 60%". Whilst this does not give a definite pass / fail score, it does give students, and tutors, an idea of what is expected.

TUTORS' REFLECTOR

Alex Irvine, GM7OAW, spotted my mention of a tutors' reflector in the June column. Alex said he had been tutoring Foundation, Intermediate and Advanced for about nine months and this was the first he had heard of it. Not wanting to reinvent too many wheels, he asked for more information, which I duly provided. For the benefit of any others who have missed out, I will outline it here.

To join the e-mail group you need to drop an e-mail to brian.reay@virgin.net and he will enrol you. The reflector is 'publicised' through the Train the Trainers courses but any tutor is welcome to join. You tend to get news of changes / updates and feedback to questions very quickly. There are also files uploaded from time to time. In my opinion, membership is certainly worth the bandwidth.

BUDDISTICK FEEDBACK

Feedback from readers is always very pleasing but I often forget that *RadCom* has a world-wide readership. On this occasion it was a note from Ed Lapinski, KV1P, that reminded me. Ed saw the picture of Martyn Medcalf, M3VAM, in the May column and offered some advice on how he had used the Buddistick antenna. "I had one for about nine months and worked around 65 countries, mostly on the 28MHz band. My QTH (location) was Brooklyn, New York, which is like operating in the middle of London with three and four storey homes surrounding an antenna at ground level". Ed went on to say that he found that it was best to set the antenna coil as high as possible.

I passed Ed's observation on to Martyn who came back with an equally helpful note. He confirmed that he had found several ways to use the antenna and that he has been in contact with its creator many times. "The aerial is great, and I am very pleased with it", he concluded.

The phrase "world-wide friendship through amateur radio" used to appear on many QSL cards. It would seem that the concept is alive and well here in 'Newcomers' News'.

PHOTO: STEVE HARTLEY, G0FUW

PHOTO: STEVE HARTLEY, G0FUW

Robin Room, M0RCR, organises a radio activity day every year at Oldfield School in Bath where he works. Here we see some of the girls enjoying amateur radio activities.

CANDIDATES WELCOME

Further to my plea for clubs to open up their exam centres, Stuart, M0SJV, wrote to say that the Hillcrest Amateur Radio Society in Dudley has offered an 'assessments only' option to prospective candidates for more than 12 months. They have found that this system offers a more flexible and much less expensive route into amateur radio. They are a registered exam centre and will willingly help anyone obtain a licence. There are always members on hand to assist whenever needed.

For more information, contact Stuart via the club website (see 'Web search' below). They meet at 7.45pm on the first, third and fifth Thursdays in the month at Hillcrest Community College, Simms Lane, Netherton.

The club's most recent course was its first Intermediate exam and it was a total success with all candidates passing without a hitch. Perhaps the most impressive success was that of Mark, M3FGT, who is totally blind. Stuart said that many of their members felt that the next step up, to Advanced level, had been made too difficult, especially for candidates with visual impairment.

I must stress that the difficulty of the Advanced exam is not to be under estimated for *any* student. However, the level of the subject matter is no different to the old City & Guilds (C&G) Radio Amateurs Examination (RAE); indeed many of the questions have been migrated across from the C&G database. The revised question structure does mean that you have to pay more attention to the 'harder' topics. My experience is that those who would have struggled with the old RAE struggle with the new Advanced but it is not so easy for the borderline candidate to scrape through. No bad thing, some would say.

As far as help for the blind goes, the RNIB has permission to produce any RSGB book in Braille and / or on audio tape and I know that training books have been done in the past. The Braille books include tactile drawings and I was amazed how quickly a blind student I taught picked things up. Blind candidates are entitled to have the questions read out and I would expect visual questions to be excluded, as they were in the City & Guilds days. Anyone needing further information for any candidates with special needs should contact RSGB headquarters.

I trust this helps and we all wish the Hillcrest club much success for the future. ♦

WEB SEARCH	
Hillcrest Radio Club	www.hillcrestars.co.uk

Ken Filmer, G3XPO

E-mail: g3xpo@arrl.net

Reflections on an M3

Ken Filmer's daughter Katie passed the Foundation licence examination in October 2004 at the age of nine. Ken reflects on Katie's inception into the world of amateur radio

Katie received the callsign M3XPO shortly after passing the Foundation exam. She is now 10 years old but was still only nine when she received the licence. Since then Katie has made quite a few contacts on the radio, mostly using the higher frequency bands, excluding 10m, which of course is out of bounds for an M3.

Katie is fortunate because she already has a functioning amateur radio station which she is able to use but it has still been interesting to observe her first steps in amateur radio.

THE FIRST QSO

Katie's very first contact took place soon after she arrived home after having passed her Foundation licence. It was thought best to have her work an English-speaking amateur and luckily AB6WN was found calling CQ on 15m with a strong signal. Katie somewhat nervously called him using my callsign and the American station came straight back. AB6WN is an Englishman living in northern California and his name is Mike. Mike obviously realised Katie was a newcomer to the hobby and was very understanding as he and Katie exchanged information across a distance of some 4000 miles with Mike gently leading Katie through her first contact.

When Katie eventually received her own callsign she sent Mike one of her new QSL cards. Mike replied with his QSL card - plus a girl's handbag embroidered with the Stars and Stripes, a matching purse, similarly embroidered and filled with American coins plus some bracelets and necklaces. At Christmas time Mike sent further presents to Katie including a $2.00 bill, which is quite unusual, normally only being issued to the military. Katie's birthday was on 29 December and of course Mike did not forget that either.

This must be the very best introduction to amateur radio that anybody could have. Although we have kept in contact with Mike using e-mail, unfortunately we have not managed to contact him on the radio again - not yet anyway.

THE LICENCE ARRIVES

Katie's licence arrived on 21 October 2004. That evening M3XPO made her first contact, with 5N44EAM on 15m. Mario is an Italian staying in Nigeria and since he was using a special prefix, he was handing out very quick contacts consisting only of a report. Katie called him using 10W and he came straight back to her with a 59 report. However, Katie did not get the standard QSO that everybody else was getting. Mario asked her name, how old she was and they had a nice contact while the pile-up patiently waited. After saying their 73s, the pile-up resumed and M3XPO had worked her first DXCC country.

Generally the format for subsequent contacts followed a similar pattern. The little girl's voice using 10W seemed to be as effective as an ordinary male voice using kilowatts! No matter how big the pile-up, Katie normally got though fairly quickly.

Martti, OH2BH, when operating as S9BB from Sao Tome and Principe in West Africa also stopped running his pile-up when he worked Katie and asked her name and how old she was. Another who also devoted time to Katie while the pile-up waited was Juan, EA9IE, who described in detail his location in Melilla, North Africa. When I worked Andy, 3DA0TM, during one of his pile-ups on 10m, he asked about Katie. When I told him that M3s could not work 10m, Andy asked the pile-up to QRX (stand-by) while he kindly went to 15m so M3XPO could make a contact with him.

There have been many other similar examples of amateur stations that have devoted time to Katie and this brief article unfortunately does not mentioned them all. However, the interest and tolerance exhibited by so many operators does them credit.

Katie has had several QSOs with Jack, W4TJE. One contact was particularly interesting because Jack had another friend on the frequency, Gordon, G3QD, from the north of England who sadly we could not hear. Gordon is in his nineties. I wonder if Katie will see as many changes in radio during her lifetime as Gordon has?

INTEREST & KINDNESS

In order to get some of Katie's QSL cards back quickly we have confirmed many of her contacts directly. Comments on the cards received have been nice to read, some like Emily, P43E, from Aruba returning the IRCs that we sent with Katie's card, being happy to confirm the contact at her own expense. Azman, 9M2MT, in Malaysia and David, 9V1RH, in Singapore both kindly sent their QSL cards to Katie first, as if she was the DX station.

When Katie spoke to Sarla, VU2SMN, she invited Katie to a convention of lady radio amateurs in India next year. We are considering our response to this kind offer!

M3XPO's country score has steadily increased and has now passed the one hundred DXCC entities worked. We always take time to see where in the world they are located and what is their local time. Sometimes they will tell about their location and weather which gives us an insight into the vast differences that exist around our world.

Katie is becoming more proficient in single sideband operating and has also made a tentative start to learn the Morse code. Katie also keeps in contact with friends from our local radio club via 2 metres. We recently bought two handheld radios, so when we are out or when Katie stays at her friend's house across the village we can keep in contact on 2 metres.

It will be gratifying if Katie continues with amateur radio and explores further aspects of the hobby. There are educational benefits associated with this hobby, which may assist in Katie's schoolwork, particularly in respect of geography and languages.

So one young M3's introduction into the hobby of amateur radio has been a fascinating and pleasurable episode to watch and the numerous examples of other radio amateurs' interest and kindness have been delightful for me to experience.

Without the Dover Amateur Radio Club none of this would have been possible. My thanks go to all the members of the club for their interest and friendliness. Very special thanks must go to those members who devote their time to helping and teaching young people like Katie and who impart their knowledge in a manner understood by young and old alike. ♦

Getting the most from a dip

Although less commonly found than it used to be, the *Dip Meter* is one of the most versatile instruments available in the RF arena. Ian Poole describes a number of the uses to which it can be put

The *Dip Meter* is used to measure the resonant frequency of a circuit. Whilst this facility on its own is very useful, when a little ingenuity is applied the instrument can be used to measure a very wide range of parameters. Most meters can also be used in an absorption wavemeter and this still further enhances their abilities and usefulness.
Unfortunately their flexibility comes at a price, and they are not very accurate, but for most measurements that need to be made, they give results that are more than adequate, and by using an additional receiver, their accuracy can be improved.
However, their use has declined over the years and they are not as widely available as they used to be.
Nevertheless they can still be bought new or second hand, and there are designs available to build your own.

Top:
The MFJ-201 dip meter and external coils.

The MFJ-203 dip meter.

WHAT IS A DIP METER?

Dip meters have been given a variety of names over the years. In the days of valve equipment they were called grid dip oscillators (GDO), but with the variety of semiconductor devices available they have also had several other names. Possibly the most generic is simply 'dip meter', as this is independent of any device the equipment may use.

Dip meters contain a *variable frequency oscillator* circuit and an external coil assembly. Their operation depends upon the fact that when a *tank* or *tuned circuit* of an oscillator, in this case the oscillator in the dip meter, is placed close to a resonant circuit, the oscillator current drops or *dips* when it is tuned to the resonant frequency of the external circuit. In this way it is possible to check the resonant frequency of almost any tuned circuit, regardless of whether it is on a circuit board or whether it forms part of an antenna. Thus a dip meter is essentially a form of calibrated variable frequency oscillator in which it is possible to monitor the oscillator current.

The coil in the dip meter is normally pluggable so that different coils can be used to enable a variety of ranges to be covered. An external coil is needed so that the tuned circuit of the dip meter can easily be coupled to the circuit under test.

Most dip meters have the facility to turn off the oscillator. When in this mode the instrument acts as an *absorption wavemeter* that can measure the frequency of RF radiation. In this mode they are ideal for picking up strong signals such as the radiation close to a transmitter, or a feeder carrying RF power. This makes them ideal for checking the frequency band of a transmission.

MEASUREMENTS

Dip meters can be used in a wide variety of ways. Whilst they are basically used to measure the resonant frequency of an *LC tuned circuit* (ie, a tuned circuit consisting on an inductor and capacitor), with a little ingenuity it is surprising how many useful parameters can be determined. However, the basis of the measurements is to be able to couple the meter into a tuned circuit to determine its resonant frequency.

First choose the correct coil to match the expected resonant point of the circuit under test. Then couple the coil on the dip meter to the tuned circuit under test, and then tune the meter across its range.

In practical terms the easiest way of coupling the dip meter coil to the tuned circuit under test is simply to place the meter coil close to the coil of the circuit under test, as shown in **Fig 1**. Although the actual distance is not critical, the greatest distance consistent with a readable dip is best. If the coupling is too tight, the accuracy of the measurement is reduced. This is because both tuned circuits will affect one another and pull the resonant frequencies away from their 'stand alone' value. As a rough guide, a distance of about a centimetre can be expected if the coil has a large number of turns. If the circuit under test only has a few turns, the dip meter coil may have to be placed over the tuned circuit under test. However, with a little experience it soon becomes obvious how much coupling is required.

MEASURING INDUCTANCE & CAPACITANCE

By using the basic resonance measurement, it is possible to make a reasonably accurate measurement of the value of an unknown capacitor or inductor, although the result is not as accurate as if a digital multimeter with inductance or capacitance measurements is available.

To make the measurement it is first necessary to make up a resonant circuit from an inductor and a capacitor. Obviously one of these should be a known value and the more accurate its value within reason, the more accurate the end result will be, within the tolerance of the dip meter measurement. Also, a little judgement needs to be made when choosing the known component. It is no good placing a large capacitor with a very small inductor because the self inductance of the capacitor will mask the effect of the inductor. The same is true with very small capacitors.

Once the resonant circuit has been made up, the resonance of the circuit can be found in the usual way. It then only remains to calculate the value of the unknown component from the formula:

$$f_{dip} = \frac{1}{2\pi\sqrt{(LC)}}$$

MEASURING AN ANTENNA'S RESONANT FREQUENCY

Dip meters can be very useful when making measurements on antennas. However, they must be used with care because there are a number of pit-

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meter

falls. One of the most obvious uses is to make measurements of the resonant frequency of the antenna. As the antenna forms a tuned circuit the resonance can be detected in the same way as if it were an ordinary tuned circuit.

When undertaking this measurement it is best to connect directly to the antenna itself and not via a feeder. The reason for this is that the feeder will introduce a number of spurious dips and it may be difficult to identify the correct response.

The best way of coupling the dip meter coil to the antenna is to use a form of inductive coupling. For an HF antenna a small loop of a few turns of wire connected directly across the feed point of the antenna is normally quite adequate (see **Fig 2**). For VHF antennas a single turn loop is normally sufficient.

Coupling to a VHF antenna using a link can introduce some inaccuracies and may not always be convenient. An alternative method is to short out the feed point and place the dip meter coil as close as possible to the antenna, as shown in **Fig 3**. Using the method shown in Fig 3 (a) the best dip will be obtained at a current maximum, ie at the feed point of most antennas. If the method of Fig 3 (b) is used, the best dip will be obtained at a point of voltage maximum. This can always be found at the end of an antenna.

MEASURING ELECTRICAL LENGTH OF A FEEDER

A dip meter provides a very convenient way of measuring the electrical length of a length of feeder (note that the *electrical* length differs from the *physical* length of the feeder as a result of the velocity factor).

To make the measurement, the feeder must be disconnected from the antenna and left open circuit. The other end should then be coupled to the meter using an inductive loop as shown in **Fig 4**. With the meter in its oscillator mode it should be tuned from its lowest frequency upwards until a dip is noted. This frequency should be noted, as it is the primary resonant frequency (however, it is wise to check this by tuning further up in frequency to the next few dips - these are harmonics of the fundamental resonance and they should be at odd multiples of the frequency of the first dip).

If all is correct this measurement gives the frequency for which the feeder length is a quarter wavelength. This can be very useful when making quarter wavelength stubs etc.

FIG 1 © RADCOM 533

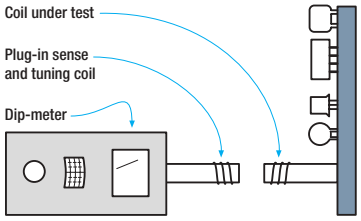

Fig 1
Using a dip meter to measure the resonant frequency of an LC tuned circuit.

FIG 2 © RADCOM 534

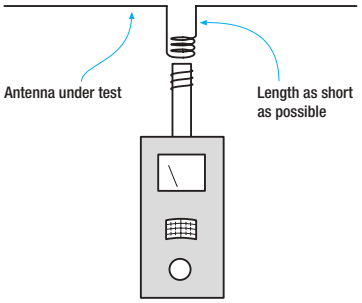

Fig 2
Using inductive coupling to find the resonant point of an antenna.

FIG 3 © RADCOM 535

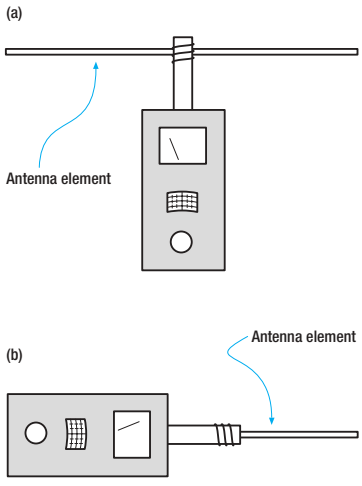

Fig 3
Method for finding the resonant frequency of a VHF or UHF antenna.

FIG 4 © RADCOM 536

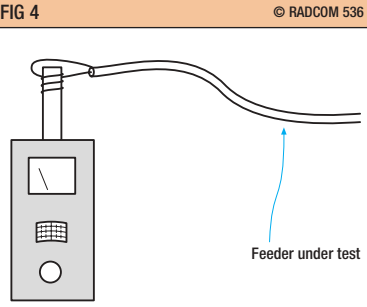

Fig 4
Measuring the electrical length of a feeder.

IMPROVING THE ACCURACY OF A DIP METER

Whilst dip meters are very useful instruments their calibration should not be considered as accurate. The basic calibration of the instrument is at best rudimentary and when it is coupled to another resonant circuit, the oscillator frequency will be pulled, introducing further inaccuracies. To overcome this problem to a large degree a nearby general coverage receiver can be used to locate the frequency of the signal and its calibration used instead of that on the dip meter. This is far more satisfactory because the receiver should be manufactured to give a far higher degree of accuracy than the dip meter.

SUMMARY

There are many more measurements that can be made with a dip meter, and these only cover a few. With a little ingenuity feeder impedance and many more measurements can be made.

Unfortunately dip meters are not as widely available as they used to be. One manufacturer is MFJ, which has two offerings, the MFJ-201 and the MFJ-203 which are stocked by a number of UK retailers including Waters & Stanton. They can also be constructed and designs exist in several RSGB books (see 'Further reading' below). ♦

FURTHER READING

VHF / UHF Antennas by Ian Poole, G3YWX (RSGB). Available from the RSGB Shop: see www.rsgb.org/shop or call 0870 904 7373.

WEB SEARCH

Ian Poole's radio and electronics website	www.radio-electronics.com
Ian Poole's business website	www.adrio-communications.com

By Don Field, G3XTT

105 Shiplake Bottom, Peppard Common, Henley on Thames RG9 5HJ

E-mail: don@g3xtt.com

HF

Despite the fact that we are well down the solar cycle, there is still plenty of interest to be worked on the HF bands, as witnessed by the bumper amount of band reports from readers this month

I enjoyed my visit to Ghana in late May, and it was great to work many UK friends, including plenty of readers of this column, as 9G5FD. But the trip did bring home to me just how far we have gone down the solar cycle. Normally, that close to the equator, the high bands can be relied on to be open for several hours every day, but 10 and 12m were definitely very patchy. I gather the experts are now suggesting that the next cycle may start earlier than previously forecast, which could be good news, but we need to focus on the low bands for a few years yet.

As you will see from the reports later in this column, there were some rays of light during late May and early June, but there were disappointments too, including the Rockall operation which had to be abandoned after just a few hours when the captain of the support vessel decided it was necessary to head away for safety reasons. There is already talk of a follow-up operation, but probably not for another couple of years.

In a similar vein, the Peter 1 Island team, ever gluttons for punishment it seems, have announced yet another attempt to pull this one off next January / February, after the disappointments of the past two years. Let's hope they can do so. Many of the team members are still sticking with the project, though some have fallen by the wayside. More news in due course.

The CY9SS St Paul Island expedition is still active as I write this, but suffered a set-back when a guy rope broke as they were installing the antenna on a 48ft tower and the tower, along with Krassy, K1LZ, who was strapped to the top of it at the time, came tumbling down. Krassy's leg was broken in several places, but a good recovery is expected and we can only be thankful that his injuries were no worse.

DX NEWS

The Lighthouses on the Air weekend takes place over 20/21 August and, as ever, there will be plenty of lighthouse activity. There are several websites dedicated to lighthouse activity and awards. Try putting the relevant keywords into one of the popular search engines for more information.

Hubert, DK9NKC, plans to operate from **Rhodes** as either SV5/DK9NKC or J45R from 6 to 20 August. QSL to his home call.

TOP:
Well known HF DX and contest operators Justin Snow, G4TSH; Jim Sullivan, W7EJ (regularly active as CN2R), Andy Chadwick, G3AB; Simon Preston, M0CLW, at Friedrichshafen in June.

ABOVE:
The European DX Foundation (EuDXF) stand at Friedrichshafen. L to r: Achim Rogmann, DF3EC; well-known CW DXpeditioner Baldur Drobnica, DJ6SI, and Jan Kikkert, PA0IJM.

Luc, F6FVX, is going to be on the air from **Benin** (TY), from 23 August to 4 September. No callsign was notified at the time of writing.

Ian, G8WVW, and family are now living on **Ascension Island**, ZD8, and there until March, 2006. Ian will be active on SSB, signing ZD8I. Look for him on 3737, 7077, 14237, 18137, 21337, 24937 and 28537. Ian may also visit the **Falklands**, VP8, from time to time. QSL via G4LTI.

T68G is now on from **Afghanistan**, where the operator, Johnny, LA5IIA, is working with UNICEF as a Telecoms Officer until March 2007. Johnny emphasises CW, the WARC bands and low bands, and some digital modes. He was previously active as YA8G. QSL via LA4YW.

VK6DHI will be active from **Dirk Hartog Island** (OC-206) from 20 to 23 August. There will be three or four operators. QSL, direct only, to VK4AAR.

Adam, K2ARB/1, will be active from **Martha's Vineyard** (NA-046) during much of August. He'll be on CW on 17, 20, 30, 40 and 80. QSL via K2ARB.

EA2RC and CT1BWW will be active as PY0F/EA2RC and PY0F/CT1BWW from **Fernando de Noronha** (SA-003) from 1 to 14 August. See EA2RC's website for further information.

IOTA CONTEST

A few more IOTA contest notifications since last month; hopefully your *RadCom* will arrive in good time for this information to be of use. Firstly, a multi-op effort as ES2U from Rammu Island (EU-149). Others include DT0HF/2 Taebu Island (Korea, AS-105), D70YT Ch'angson Island (Korea, AS-081, QSL HL5BDD), VY2TT Prince Edward Island (NA-029) by K6LA, F/ON5MF Batz Island (EU-105) by ON5MF and ON5HC, SK2T Bredskär Island (EU-135), Brac Island (EU-016) by 9A ops (call not mentioned), and MM0Q Summer Isles (EU-092) by MM0BQI.

AWARDS NEWS

The Austrian amateur radio society OeVSV is sponsoring the OE50-Diplom for working Austrian stations with the special OE50 prefix throughout 2005. Austria is celebrating the 50th anniversary of the signing of the state treaty which established political autonomy for the Austrian Republic after occupation by the Allied countries - the USA, Great Britain, France and the Soviet Union. Diplomas can be obtained by contacting OeVSV Dachverband-Diplomreferat, Eisvogelgasse 4/1, 1060 Vienna, Austria. For more information you can send an e-mail to diplom@oevsv.at

CQ Magazine is sponsoring what they call the 'iDX Award', for "contacting" 25 or more DXCC entities using Internet gateways linked to amateur radio (using Voice over IP protocols such as IRLP). I would argue that such "contacts" are similar to working through a 10m or VHF repeater, where the only 'DX' you have worked is the repeater itself. These are perfectly valid means of communication, but I really don't see the value in issuing a certificate for it, any more than for doing so via a mobile phone (which is also a merging of radio and wired technologies!)

However, if you wish to give it a whirl, I am more than happy to provide further details. Better, surely, if the desire is to encourage newcomers into DXing, to have some sort of 'DXCC-Lite' award for, say, 25 countries and two continents worked?

CORRESPONDENCE AND TABLES

George, G4PTJ, continues to head this year's table with an excellent score given the poor band conditions, and he has managed to pull out some very good DX including T32Z on 15m CW along with ZK2, KH0 and TR on 20m; V8, ST2, YI, and VU on 40m, ZS for a new country on 80m and, as he puts it, last but not least the FT5XO operation which he managed to work on several bands and modes. George congratulates the Rockall team for their efforts and deprecates those who criticised the early close-down, feeling that many hams fail to appreciate the dangers and difficulties inherent in an operation of this type.

Mike, G4DDL, put his QRP to use to work V51AS on an otherwise empty 15m band, but apart from that only mentions a QSO with T77C.

Peter, G3JFS, reports a few new ones for the year, despite deep QSB and noisy bands making it very hard going at times. DX included (20m PSK) HR1RQF, (20m RTTY) CY9SS, HV0A, SU1SK and (15m RTTY) 5U7B. CY9SS was worked on 40m CW, 20 and 17m SSB and 30 and 20m RTTY. Peter also mentions that F6CTE has released a new version 3.8 of *Multipsk* with the default version of *OLIVIA*. This runs on Windows and is much easier to use than *Olivia-Aid*. See F6CTE's website. Peter says that the Help file for *Multipsk* has a lot of useful information on many of the data modes currently in use.

Derrick, G3LHJ, reports two new ones on RTTY by way of HZ1NH and TU2OJ, while CW yielded S9SS, YI9LZ, V73NS and 9G5DF on a few bands.

Cris, GM4FAM, comments, "An interesting month - lots of short skip to EU on 10 and 12m plus a big aurora on 30 May which stretched down at least as far as Leeds (highlight was UA0BA at 1610 579A then gone at 1612!). 1 June was interesting also with lots of 10m repeaters audible throughout Europe." Cris reports QSOs with: 10m CW D4B, EA9/OL8R, S9SS, TT8AMO, UA0BA (Aurora); 12m CW 9G5FD, OY1CT (Aurora); 15m CW 9G5FD, HZ1EX, OY1CT (Aurora), PZ5XX, TU2CI; 15m SSB TZ9A; 17m CW 3B9FR, 9G5FD, AP2IA, CX2AQ, CY9SS, PZ5XX, R1ANN, TS3B (Tunisia), TT8AMO, VP5/K7LAZ; 17m SSB A92GR, CY9SS, TZ9A; 20m CW 9G5FD, BX3/DJ3KR, C6AKU, CY9SS, HZ1EX, KH0/JA3MVI, RA0FU/P (AS-025); 20m SSB CY9SS, TZ9A; 30m CW 9G5FD. Looking at my 9G5FD statistics, I worked 4213 different stations of which just 25 worked me on five bands, nine on six bands and four on seven bands, so Cris did well to be one of the 5-banders.

Stan, G0KBL, mentions just 5W0HR on 20m, CY9SS on 40m and XT2JZ on 30m. Damian, M0BKV, felt that propagation was working against him in the WPX CW contest, but managed D4B on 40 and 20m (if any readers wonder why D4B is so loud, check the photos on the website!), TU9C on 40m, 8P7A, PJ2W and P40W on 15m. Outside the contest, he worked C37JPE (Andorra) and 5Z4ES on 20m; ST2BF, V51AS and A71A on 15m.

Gerry, G0RTN, says he has been busy at work recently, and has also been "drawn into 6m". What an admission! Nevertheless, he managed some nice HF DX including: 40m CW PZ5XX, TI5A, XT2JZ, ST2VB, CY9SS; 40m SSB CX5BW, CY9SS; 30m CW 9G5FD, V25O, FG5FR; 20m CW V44KJ, A45XR, FP/N6RA; 17m CW 9V1CW; 17m SSB TZ9A; 15m CW TU2CI, 9G5FD, ZD7BG, ST2VB and 15m SSB ST2VB.

Phil, GU0SUP, missed 8 - 9 weeks of operating at the beginning of the year due to a broken arm, so it has taken him longer than usual to reach 100 countries on RTTY. Recent RTTY contacts include NP4BM, 9M2CNC (new call of 9M2/G4ZFE), and 9M6/G3OOK. Terry, G1UGH, reports (all SSB) TZ9A on 15m, 5N8NDP and YI9LZ on 17m and 9M2CNC on 20m (for a new country).

Jim, MM0DXH, writes with details of some of his recent DX. There are some nice ones including: 20m SSB ZK1JD, ZK2QQ, BI4Q, BG7LHY, 9M2TO, XU7TZG, Z22JE, 5R8FU, HV0A, 9G5OO, OX4X, 17m PSK HZ1IK; 17m SSB VR2MY, TT8PK. Jim runs an FT-1000MP MkV at 200 watts maximum to a Cushcraft X-7 triband Yagi, which he also uses on the WARC bands via the tuner. Mark, G0LGJ/M, managed only two new ones this month, TZ9A on 17 and 4U1ITU on 40m.

Chris, G1VDP, sent a couple of extensive reports, and also mentions that he will be activating some lighthouses over the summer as well as indulging his other hobby of match fishing. Recent DX highlights include; 20m 5X1RI, ZK1JD, BG7LHY, CY9SS, 9M2MT, A6/ON5NT, 8P6RC; 17m FG5GP, CY9SS, S79GG; 15m ZD7FT, S01MZ, TZ9A, TY3V, V51AS.

Peter, G3HQT, reports contacts with 12m 7Q7BP; 15m PZ5XX; 20m D4B; 30m 9G5FD, CY9SS, ST2VB and 40m TI5/N0KE, XT2JZ, 5T0JL, FP/K2VUI, ZF1A. Peter comments, "A week's holiday, QRN, poor conditions and chasing a dry joint in the aerial

COUNTRIES WORKED, 2005

(starting 1/1/05, sorted this month by CW totals)

CALL	CW	SSB	DATA	MIXED
G4PTJ	187	149	0	223
G0KBL	182	0	0	182
GM4FAM	180	91	0	193
G4KFT	172	0	0	172
G4WFQ	163	40	60	181
G0RTN	155	67	0	167
G3JFS	154	117	140	183
G3TBK	149	24	10	152
GM0EGI	140	101	0	179
G3YMC (QRP)	140	0	0	140
G4OBK	138	32	74	156
G3HQT	136	0	0	136
G3LHJ	135	56	79	147
MU0FAL	111	78	0	125
M0BVE	103	0	0	103
G4WXZ	101	92	0	141
MM3AWD	101	119	56	127
G4RQI	94	40	0	94
M0BKV	79	112	32	140
G3WP	77	0	0	77
G4IDL	70	0	0	70
G3YVH	67	68	0	109
G4FVK	67	75	0	93
G4DDL	64	33	1	68
GM0TGE	54	98	0	110
MM0BQI	51	57	79	108
M0AWX	27	112	24	126
M0CNP	7	42	68	84
M5GUS	0	135	0	135
G1VDP	0	117	0	117
GU0SUP	0	0	100	100
G1UGH	0	96	0	96
M3NCG	0	88	0	88
G0LGJ/M	0	87	0	87
G4NXG/M	0	83	0	83
G6CSY	0	37	59	63
G6HOU	0	32	46	62
G7CLY	0	34	0	34

haven't helped this month's total!"

Scott, MM3AWD, put some 3000 QSOs in the log during May - can't be bad! - and selects CY9SS on 40 20 and 17m, S9SS, 5V7RT and ZD7VC on 20m SSB and 5A9W on 40m CW for special mention. In fact, Scott even goes so far as to comment on the good propagation, particularly to the US West Coast, which flies in the face of comments from several other correspondents. Maybe Scotland is the place to be right now! Scott is another one who is busy with lighthouse activity, with plans to activate some 20 or so lighthouses over the summer period. Details can be found on his website.

5BDXCC ON LoTW

Fred, G4BWP (who, by the way, compiles the excellent *RSGB Prefix Guide*) has kindly alerted me to the fact that John, G3LZQ, is one of the first to have more than 100 entities matched on each of the five main bands via the ARRL's Logbook of The World (LoTW). Indeed, John is probably the first "ordinary" amateur to achieve this; the first such 'LoTW 5BDXCC' was by KC1XX, which is a major multi-multi contest station.

John's band totals, as of 24 April, were: 160m 66; 80m 105; 40m 128; 20m 108; 15m 116; 10m 110. These are from 5639 matches in LoTW from 60k submitted QSOs.

425 DX NEWS MAGAZINE

Many of you will already be aware of the excellent free weekly *425 DX News*, available online or sent to you by e-mail. This publication is put together in Italy and is a superb source of DX news, with a particular focus on Islands on the Air activity. What you may not be aware of is that site contains a host of other useful information including QSL Manager lookup, and that a monthly compilation of DX news, including write-ups of past operations and lots of photographs is available for download in magazine format as a PDF file. The file is on the large side, but not a problem if you have broadband. See the *425* web site for all this data.

SILENT KEYS

A few well-known DX stations have become silent keys recently. Firstly Eddy, FK8CR, who participated in the first IOTA DXpeditions to the Chesterfield Islands (FK5C, February 1993) and to Matthew Island (FK5M, December 1996). Eddy also gave several UK topbanders this very rare one on 160m. Another is Don, VK3DZM, who became a silent key on 4 June. Don was well-known to those who frequent the top end of the 80m band, and gave many UK amateurs their first VK contact on 80.

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 **October** issue by **20 August**. ♦

FURTHER READING

RSGB Prefix Guide compiled by Fred Handscombe, G4BWP.
RSGB Amateur Radio Operating Manual by Don Field, G3XTT.

WEB SEARCH	
425 DX News	www.425dxn.org
D4B	www.qsl.net/d44tt
EA2RC	www.geocities.com/EA2RC/index.htm
F6CTE	http://members.aol.com/f6cte
MM3AWD	http://mm3awd.eqth.info
T68G	http://home.broadpark.no/~johnnyj/YA8G

HF F-Layer, Propagation Predictions for August 2005

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	81.....1889	8651..258998	.7334223898.	..68878888..	........8...	.....	.....	.....
*** ASIA								
Yakutsk	.....	.....21.	353222366777	..777674..4.	...45.....	.....	.....	.....
Tokyo	.....3..	.....57..	.....23472.	.....23..3..	.....2.....	.....	.....	.....
Singapore	.....22.	27862	78722	.....2764..	.....253...	.....	.....	.....
Hyderabad	21	3777	2.....58887	.....158765.	..566778....	...455.....	.....	.....
Tel Aviv	85.....5888	883....58998	..853368999.	..77666799..	....33.....	.....	.....	.....
*** OCEANIA								
Wellington	.....	.....5...	.....1235...	...2.....2..	.....	.....	.....	.....
Well (NZ) (LP)	.....	567.....5..	768.....675	4.5.....375	.....3.	.....	.....	.....
Perth	.....	16521	.....242.2	.....	.....	.....	.....	.....
Sydney	.....	.....266..	.....464..	.....22...	.....	.....	.....	.....
Melbourne (LP)	.....	..2.....	..21.....	.....	.....	.....	.....	.....
Honolulu	.....	.....	..553.....	...44.....	.....	.....	.....	.....
Honolulu (LP)	.....	.....	.....	.....4...	.....4...	.....3...	.....	.....
W. Samoa	.....	.....	..3322.....	...4543.....	.....2.....	.....	.....	.....
*** AFRICA								
Mauritius	1.....221	1.....6875	27861	.....576..	.....33...	.....	.....	.....
Johannesburg	78.....688	78.....9998	29974	..52..2797..	..3322367...	...322254...	.....	.....
Ibadan	65.....255	882.....3888	7681...58998	..97..58998.	..89666.99..	...8....99..	.....99..	.....
Nairobi	4.....133	73.....4777	.7.....17887	.341..36888.	..76556786..	..3766678...	.....6...	.....
Canary Isles	884.....888	9983...17999	878621268998	..663228989 6	...8877799..	.....79..	.....	.....
*** S. AMERICA								
Buenos Aires	664.....3	889.....79	637.....277	..2.....663	.....2..487.	.....2..48..	.....6..	.....
Rio de Janeiro	221.....2	766.....577	522.....887	862	....5322697.	....532.68..	.....7..	.....
Lima	111.....	656.....26	2.41.....66	41	.....3..266.	.....2...6..	.....	.....
Caracas	.....	664.....26	6262.....67	....2....474	.....22.463.	.....6..	.....	.....
*** N. AMERICA								
Guatemala	1.....	535.....4	2.2.....4	.....2.	.....	.....	.....	.....
New Orleans	11.....	663.....2	222.....16	.....25.	.....54666.	.....	.....	.....
Washington	65.....1	886.....17	75.....178	5456786	.....344456.	.....	.....	.....
Quebec	88.....8	886.....69	377	....232.577.	.....77.	.....	.....	.....
Anchorage	.....	21.....1	..2.....23	.....25.	.....	.....	.....	.....
Vancouver	.....	.2.....	..2.....	.....	.....	.....	.....	.....
San Francisco	.....	.33.....	..2.....	.....	.....	.....	.....	.....
San Fran (LP)	.....	.....	.....	.....	.....	.....	.....	.....

Key: Each number in the table represents the expected circuit reliability, e.g. '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 http://members.aol.com/g4fkhgwyn The page is updated monthly. The provisional mean sunspot number for June 2005 issued by the Sunspot Data Centre, Brussels, was 39.6. The daily maximum / minimum numbers were 73 on 7 June, and 0 on 26 June respectively. The predicted smoothed sunspot numbers for August, September and October are respectively: (SIDC classical method - Waldmeier's standard) 23, 22, 21 (combined method) 27, 26, 25. Longpath predictions are shown with (LP) following the path name. Higher input power and superior aerials have been used for these predictions; less well-equipped stations may find the longpath predictions somewhat inaccurate.

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RRP £2768, ML&S only £2299 (Rig only: £2099)

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Icom IC-7800
The worlds best H.F. Transceiver? Probably.
No silly freebies, just the ultimate understanding and support you deserve when making an investment of this magnitude. To discuss the new HF+6M Super Rig from Icom, call the ML&S Sales team today.
RRP: £6400.00

Wednesday

Icom IC-7000
The replacement for the IC-706 will be arriving with us shortly.
HF/VHF/UHF All-mode Transceiver
IF-DSP technology comes to a new multi-bander.
Please see our website for more details or call for a brochure.

Thursday

Icom IC-703
10W Portable/Base HF Transceiver with built-in ATU.
RRP: £703, ML&S: £449

LOG ON NOW
www.hamradio.co.uk

Friday

Icom IC-718
Basic ready to go 100W HF Transceiver supplied with Microphone & DC Lead.
RRP: £649, ML&S: £449 or 48 x £13.29 p/m

Saturday

Icom IC-910X
The best 2/70 & 23cm dedicated all mode base. 23cm included.
RRP: £1675, ML&S: £1239 or 48 x £36.66 p/m
Basic Version (without 23cm) also available £1089
or 48 x £31.93 p/m

Sunday

Icom IC-E208
2/70 mobile 50/55W Transceiver with host of additional features. Remote head leads included.
RRP: £365, ML&S: £239

Apply now for your very own ML&S Store Card

conditions apply

ML&S martin lynch & sons

Suppliers of Communications Equipment

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Take Away Now and Pay NOTHING Until This Time Next Year!!

Having many years of experience offering specific finance packages for our customers, we can now offer various options on payment. We have added "Take-Away Now & Pay Later" to all our products over £199. It works like this:0% APR An example of our Take-Away Now: Discounted price of £300. Pay no interest provided you pay by the date the amount is due, in full. After the 12 months period has expired pay £15.76 for 36 months. TAP £567.43
Please note that interest is calculated from the date of the original agreement. 29.8% APR.

The ML&S Ham Radio Top Sellers, Antennas & Accessories. Much more on show at the store

See previous page for our special prices on Icom Products

Have you any USED HAM RADIO EQUIPMENT FOR SALE?

Why risk selling your equipment to someone who only wants to pay the lowest price? I've been buying and selling Ham Radio since I was 14 (you saw the photo last month!) and whilst it's polite to ask "How much do you want?", if you're really unsure then contact ML&S. Either myself or Chris, my sales director, will personally advise you.

- Not only do I pay the most for quality gear, I can arrange collection and pay either cash or credit direct onto your Debit Card.
- My company has an excellent reputation because we are trusted - that goes a long way in this day and age.
- If you have any Amateur Radio equipment, however small or old, we're interested. From SWR meters to the top of the range Base Station, the transaction will always be the same.... **...top price and treated professionally.**

73 Martin G4HKS

★ **No.1 NEW Yaesu FT-60E**
Latest Twin Band 5W Handie from Yaesu. **Only £169!**

★ **No.2 Yaesu VX-7R**
The U.K's best selling Triple Band Handie.
Only £269

★ **No.3 Yaesu VX-150**
Built on the commercial VX-400, simple to use rugged 2m Handie, supplied with Nicads & Charger.
RRP: £149, ML&S: £99.95 or 'Twin Pack' only £199

★ **No.4 Yaesu FT-847 + MFJ-993 & MP-250A Bundle! Plus FREE MD-100 DESK MIC!**
Still our best selling All Band Base Transceiver. Bundled with the MFJ-993 Auto Tuner (that tunes practically anything) & the excellent MyDEL MP-250 PSU.
Total Package £1279
(Rig only + MD-100: £999)

★ **No.5 Yaesu FT-817ND Latest Version**
The latest FT-817ND comes complete with HF+6+2+70 and Metal-hydride batteries, charger, mic & antenna.
Call for best price
(FT-817ND-DSP Version available)

★ **No.6 Yaesu FT-857+ ATAS-120A** Nobody can match the flexibility of the 857 & ATAS-120A Auto Antenna. Just plug the ATAS into the FT-857 & operate anywhere from 7MHz-432MHz, without having to change or touch the antenna! (Duplexer is required for 2/70).

We can even offer a professional car install service.
Only £799 for both
(Rig only: £579)

★ **No.7 Yaesu FT-897 + FNB-78 & CD24 PAckage**
High Power version of the FT-817. 20W output as a transportable, 100W as a base/mobile. This month we are offering the full transportable set-up including the internal battery & charger.
Total package £779
Don't forget the Miracle Antenna!
(Rig Only £649)

★ **No.8 FT-1000MP mkV 200W + MD-100 & SP-8**
Identical to the FT-1kField but 200 Watts and external PSU. With Desk Mic & Speaker.
Package Price: £2249
(Rig only £2099)

★ **No.9 Yaesu FT-1000MP mkV Field + MD-100 & SP-8** The FT-1k Series has never been such good value. Offered with the matching Desk filtered Speaker and Base Microphone at an even bigger saving.
Package Price £1859
(Rig only £1699)

★ **No.10 Yaesu FT-7800**
Bar make the tea it'll give you 2m/70cm- @ 50W/40W.
RRP: £239, ML&S: £239

★ **No.11 Yaesu FT-8800**
Similar to the FT-7800 but can receive on 2 & 70 simultaneously.
RRP: £289,
or 48 x £8.26 p/m

★ **No.12 Yaesu FT-2800M**
2M brick-built 65W rig.
RRP: £179, ML&S: £159

★ **No.13 Yaesu VX-2E**
Micro Handie 2/70 with scanner. Complete with Li-ion battery, charger & antenna.
NEW LOWER PRICE
Now only £119

★ **No.14 Yaesu FT-8900 with FREE YSK-8900 Remote Kit!**
One-stop solution to high-power FM on 10m, 6m, 2m & 70cm. When your local repeater is busy, slip onto 10m & work DX! **Only £339**

★ **No.15 Kenwood TS-2000E** Just superb on all bands 160m-2m with optional 23cm (X-Version).
RRP: £1699, ML&S: Call

★ **No.16 Kenwood TS-2000X** As above but with 23cm fitted.
RRP: £1999, ML&S: Call

★ **No.17 Kenwood TS-480SAT** The best selling Kenwood H.F. Can be used mobile or base. Includes ATU.
Inc. FREE HEIL MIC!
NEW LOW PRICE: £699.95

★ **No.18 Kenwood TS-480HX** As TS-480SAT but 200 Watts, no ATU.
Inc. FREE HEIL MIC!
NEW LOW PRICE: £799.95

★ **No.19 Kenwood TS-570DGE** Still the ideal choice if you are keen on H.F. and want an easy to use radio.
RRP: £999, ML&S: £799
or 48 x £23.64 p/m

★ **No.20 Kenwood TMD-700E** The unique 700E is not only a dual-band FM rig but has APRS and TNC built-in. **RRP: £519, ML&S: £439**
or 48 x £12.99 p/m

★ **No.21 Kenwood TH-F7E**
2/70 Handie with Gen Cov RX. If you must have SSB RX on your dual-bander then buy one!
RRP: £289.95, ML&S: £249

★ **No.22 Kenwood TH-D7E**
A 2/7- Handie with TNC and APRS capability.
RRP: £359, ML&S: £299
or 48 x £8.85 p/m

At last Digital SSB audio has arrived.

(At a sensible price too!)

Hearing is Believing!

SSB has been around since the fifties. Imagine super low noise-free communication using your existing transceiver on SSB. Just plug-in and go!

Until the "big three" finally install digital voice in their products (its only a matter of time) you can use the system right now. See web for details and ordering info.

AOR ARD9000 Digital Voice Modem

Only £169
incl VAT. P&P £10

Features:
- NO transceiver modifications necessary
- Digital voice communications using existing analog transceivers
- Amazing Audio Quality
- Works on Single Side Band (SSB) mode
- Automatic digital receive
- Optional interface cables for most popular transceivers
- Built-in high grade Vocoder (AMBE)
- Built-in FEC error correction
- Compact unit. Easy to operate.
- Utilizes a uniquely designed high performance DSP engine
- Uses the established G4GUO open protocol

BARENCO

For more details see our web site or CALL.

Buddipole

W3-BP Buddipole Compact Portable Dipole 40m-2M £199.95
W3-BM Buddipole Mast for Buddipole £49.95
W3-BPT Tripod for Buddipole £89.95

For the full range see the website.

Palm Keys

MP-817 The smallest retractable paddle key - ever! £59.95
Code Cube Bolt-on memory keyer for Mini-paddle. £79.95

Noise reduction

bhi Ltd. A British company producing probably the worlds best DSP noise reduction speakers and modules. ML&S stock the whole range of BHi products offering excellent technical engineering, quality and reliability. You just wouldn't believe how much noise these units remove - SSB transmissions almost sound FM quality!

NES-5 Only £79.95 Entry Level DSP Noise Cancelling Speaker for AM & FM Reception

NES10-2 Only £99.95 Adjustable Noise Eliminating Speaker

NEIM-1031 Only £129.95 Noise Eliminating In-Line Module
The same as the NES-10 but an in-line module for you to place between your receiver/rig and own speaker.

Six Way Switch Box Only £29.95
Need to Connect more than one piece of equipment to your bhi Noise Eliminating Speaker or In-Line Module? The 1042 Switch box is the answer...

Apply now for your very own ML&S Store Card

Conditions Apply

"Classic" Finance example: Kenwood TMD-700E. RRP: £519. Payment illustration: Zero deposit and 48 payments of £12.99 per month. Total amount payable: £623.52. APR: 19.9%. ML&S is a licenced credit broker. Finance offered subject to status. Full written details on request. E&OE

Don't forget! ML&S are approved stockist for the following: bhi Ltd, Casio, Icom, Kenwood, Maldol, M

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The ML&S Barbeque and Boot Fair

30th July 2005

don't miss it - end of this month!

Free Entry. Doors open 9.00am.

Sponsored by Yaesu, Icom & Kenwood

See my other page in this magazine for full details

SMALL GARDEN? NO GARDEN?

arno elettronica

ANTENNA

See the full review by Don Field G3XTT in this issue.

Introducing a new range of antennas from Arno Electronics. Available for any band 10m-160m, ML&S stock this exciting new product available for immediate despatch.

All antennas are beautifully built and pre-tuned at the factory. Supplied with fixing clamps & clear installation instructions. Easily fine tuned with outer ring sleeve. You will be totally amazed at how well they work. No ATU required. Just plug-in and work!

Cobra 10	28-29.8MHz,	2kW	90cm long	(500W RTTY/AM) £105.00
Cobra 12	24.890-24.990	2kW	90cm Long	(500W RTTY/CW).....£105.00
Cobra 15	20.7-21.7MHz	2kW	90cm long	(500W RTTY/AM) £105.00
Cobra 17	18.068-18.168MHz	2kW	90cm long	(500W RTTY/CW).....£105.00
Cobra 20	13.8-14.8MHz	2kW	90cm long	(500W RTTY/AM) £105.00
Cobra 30	9.9-10.3MHz	2kW	93cm long	(500W RTTY/AM) £105.00
Cobra 40	7-7.2MHz	2kW	93cm long	(500W RTTY/AM) £105.00
Venus 80	3.5-3.8MHz	2kW	248cm long	(500W RTTY/AM) £179.00
Venus 155	1.913-1.933MHz	2kW	248cm long	(500W RTTY/AM) £179.00
Venus 160	1.830-1.850MHz	2kW	248cm long	(500W RTTY/AM) £179.00

Delivery: Cobra £20, Venus £25. (England & Wales, phone for other destinations)

Tigertronics Sound Card - Radio Interface

For all available Digital modes, the SignaLink SL-1+ also supports the latest Voice modes such as Internet Repeater Linking (EchoLink, VOIP, etc.), Remote Base, and Voice Keyer operation. We sell four versions of the enhanced model the SL-1+8R with 8-pin round mic. connector, the SL-1+RJ45 with RJ-45 mic. connector, the SL-1+RJ11 with RJ-11 mic. connector and the SL-1+6PMD with 6-pin mini Din Data Port connector SL-1+8xxx Interface with rig lead (you specify!

£69.95

Extra leads

£14.95 (8-Pin, RJ-45, RJ-11, 6-pin mini DIN)

£19.95 (SL-CAB-13I 13-Pin Icom), (SL-CAB-13K 13 Pin Kenwood)

NCS Multi Switcher

New Low Price! £239.95

The NCS Multi-Switcher is a "mini-console" that lets you switch all operator equipment (microphone, headset, keyer, foot-switch, etc) to any of four radios at the push of a button. You can switch between a headset, desk or hand mic, TNC, Phone Patch, Sound Card, etc. The Multi-Switcher matches the impedance, audio level and pin-out of nearly any microphone to virtually any radio including vintage rigs. The Multi-Switcher also switches your foot- or hand-switch and CW keyer to the selected radio.

Connecting cable for any Yaesu, Icom or Kenwood Radio £19.95 each

For more details and the complete range of NCS products see our web site.

Hustler 6-BTV Only £229.95

The best performing H.F. Vertical - ever!

We have literally sold hundreds of these with fantastic customer reports. At last a vertical that gives you REAL PERFORMANCE on 80m and 40m, as well as the other bands. No radials required. Just mount 18 inches above the ground, connect to a decent earth spike close by and operate.

6-BTV HUSTLER 80-10m Vertical 1kW.

6 Bands: 10, 15, 20, 30, 40, 80m. VSWR 1.6:1 or better. 10-40m Bandwidth up to 100kHz 80m. Power: 1kW

If you can't mount the Hustler 6-BTV on the ground then the only choice is the new VK5Jnr. It's so good we use one at our new H.Q.!

MyDEL MultiTrap

Forget the G5RV. Install a proper TRAPPED wire dipole MutiTrap for 80-10M. Only 66'. Must be centre supported. **£99.95**

MyDEL MegaTrap

Same as Multitrap but 160m/80/40m, 105' long .

£109.95

ML&S + Ten-Tec

Aimed at the user who wants ultimate RF performance, when Peter Hart commented the Orion is a one horse race when it comes to close in dynamic range performance at a recent CDXC dinner, we knew we had to add this important transceiver to our product range.

Available in two different versions (with and without the internal auto ATU), we currently have one on demonstration in our main showroom.

Ten-Tec 565 Orion Transceiver

With ATU: £2799.00

Without ATU: £2499.00.

Available from stock.

Or £99 deposit & 36 x £98.10 p/m.

Trade-ins a pleasure.

Please see our web site for full details and list of accessories.

Daiwa Meters

Daiwa CN-101L: SWR/PWR Meter 1.8-150Mhz
Power range: 15/150/1.5kW ..... ML&S only £59.95

Daiwa CN-103LN: SWR/PWR Meter 140-525MHz
Power range: 20/200W ..... ML&S only £65.95

Daiwa CN-801H: SWR/PWR Meter 1.8-200Mhz
Power range: 20/200/2000W ..... ML&S only £109.95

Daiwa CN-801V SWR/PWR Meter 140-525MHz
Power range: 20/200W ..... ML&S only £119.95

Daiwa CN-801S SWR/Power Meter 0.9-2.5Ghz
Power rating: 2/20 watts..... ML&S only £139.95

Miracle Antennas

Miracle Whip Others try & copy it but never quite get there. £129.95

Miracle Ducker Like the Miracle Whip but has BNC socket in lieu of whip to connect random wire. £129.95

Miracle Ducker IL Latest model! Identical to Ducker but has BNC plug for mounting instead of PL-259. £129.95

QPAK The best QRP ATU money can buy. £149.95

MyDEL Power Supplies

A new rage of PSU's from MyDEL. The neatest smartest looking desk top power supplies that money can buy. Ideal for powering any main rig or accessory requiring 13.8V DC at up to 25 Amps.

MyDEL MP-250A

25 Amps maximum, 22Amps constant, ideal for most modern HF Transceivers

Only £89.99 incl VAT!

- Variable Voltage 9-13.8VDC
- 110-234V input
- 2 x outputs: 25A Binding Posts, 7A Cigar Socket
- Fan cooled, speed variable to voltage supplied
- Two huge back-lit meters, Volts/Amps
- Fully protected, supply shut off if more than 25A is drawn, re-setable by switching off for 25 seconds.
- Only 5 3/4"W x 4 1/2" H x 6" D in size
- Less than 35mV peak-to-peak ripple under full 25AMP load
- Full exchange warranty for 2 Years

MyDEL MP-4128

Another new switch mode PSU from MyDEL. Similar in spec to the MP-250A but without meters or cigar lighter o/p. 22-25 AMP output with heavy duty binding posts on the front panel and push on terminals for lower current output on rear. Fully protected.

£69.99

Yaesu FP-1030A

A power supply for Life? Probably.

25-30 Amp power supply **£179.00**

FJ, Miracle Antenna, Oregon Scientific, Revex, Tokyo-Hypower, Watson, Diamond, Yaesu and many more!

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Thanks to the UK Importer LOWERING the RRP we can now offer MFJ at the best prices ever!

MFJ-902 Tiny Travel Tuner.
Tiny 4½ x 2¼ x 3 inch tuner handles full 150 Watts! Covers 80-10 Meters, has tuner bypass switch, tunes nearly anything! **£65.95**

MFJ-904H Tiny Travel Tuner/ SWR/Wattmeter & Balun.
Tiny 7½ x 2¼ x 3 inch tuner handles full 150 Watts! Covers 80-10 Meters, has tuner bypass switch, tunes nearly anything! **£109.95**

MFJ-949E 300 Watt Antenna Tuner. More Hams use MFJ-949's than any other antenna tuner in the world! Why? Because the world's leading antenna tuner has earned a worldwide reputation for being able to match just about anything. **£139.95**

MFJ-974H 160 Thru 6 Meters Balanced Line Antenna Tuner.
The MFJ-974H is a fully balanced true balanced line antenna tuner. It gives you superb current balance throughout its very wide matching and frequency range. **£159.95**

MFJ-993 300 Watt IntelliTuner Automatic Antenna Tuner.
The MFJ-993 IntelliTuner lets you tune any antenna automatically balanced or unbalanced - ultra fast. It's a comprehensive automatic antenna tuning center complete with SWR/Watt-meter, antenna switch for two antennas and 4:1 current balun for balanced lines. **£209.95**

MFJ-969 Roller Inductor Antenna Tuner.
The MFJ-969 Antenna Tuner gives you MFJ's superb AirCore Roller Inductor and full 6 meteres through 160 Meter coverage! 300 Watts PEP SSB full featured antenna tuner, widest matching range, full size lighted Cross-Needle SWR/Wattmeter reads true peak forward power, QRM-Free PreTune, 8 Position antenna switch, built in 50 Ohm dummy load, heavy duty 4:1 balun. **£169.95**

MFJ-259Z Special * With Batteries, Charger & Loop *
Range: 1.8-170MHz. MFJ's favourite Antenna Analyser with HF frequency coverage. It's simple to operate and keeps your antennas in check. MFJ-259B gives you a complete pictures of your antenna's performance. You can read antenna SWR and Complex Impedance 1.8 to 170MHz. **£199.95**

MFJ-269
Range: 1.8-450MHz. MFJ's latest Antenna Analyser with UHF frequency coverage. Based on the successful MFJ-259B it combines all of the features plus more. **£269.95**

If you see it advertised cheaper in this magazine (or on the web) from a UK stockist **we will try and BEAT it!**

Don't forget! ML&S now stock one of the largest displays of MFJ in the country!

Maldol Maldol Maldol

Maldol HVU-8

The Maldol HVU-8 is a unique and ultra-compact HF, VHF, and UHF antenna developed for confined and restricted space installations like apartments and condominiums or for temporary or portable use. Installation is easily accomplished and convenient due the HVU-8 being only the traditional height and weight of HF vertical antennas. The HVU-8 comes with mounting brackets, U-bolts, etc. for easy installation.

HVU-8 Specifications

- Frequency: 80/40/20/15/10/6/2M/70cm bands
- Type: 1/4λ (3.5/7/14/21/28/50MHz)
  1/2λ (144MHz)
  5/8λ x2 (430MHz)
- Gain: 2.15dBi 144MHz, 5.3dBi 430MHz
- 70cm: Two 5/8 waves in phase 5.5 dBi gain
- Power: 200 watts SSB on HF and 150W FM on 6M to 70 CM
- SWR: 1.5:1 at fO frequency
- Connector: UHF (SO-239)
- Mast Diameter: 1.0 - 2.36 inches (25-60 mm)
- Height: 8.5 feet (2.62 m)
- Weight: 5 Lbs. 7 ounces. (2.4 kg)

Maldol HMC-4

Type:	Amateur HF/VHF/UHF mobile antenna
Band(s):	10m - 1/4-wave 6m - 1/4 wave 2m - 1/2-wave 70cm - 2*5/8-wave
Gain:	10 - 0 dBi 6m - 0 dBi 2m - 2.15 dBi 70cm - 5.5 dBi
Max power:	120W (10/6 m: 80 W)
Impedance:	50 ohms, M-plug/PL-259
Length:	1.19m
Weight:	390gr
Other:	Suitable for Yaesu FT-8900R.

Only £69.95

Maldol VK5-Jnr.

Compact ground plane antenna covering: 3.5/7/14/21/28mHz. It combines low-loss traps, with newly designed coil-bobbin, that can handle up to 500W on SSB. Adjustable solid radials give directional and omni-directional patterns. All traps and elements are adjustable to cover all bands and desired centre frequencies.

Only £219.95

NEW! GDX-50 Wide-Band Discone TX/RX Antenna

RX: 50MHz - 1500MHz
TX: 6/2/70
POWER: 50W
LENGTH: 1360mm
WEIGHT: 910g
DIAMETER: 530mm
SUITABLE MAST: 60mm

Only £69.95

For the complete range of antennas & mounts call for the 2005 catalogue or see our website

Maldol

Super High Gain Range

SHG-900 144/430MHz — *TYPE 1/2λ, 144MHz, 5/8λ, 430MHz • GAIN 2.15dBi 144MHz 5.5dBi 430MHz • MAX POWER INPUT 130W • CONN. M-P • LENGTH 960mm • WEIGHT 265g* — **£27.95**

SHG-510 144/430MHz — *TYPE 1/4λ, 50MHz, 1/2λ, 144MHz 5/8λ, 430MHz • GAIN 3.5dBi 144MHz, 6.0dBi 430MHz, • MAX POWER INPUT 130W • CONN. M-P* — **£39.95**

SHG-1500 144/430MHz — *TYPE 6/8λ, 144MHz, 5/8λ, 430MHz • GAIN 4.5dBi 144MHz, 5.0dBi 430MHz, • MAX POWER INPUT 150W • CONN. M-P • LENGTH 1500mm • WEIGHT 360g* — **£39.95**

THE BIG ONE!

SHG-2100 144/430MHz — *TYPE 5/8λ, 144MHz, 5/8λ, 430MHz • GAIN 6.0dBi 144MHz, 8.5dBi 430MHz, • MAX POWER INPUT 150W • CONN. M-P • LENGTH 2120mm • WEIGHT 650g* — **£69.95**

HMC Range

HMC-6S 7/21/28/50/144/430MHz — *TYPE 1/4λ, 7/21/28/50MHz, 1/2λ, 144MHz, 5/8λ, 430MHz • GAIN 3.5dBi 144MHz, 6.0dBi 430MHz, • MAX POWER INPUT 120W 7/21/28, 150W 50/144/430MHz • CONN. M-P • LENGTH 1800mm • WEIGHT 800g* — **£79.95**

HMC-10 & HMC-14 *10m & 20m add-ons for the HMC-6* — **£22.95 each**

HFC Range

NEW! HFC-217 *7/21MHz. Max power input 120W. Length: 1300mm. Weight: 450g* — **£44.96**

HFC-80L 3.5MHz — *TYPE 1/4λ • MAX POWER INPUT 120W SSB • CONN. M-P • LENGTH 2110mm • WEIGHT 530g* — **£44.95**

HFC-80 3.5MHz — *TYPE 1/4λ • MAX POWER INPUT 120W SSB • CONN. M-P • LENGTH 1540mm • WEIGHT 360g* — **£38.95**

HFC-40L 7MHz — *TYPE 1/4λ • MAX POWER INPUT 200W SSB • CONN. M-P • LENGTH 1870mm • WEIGHT 330g* — **£34.95**

HFC-40 7MHz — *TYPE 1/4λ • MAX POWER INPUT 120W SSB • CONN. M-P • LENGTH 1310mm • WEIGHT 210g* — **£29.95**

HFC-20L 7MHz — *TYPE 1/4λ • MAX POWER INPUT 250W SSB • CONN. M-P • LENGTH 1515mm • WEIGHT 275g* — **£34.95**

HFC-20 14MHz — *TYPE 1/4λ • MAX POWER INPUT 120W SSB • CONN. M-P • LENGTH 1010mm • WEIGHT 190g* — **£29.95**

HFC-15L 21MHz — *TYPE 1/4λ • MAX POWER INPUT 250W SSB • CONN. M-P • LENGTH 1515mm • WEIGHT 250g* — **£34.95**

HFC-15 21MHz — *TYPE 1/4λ • MAX POWER INPUT 120W SSB • CONN. M-P • LENGTH 1010mm • WEIGHT 190g* — **£29.95**

HFC-10L 28MHz — *TYPE 1/4λ • MAX POWER INPUT 250W SSB • CONN. M-P • LENGTH 1515mm • WEIGHT 245g* — **£34.95**

HFC-10 28MHz — *TYPE 1/4λ • MAX POWER INPUT 120W SSB • CONN. M-P • LENGTH 1010mm • WEIGHT 190g* — **£29.95**

Maldol Mounts

Earpiece & Microphone Headsets available for Yaesu, Icom & Kenwood

To see the full range of Hokushin's famous Maldol range please see our web site or call into the new showroom

Power Amplifiers from Tokyo-HyPower

NEW! HL-100BDX Latest HF & 6M all-mode amplifier. 5-10W i/p, upto 100W o/p. Ideal for FT-817 & IC-703..... **£429.95**

HL-1Kfx A sturdy 240 volt powered 500W linear amplifier all mode with protection against over-drive, over heat, high drain voltage, and faulty band setting. ALC out. Remote TX control, all for a very attractive price. **Only £1399.95**

NEW! HL-2KFX Latest HF+6M 1kW version (650W on 6M) of the HL-1K. Full QSK & built-in PSU..... **£2599.95**

Miracle Antenna Products

Miracle Whip Others try & copy it but never quite get there. £129.95

Miracle Ducker Like the Miracle Whip but has BNC socket in lieu of whip to connect random wire. £129.95

Miracle Ducker IL Latest model! Identical to Ducker but has BNC plug for mounting instead of PL-259. £129.95

QPAK The best QRP ATU money can buy. £149.95

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Tim Kirby, G4VXE

Willowside, Bow Bank, Longworth, Abingdon, Oxfordshire OX13 5ER.

E-mail: tim@g4vxe.com

Contest

This month Tim Kirby brings some news from the RSGB VHF Contests Committee and returns to the question "is contesting a sport?"

Andy, G4PIQ, chairman of the VHF Contests Committee writes, "After many years of service to VHF Contesting, the work/contesting balance has finally become too much for Steve Redfern, G4AEQ, and Steve has chosen to step down from the VHF Contests Committee - sincere thanks to him for all the time and effort he has given. This leaves us with a vacancy on the VHFCC for an enthusiastic and active contester who is keen to help us grow the participation levels in VHF contesting. The new committee member will be responsible for adjudicating a selection of contests themselves and will join in the regular discussions around rule setting and the day-to-day management of VHF contests. Access to the Internet is essential as almost all committee work takes place by e-mail and a basic degree of computer literacy is needed to run the computer-based adjudication process. If this excites you, please send an e-mail to the VHFCC Chairman, Andy Cook, G4PIQ, chairman.vhfcc@rsgb.org.uk, including a brief summary of your contesting experience and what you think you would bring to the role." You can also reach Andy by telephone on 0870 740 7909 most evenings and weekends.

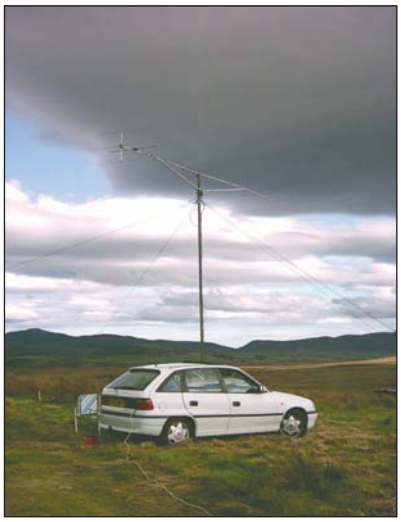
Andy also mentioned that the VHFCC has two new trophies to be awarded following a generous donation by James Beatwell, 2E1GUA. These will be known as the Foundation Shield and the Intermediate Shield. They will be awarded to the leading Foundation and Intermediate licensees in the Single Operator, Low Power sections of the VHF Championship.

Also, just a reminder that the postal address for folks not entering VHF Contests by the preferred e-mail route is VHFCC, c/o 5 The Howsells, Lower Howsell Road, Malvern WR14 1AD.

UK CONTEST E-MAIL REFLECTOR

The UK-Contest e-mail reflector is a useful source of information about contesting in the UK. It's a mailing list which you can subscribe to and e-mails about UK contesting will be distributed to all 'reflectees'. Amongst other things, Paul, EI5DI, sends out reminders about forthcoming contests, and how to set up his *SD* logging software for them. On occasions, contest organisers use the list to acknowledge lists of logs received, as well as participants' 'how was the contest for you?' type e-mails.

Roly, 9H1DE, asked for some information on how to subscribe to the reflector. Simply go to http://lists.contesting.com/mailman/listinfo/uk-contest and follow the instructions for subscribing. You may also use this page to view the archives of the reflector. Content is mostly HF, but VHF postings are welcomed and encouraged too.



The portable station of regular VHF contester Clive O'Hennessy, GM4VVX/P.

NEW VERSION OF N1MM SOFTWARE

Version 5 of the excellent N1MM contest logging software is now available. If you haven't tried it before, I recommend it. One of the main benefits of upgrading, if you have a slower computer is that two new indexes have been added to the database, which vastly improves performance on lower end machines. K1TTT's new facility for recording and playing messages is also included. Various other amendments have been made. Take a look at www.n1mm.com for details and to download the software for free.

IS CONTESTING A SPORT?

The headline recently, where we suggested that Amateur Radio Contesting is a sport, caught the eye of Tom, G3HGE, who wrote a lively and entertaining e-mail. He starts off, "I thought your comment on contesting being a sport quite interesting. I was a racing cyclist and radio amateur when in my teens and if you had written that comment at the time I was competing, I might have sawn your mast down. Times change and people get older and wiser." Indeed, and I must admit that I have reservations about defining contesting as a sport. Nevertheless, we can certainly recognise certain attributes. Does contesting require physical strength and stamina? Ask someone who operates for 36 or 48 hours in a single operator contest, or takes the 20m seat in a multi-operator contest. Ask them about the effects of lack of sleep - how paddles can be seen moving across the desk and other strange tricks of the mind! And having had to wind up the odd Versatower in my time, I can confirm that some fitness is desirable. Concentration and determination? Ask an overseas participant in the RSGB's Commonwealth Contest: working one or two valid stations an hour, in the middle of the night. But each one counts and the participant who keeps at it will almost certainly be placed higher than the person who goes off to bed.

Like Tom, I might have some reservations about comparing a contester to a marathon runner like Paula Radcliffe or a multi-time Tour de France winner like Lance Armstrong. But we can certainly recognise the attributes and approach of those who treat contests professionally - and see that those are the ones who are likely to rise to the top of the rankings. Using the same analogy, there is plenty of space within the sport for the club runner and the fun runner. For whatever reason, those people may not be able to compete at the highest level, but still add something to the level of competition by their participation.

Tom concludes that perhaps he is a grumpy old man (that may go for most of us, Tom!) and that he is of the opinion that if this country spent as much time thinking about work as it does sport, we would be a wealthy nation. ♦

CONTEST CALENDAR

HF Contests

Date	Time	Contest	Mode	Bands	Exchange
6 Aug	1200-2359	European HF Championship	CW/SSB	1.8-28	RS(T)+Year of your first licence
7 Aug	0700-0900	RoPoCo 2	CW	3.5	RST+Last Postcode received
13/14 Aug	0000-2359	Worked All Europe	CW	3.5-28	RST+SN
20 Aug	0000-0800	SARTG RTTY	RTTY	3.5-28	RST+SN
20 Aug	1600-2400	SARTG RTTY	RTTY	3.5-28	RST+SN
21 Aug	0800-1600	SARTG RTTY	RTTY	3.5-28	RST+SN
27/28 Aug	1200-1200	YO DX	CW/SSB	3.5-28	RST+SN

VHF Contests

Date	Time	Contest	Mode	Bands	Exchange
2 Aug	1900-2130	RSGB 144MHz activity & Club Championship	ALL	144	RS(T)+SN+Locator
6 Aug	1400-2000	RSGB 144MHz Low Power	ALL	144	RS(T)+SN+Locator+Postal District
7 Aug	0800-1200	RSGB 432MHz Low Power	ALL	432	RS(T)+SN+Locator+Postal District
9 Aug	1900-2130	RSGB 432MHz activity	ALL	432	RS(T)+SN+Locator
16 Aug	1900-2130	RSGB 1.3GHz/2.3GHz activity	ALL	1.3G/2.3G	RS(T)+SN+Locator
21 Aug	0900-1500	RSGB 70MHz Trophy	ALL	70	RS(T)+SN+Locator+Postal District
23 Aug	1900-2130	RSGB 50MHz activity	ALL	50	RS(T)+SN+Locator
30 Aug	2000-2230	RSGB 70MHz activity	ALL	70	RS(T)+SN+Locator

The times of all contests are given in UTC. The full rules of RSGB contests are published in the RSGB Yearbook 2005 and are also available at www.contesting.co.uk/hfcc (HF Contests) and www.blacksheep.org/vhfcc (VHF / UHF Contests). Both sites are linked from www.rsgb.org

144MHz LOW POWER CONTEST, 2004

Most entrants found propagation conditions nothing special but in much of the UK the weather was good, attracting out more than twice last year's number of Single Operator Portable stations. This year's entry included several non-standard logs, such as two which were timed in BST, making for extra work during adjudication. In future you may be penalised for this, so it's worth spending a few minutes checking your entry before pressing the 'send' button.

In the Single Operator Fixed section Bryn Llewellyn, G4DEZ, held on to first place, A S Jordan, G0HAS, comfortably took second place and Frank Laanen, PE1EWR, and James Beatwell, 2E1GUA, get certificates as the leading overseas entrant and leading Intermediate licensee. Andrew Warburton, M0LKB, won the Single Operator Others section, with Nick Garbett, M1DDD, in second place and Clive Warren, M3OTP, the leading Foundation licensee. The A1 Contest Group took the honours in the Multi-operator section helped by extra multipliers picked up on FM, while the Colchester Contest Group of Colchester Radio Amateurs took second place, with 2E0EBV/P operated by 2E0EBV and 2E0FMS the leading Intermediate licence station. Thanks to G8ZK/P for the checklog.

Roger Piper, G3MEH

Pos	Call	Club or Group	Loc	QSOs	Mults	Score	Best DX	Dist
Section SF								
1*	G4DEZ	-	JO03AE	78	79	1534417	DL1ASR	722
2*	G0HAS	-	IO81VH	71	69	954573	GM8XQS/P	488
3	G8VYK	-	JO01FO	55	59	545396	GI6ATZ	530
4	G8SRL	-	JO01ED	55	58	541546	GM4IGS/P	525
5	G3MEH	-	IO91QS	53	61	513254	DF2VJ	599
6*	PE1EWR	-	JO11SL	33	37	364154	F5SGT/P	621
7	G1KHX	-	IO81MI	34	43	257871	GM4IGS/P	388
8	M5ADF	-	IO91TO	30	40	189760	F5SGT/P	453
9*	2E1GUA	-	JO01FR	19	26	60424	GW4ARC/P	289
10	G7ADF	-	IO83QN	13	24	49362	G0VHF/P	325
Section SO								
1*	M0LKB/P	-	IO84KE	85	85	1656140	F8BRK	587
2*	M1DDD/P	-	IO93AE	102	86	1418742	F4AJQ/P	648
3	G4DBL	-	IO91JH	80	77	1307845	DG3XA/P	780
4	GW8ZRE/P	-	IO83JA	83	81	1264572	PE0PDV/P	492
5	G8VOI/P	-	IO90MX	79	75	1056675	GM8XQS/P	537
6	GM4IGS/P	-	IO74NP	50	65	1027130	F4AOA/P	717
7	G0HDV/P	-	IO93UK	66	72	911952	GI4OWA	486
8	GM8XQS/P	-	IO85OQ	31	46	411838	F6IFR	717
9	G0EYX/P	-	IO82XU	44	49	286111	F6IFR	423
10	G6HOU/P	-	IO91PF	39	47	277206	GM4IGS/P	471
11	M0BAO/P	-	IO80LV	28	38	219298	GM8XQS/P	533
12	G6GVI/P	-	IO81PH	24	36	166860	F5SGT/P	376
13	M0BPQ/P	Clifton ARS	IO91WP	19	27	82296	F5SGT/P	465
14*	M3OTF/P	-	IO81PH	18	28	77336	F6IFR	349
Section M								
1*	G4ZAP/P	A1 CG	IO93EH	136	97	2474373	DF0CI	834
2*	G0VHF/P	Colchester CG	JO01PU	123	86	2184056	F5SGT/P	539
3	M1MHZ	Five Bells CG	IO92WV	99	78	1525914	DF2VJ	632
4	G4FUR/P	Coulsdon ATS	IO91XG	107	84	1500996	MM0KOS	554
5	M0BRA/P	Bracknell ARC	IO80ST	79	71	1242500	F4DCG/P	550
6	G4IRC/P	Ipswich RC	JO02OD	85	63	873180	F8DBF	587
7	G2HDF/P	Midland CG	IO82UK	52	61	527528	F5SGT/P	504
8	G0TMT/P	-	JO02QT	35	45	358200	F6KCP/P	460
9*	2E0EBV/P	-	JO01DP	31	33	105534	GW8ZRE/P	283

* Certificate winners. Checklog: G8ZK/P.

432MHz LOW POWER, 2004

Regrettably the change of date from July to early August failed to bring good conditions! Activity was up on last year, though, with many entrants making more QSOs in this year's four hour contest than in last year's six hours, and the entry level was up from 16 to 23. It was pleasing to see a good number of portable stations active. Losing a QSO during adjudication in a multiplier contest can lose entrants one or more multipliers as well as the QSO points, especially in shorter logs with, inevitably, less spare multiplier QSOs. A few entrants with logging errors unfortunately suffered considerable reductions to their claimed scores as a result.

The Single operator Fixed section was won by last year's runner up, Bryn Llewellyn, G4DEZ, with John Hall, G0ODQ, taking second place and relegating last year's winner, Roger Piper, G3MEH, into third place. Geoff Morris, as GW3ATZ/P, repeated last year's win of the Single operator Others section with R Price, GW4EVX/P, in second place. The A1 Contest Group, G4ZAP/P, held on to their position as winners of the Multi-operator section with Colchester CG of Colchester RAs in second place. Certificates are also awarded to Frank Laanen, PE1EWR, for being the highest placed SF overseas entrant, James Beatwell, 2E1GUA, for being the highest placed SF Intermediate class entrant and 2E0EBV and 2E0FMS as operators of 2E0EBV/P, the highest placed Multi-operator Intermediate entrant.

Roger Piper, G3MEH

Pos	Call	Club or Group	Loc	QSOs	Mults	Score	Best DX	Dist	Pwr
Section SF									
1*	G4DEZ	-	JO03AE	44	49	420518	DF2VJ	642	25
2*	G0ODQ	-	IO91NQ	30	42	211848	GI4SNA	467	25
3	G3MEH	-	IO91QS	33	45	205830	DF2VJ	599	25
4	G4APJ	-	IO83UP	24	33	154407	G8SRL	332	25
5	G8SRL	-	JO01ED	19	28	92568	DF2VJ	509	25
6	G1KHX	-	IO81MI	15	26	74906	G0TMT/P	338	10
7*	PE1EWR	-	JO11SL	12	20	63360	GW3ATZ/P	482	13.5
8	M5ADF	-	IO91TO	14	24	44736	G3IZD/P	338	25
9	G4AGE	-	IO93IF	14	20	38160	G8SRL	258	25
10*	2E1GUA	-	JO01FR	8	13	9971	M0BRA/P	227	20
Section SO									
1*	GW3ATZ/P	-	IO82KW	48	54	512946	PA3AWJ	531	10
2*	GW4EVX/P	-	IO83JF	28	33	127776	M1CRO/P	341	5
3	G4VRC/P	-	IO90IW	21	31	101494	PA5KM	336	3
4	G0OIW/P	-	IO91HH	20	29	73022	G4APJ	267	5
5	G3IZD/P	-	IO84KD	13	21	62055	G4VRC/P	388	10
6	G6GVI/P	-	IO81UN	15	23	46276	M1CRO/P	249	10
Section M									
1*	G4ZAP/P	A1 CG	IO93EH	68	72	921600	DF2VJ	740	25
2*	M1CRO/P	Colchester CG	JO01PU	60	59	730597	F9IE	600	25
3	G4SIV	Five Bells CG	IO92WS	46	57	525084	DF2VJ	624	25
4	M0BRA/P	Bracknell ARC	IO80ST	43	52	454480	PE1EWR	425	25
5	G4FUR/P	Coulsdon ATS	IO91XG	55	57	444714	DF2VJ	541	25
6	G0TMT/P	-	JO02QT	23	33	182490	F6ARC/P	580	25
7*	2E0EBV/P	-	JO01DP	18	25	40425	PA5KM	248	20

* Certificate winners. Checklogs: G8ZK/P, PA5KM.

70MHz TROPHY, 2004

Despite the change of date this year, brought about by the re-scheduling of the 144MHz and 432MHz Low Power Contests, entry level was up by one on last year, but with more multi-operator and fewer fixed station entries. Activity was good with over 200 different callsigns logged - though sadly, as last year, some had only one QSO, apparently just coming on to give points away to their friends. Five Bells Contest Group turned in a very creditable performance from their new site, averaging 366 points per QSO.

This year Bryn Llewellyn, G4DEZ, won the Single operator Fixed section with Roger Piper, G3MEH, again taking second place. Andy Kissack, operating GD0TEP/P on behalf of the Northern Lights CG, won the Single operator Others section and takes the Four Metre Cup, with Peter Croucher, G4YPC/P, in second place. The Multi-operator section was won by the Five Bells CG operating GM4SIV/P, who also take the VHF Manager's Trophy, with Lothians RS as runners-up. Dave Hook, M5ADF, Nick Garbett, M1DDD/P, and the Midlands CG operating M5HDF/P are awarded certificates for being the highest-placed stations in their sections using 25W or less and a single antenna.

Roger Piper, G3MEH

Pos	Call	Club or Group	Loc	QSOs	Mults	Score	Best DX	Dist	Pwr
Section SF									
1*	G4DEZ	-	JO03AE	74	58	956942	GM4SIV/P	442	160
2*	G3MEH	-	IO91QS	64	50	518300	GM4AFF	573	160
3	G3JYP	-	IO84SN	42	42	427686	G1EHF/P	454	120
4	G8SRL	-	JO01ED	45	38	323570	GM4SIV/P	615	50
5	G4OBK	-	IO94OF	34	35	297430	G2KF	479	70
6*	M5ADF	-	IO91TO	33	31	177041	GM4SIV/P	543	25
7	G4CZB	-	IO92MF	30	32	176160	GM4SIV/P	463	20
8	G2KF	-	IO70PP	24	25	166050	GM4SIV/P	523	25
9	GM4AFF	-	IO86ST	18	21	153195	G4ZAP/P	688	70
10	G3IKR	-	IO82XF	27	29	150481	GM4AFF	511	160
11	G4AFJ	-	IO92HO	23	26	115752	GM4SIV/P	414	50
12	G3FIJ	-	JO01KV	15	19	65094	GM4SIV/P	577	10
13	G3VQO	-	IO91UB	1	2	98	G4YPC/P	49	10
Section SO									
1*	GD0TEP/P	Northern Lights CG	IO74QD	102	72	2188368	G1EHF/P	515	160
2*	G4YPC/P	-	JO00EW	78	63	1187046	GM4AFF	680	160
3	G3UUT/P	-	JO02EB	54	44	451616	GM4SIV/P	539	100
4*	M1DDD/P	-	IO93AE	52	43	350966	GM4AFF	404	10
5	GW4EVX/P	-	IO83JF	55	42	335580	G1EHF/P	378	70
6	G1KHX/P	-	IO81MH	41	37	281792	GM4AFF	613	90
7	G0OVA/P	-	IO91QI	29	32	182976	GM4SIV/P	554	5
8	G6GVI/M	-	IO81TL	23	24	94488	GM4SIV/P	480	50
9	GM4VVX/P	-	IO78VB	6	9	19359	G4DEZ	604	10
Section M									
1*	GM4SIV/P	Five Bells CG	IO75DH	94	67	2305939	G1EHF/P	652	160
2*	GM3HAM/P	Lothians RS	IO74WV	84	65	1810055	G1EHF/P	549	160
3	GW3TCU/P	-	IO83JA	120	75	1652400	GM4VVX/P	564	160
4	GI4GTY/P	Lagan Valley ARS	IO74AI	73	55	1220725	G1EHF/P	598	160
5	G4ZAP/P	A1 CG	IO80AQ	80	56	1118152	GM4AFF	688	160
6	G1EHF/P	EHF & SJH	JO01NC	62	50	735050	GM4SIV/P	652	160
7	G0VHF/P	Colchester CG	JO01HW	60	51	662847	GM4SIV/P	561	150
8	MM0CPS/P	Cockenzie & Port Seton ARC	IO85RU	48	45	640755	G4ZAP/P	582	160
9*	M5HDF/P	Midland CG	IO82UK	23	25	93650	GI4GTY/P	323	5
10	G4ADV	Newquay & DARS	IO70LK	9	11	23760	G1EHF/P	440	25

144MHz TROPHY, 2004

This year's event saw some excellent conditions. While those in the south-east with sea paths had the best of the event, good conditions were reported from as far afield as Wales and Scotland. Some stations could only listen to their near neighbours experiencing good DX while they could hear nothing. The major propagation was a duct into SM, LA, OH and OZ. A good path also existed into OK and SP and many stations commented on good north-south conditions into France. A number of inland stations experienced pronounced QSB. In all, 65 contacts over paths greater than 1000km took place. The high pressure resulted in calm, sunny and hot conditions across the UK.

With conditions as good as these, activity levels were high. This lead to a number of bad signal reports. It is essential that entrants record comments made about their signals so that the VHFCC can investigate them after the event. Given the level of activity, logging standards were remarkably high with the leading stations losing well under 2% of their scores. However, a number of entrants will notice substantial reductions in their scores due to careless logging of primarily callsigns and locators but also reports and serial numbers.

The VHFCC code of practice states that groups should "take all possible steps to ensure that the site is not going to be used by some other group or club". This should include checking the previous years results. This year one group managed to choose a site in a locator square which has been used by another group for a number of years. While this demonstrates how well-designed equipment can coexist, both groups suffered as a result.

Congratulations go to: the Parallel Lines Contest Group, G8P, who won the multi-operator section, retain the Mitchell-Milling Trophy and may well have set a new UK record for the event; Andy, G4PIQ, who won the single operator (fixed) section by a huge margin and retains the Thorogood Trophy; Allan, GM4ZUK/P, for winning the single operator (others) section again; the Torbay ARS who won the six-hour (others) section; and Michael, G8SRL, who won the six hour single operator fixed section. These stations together with those marked * will receive certificates. Checklogs were gratefully received from G8NJA/P, GM3HAM/P, M1MAJ and PE1EWR.

Roger Dixon, G4BVY

Section M

Pos	Callsign	Group	Locator	QSOs	Score	ODX Call	ODX km
1*	G8P	Parallel Lines CG	JO01QD	1027	471376	OH1NOR	1641
2	G8TIC/P	Blacksheep CG	JO01KJ	843	371539	SM1HOW	1322
3	G0VHF/P	Colchester CG	JO01PU	659	260164	EA2BFM/P	1029
4	G5B	Five Bells CG	IO92WS	618	234339	OL4A	967
5	G5LK/P	Reigate ATS	JO01QD	548	215099	OH1NOR	1641
6	G4Z	-	JO03AE	296	110182	OL4A	965
7	GM2T	-	IO85RU	229	95196	DF0TEC/P	1116
8	G8EVY/P	Cambridge & DARC	JO02CE	305	90248	OZ1BEF	734
9	G8SRC/P	Swindon & DARC	IO91CL	244	72924	EA2BFM/P	931
10	G3YNN	Herstmonceux Megacycles CG	JO00EU	159	47487	SK7MW	982
11	G4LPD/P	East Notts CG	IO93RA	66	23001	DK0OX	789
Section SF							
1*	G4PIQ	-	JO01MU	796	322463	OK2TT	1147
2*	GW3JXN	-	IO72RC	92	30831	F6KSL	816
3	G1CDO	-	IO93HP	94	27796	DF0OL	728
4*	M5ADF	-	IO91TO	75	22102	DL0TUD	940
5	GM4AFF	-	IO86ST	32	17203	TM2K	833
6	G0GJV	Bracknell ARC	IO91OK	47	15072	DK3EE	645

7	MU0FAL	-	IN89RL	50	14882	DL5NAV	819
8	G3FIJ	-	JO01KV	49	12226	DL0WAE	508
9	G8HGN	-	JO01FO	20	11509	SK7JM	970
10*	2E1GUA	-	JO01FR	13	2254	TM2K	255
11*	MU3GSY	-	IN89RL	9	1412	PA6NL	545
\1*	GM4ZUK/P	-	IO86RW	312	150894	SK7JM	1009
2*	G3CKR/P	Warrington CG	IO93AD	405	140857	EA2BFM/P	1114
3	G4DBL	-	IO91JH	287	106955	SK7MW	1047
4	G1KHX/P	-	IO81MH	96	24048	F2CT	902
Section 6O							
1*	G3NJA/P	Torbay ARS	IO80FP	97	41875	DL0SAW	1019
2*	G0HAS/P	-	IO80WP	113	34914	EA2BFM/P	836
3	G6HOU/P	-	IO91PF	102	27214	GM4ZUK/P	646
4	G6FSP/P	Barton Contest Man	IO80FP	33	14362	DF0OL	822
5	G8ZRE/P	-	IO83PF	52	12894	F6KCP/P	638
6	G3YDY/P	-	JO01HX	54	12871	GM4ZUK/P	588
7	G0POT/P	-	IO91HH	46	11916	GM4ZUK/P	630
8	GM4VVX/P	-	IO78VB	30	10325	G4RRA	811
9	G4ADV	Newquay & DARS	IO70LK	24	6726	GM3HAM/P	500
Section 6S							
1*	G8SRL	-	JO01ED	85	22124	GM4ZUK/P	671
2*	G2KF	-	IO70PP	33	10701	F4CKV/P	736
3	G3YJR	-	IO93FJ	17	4538	PA6C	519

2nd 50MHz BACKPACKERS CONTEST, 2004

Poor weather and worse band conditions were the main features of this contest. The Sporadic E propagation that was evident before this contest started diminished rapidly once the contest commenced. All of the DX was worked in the first hour of the contest.

Congratulations to the One Man and His Dog Contest Group, G8NWM/P, for winning the 10W multi-operator section. Congratulations to Dan Esdale and his team operating as G0RMX/P for winning the 3W multi-operator section. The West Kent Amateur Radio Society, G1WKS/P, was runner-up; Dave Hewitt, GW8ZRE/P, won the 10W Single Operation section with Mark Palmer, G0OIW/P, runner-up. All winners and runners-up will receive certificates. ***Ian Pawson, G0FCT***

10W Multi-Operator

Pos	Call	Locator	QSOs	Mults	Total	Best DX	km
1*	G8NWM/P	IO92TR	19	27	67176	GM4NFC	399

3W Multi-Operator

Pos	Call	Locator	QSOs	Mults	Total	Best DX	km
1*	G0RMX/P	IO82TC	39	32	170208	IH9/I2ADN	2038
2*	G1WKS/P	JO01ED	21	28	91140	EH3RU	1119

10W Single Operator

Pos	Call	Locator	QSOs	Mults	Total	Best DX	km
1*	GW8ZRE/P	IO83JA	45	56	572376	IS0/IW2MXY	1624
2*	G0OIW/P	IO91MO	5	10	4680	GW8ZRE/P	220

2nd 70MHz CONTEST, 2004

Conditions for the September 4m contest were recorded as being flat by most entrants, and was succinctly put by G3IKR as being "Nothing Special!" CW came in very useful to complete some QSOs over the marginal paths. Despite a reduction in the number of logs received, and signals being lower than average, the leading stations in all three sections had an increase in QSOs over their counterparts in 2003. Several newcomers to the band were noted. About 75 callsigns from non-entrants were recorded, so even the leaders had some way to go before they could have claimed to have 'worked them all'. If you were active in the event, please send in a log next time.

I counted four FT-817s in the equipment list which is certainly a growing trend. To counter this in terms of history and weight was GM4VVX's FT-101. On a more serious note, I'm aware of two separate instances of poor signal complaints which arose during the event. Please remember to check the performance of your transmitter, and receiver systems between contests, and aim to resolve amicably any reported problems.

The logging of the standard report/serial number/locator information was remarkably good, perhaps to be expected in a fairly leisurely UK-wide contest, with no DX openings. The biggest source of errors was getting the QTH information correct, especially the direction and bearing to the nearest town. Where there are only a limited number of QSOs available, it's even more important than normal to be accurate!

Congratulations to Andy, GD0TEP; Bryn, G4DEZ, and Dave and the guys at G4FEV for winning their sections. ***Lee Volante, G0MTN***

Section M

Pos	Callsign	Loc	QSOs	Score	ODX	km	Power	Ant
1*	G4FEV	IO92RG	36	4576	G3YJX	358	50	6Y
2*	G6GVI/P	IO81UN	32	3594	G3JYP	334	50	5 + vert
3	G4ADV	IO70LK	11	2908	G4DEZ	464	25	7Y

Section SF

Pos	Callsign	Loc	QSOs	Score	ODX	km	Power	Ant
1*	G4DEZ	JO03AE	57	11578	G4ADV	464	140	8Y
2*	G8SRL	JO01ED	35	5282	GD0TEP/P	474	50	7Y
3	G3IKR	IO82XF	35	5162	GM4AFF	510	160	4Y
4	G3JYP	IO84SN	26	5078	G4IGO	404	120	15 Collinear
5	G3MEH	IO91QS	41	5030	GD0TEP/P	376	160	2 x 5Y
6	G3TCU	IO91QE	34	4972	GD0TEP/P	425	150	6Y
7	G4ZTR	JO01KW	23	3729	GD0TEP/P	442	50	5Y
8	G1KHX	IO81MI	25	3199	GD0TEP/P	330	90	5Y
9*	G4CZB	IO92MF	21	2248	GD0TEP/P	324	20	3Y
10	G3NKS	IO81XU	11	1673	GD0TEP/P	308	12	6Y
11	GM4DIJ	IO85IW	8	1321	G4DEZ	374	60	4Y
12	M3UBM	JO01CE	7	722	GD0TEP/P	463	10	5Y

Section SO

Pos	Callsign	Loc	QSOs	Score	ODX	km	Power	Ant
1*	GD0TEP/P	IO74QD	55	16464	G0VGX/P	500	160	2 x 8Y
2*	GW4EVX/P	IO83JF	38	6112	GM4AFF	401	50	3 Y
3	G0OVA/P	IO91QI	19	2362	GD0TEP/P	411	10	6Y
4	GM4VVX/P	IO78VB	4	1520	G4DEZ	604	10	6Y

Rev George Dobbs, G3RJV

St Aidan's Vicarage, 498 Manchester Road, Rochdale, Lancs OL11 3HE.

E-mail: g3rjv@gqrp.co.uk

QRP

Prizes at the Yeovil QRP Convention ♦ QRP Seminar under canvas ♦ New kits from the USA

Visitors from Africa, America, Europe and Wales attended the Yeovil ARC 21st QRP Convention on 10 April. Over 200 enthusiasts attended the Digby Hall, Sherborne, where the programme included a mix of lectures, bring and buy stalls, traders specialising in radio bits and pieces, and good deal of general socialising with old friends not seen face to face since the year before. Walford Electronics hosted the Somerset Supper on the eve of the Convention – tickets to dine were secured by guests bringing their own homebrew creations. Eighteen original offerings were on display in the *White Hart Inn*, Sherborne, ranging from a medium-wave receiver to UHF patch antennas.

Rob Mannion, Editor of *Practical Wireless*, presented the trophies – Nicky Marriot, M5YLO, earned high praise and a bag of resistors for her original solderless MW receiver – Ray Lawrence, G8AWB, got the bottle of champagne for his beautifully-made 2m driver for a satellite microwave transverter – while a delicious loaf of home-made brown bread (baked by master baker Mannion) was presented to Tim Walford, G3PCJ. A great time was had by all with plenty of evidence that home 'brewing' is alive and well in the South West. The provisional date for the 22nd Yeovil QRP Convention is 9 April 2006.

QRP SEMINAR IN AN OHIO TENT!

For 10 years, the American QRP ARCI (QRP Amateur Radio Club International) has organised the 'Four Days in May' QRP Symposium in conjunction with the Dayton Hamvention. It runs on the day before the three-day Hamvention, hence the 'four days'. At the 10th FDIM Symposium in May of this year, the QRP ARCI produced an impressive line-up of speakers: Peter Zenker, DL2FI, founder and publisher of the *QRP-Report*, Simon Brown, HB9DRV, author of the free *Ham Radio Deluxe* software package, George Dobbs, G3RJV, of the G-QRP Club, (not so impressive!), Roy Lewellan, W7EL, author of EZNEC antenna modelling software, Rick Campbell, KK7B, award-winning *QST* technical author and Paul Harden, NA5N, propagation expert who works at the 'Very Large Array' in New Mexico.

One novel feature of the event was that the seminar and the annual QRP Banquet were held in the tent! The event has moved to a new and improved venue, but the convention rooms were already pre-booked. The tent proved to be a novelty success and the presentations were impressive. Nearly 300 QRP operators and home constructors attended the event. This is probably the major QRP event in the world and the success of this year's event was due, in no small measure, to their first UK President, Dick Pascoe, G0BPS.

INTERESTING KITS FROM THE USA

I have known Bill Kelsey, N8ET, for over 20 years, since he joined the G QRP Club when he worked in the UK. On his return to the USA, Bill soon became the host to the G QRP Club representatives at the Dayton Hamvention. The G QRP Dayton stand-holders often included Dick Pascoe, G0BPS, at that time the proprietor of Kanga Products. Soon Bill was importing Kanga kits into the USA, and founded Kanga-US. Although the UK Kanga Products no longer trades, Kanga-US has become a company selling a wide and interesting range of kits.

At the FDIM QRP Symposium, left to right: Rick Campbell, KK7B, Roy Lewellan, W7EL, George Dobbs, G3RJV, and Bill Kelsey, N8ET.

Some of the projects at the Somerset Supper.

Rick Campbell, KK7B, has designed several sophisticated direct-conversion receivers and Kanga-US sells module kits for most of the KK7B designs. I have built and used the excellent R2 phasing receiver module. Wes Hayward, W7ZOI, is well-known for his amateur radio designs and many W7ZOI projects, including his Spectrum Analyser, Tracking Generator, Power Meter and MicroMountaineer transceiver are available from Kanga-US. The company also sells the TiCK Keyer range from Embedded Research and couple of interesting small DDS modules from Tormet Engineering. For those who have enjoyed reading the projects in the excellent *Experimental Methods in RF Design*, N8ET has been producing 'Kitlets', which are simply bags of parts to build some of the projects in the book.

The latest Kanga-US kit is the KA7EXM PIC Power Meter, as published in May/June 2005 *QEX* and June 2005 *QST*. The power meter is based on the Analog Devices AD8307 chip and may be used for measuring RF power from about -80dBm to +7dBm (picowatts to almost 10mW). With an external TAP attenuator (not yet available - see the ARRL Book *Experimental Methods in RF Design* for info), it can measure power levels up to 100W. It covers the frequency range of 1 – 500MHz. Using the 18F452 PIC chip and an LCD display, it can provide readings in both dBm or picowatts to milliwatts. Calibration is done with three known power levels provided by the user, and the PIC chip does the rest.

The kit includes everything needed to get the Power Meter running except a 9V battery. Documentation includes a copy of the *QEX* article, PC board layouts and parts lists, and construction notes. It does not include step-by-step instructions. The construction notes provide information on how to assemble the kit. It is not a beginner's kit as SMT parts are involved! The US price is $125, shipping $5 for US orders and international shipping at cost. Kanga-US accepts credit card orders from the UK. For more information, see **www.bright.net/~kanga/kanga/** or e-mail **kanga@bright.net** or write to Bill Kelsey, N8ET, 3521 Spring Lake Drive, Findlay, OH 45840 USA. ♦

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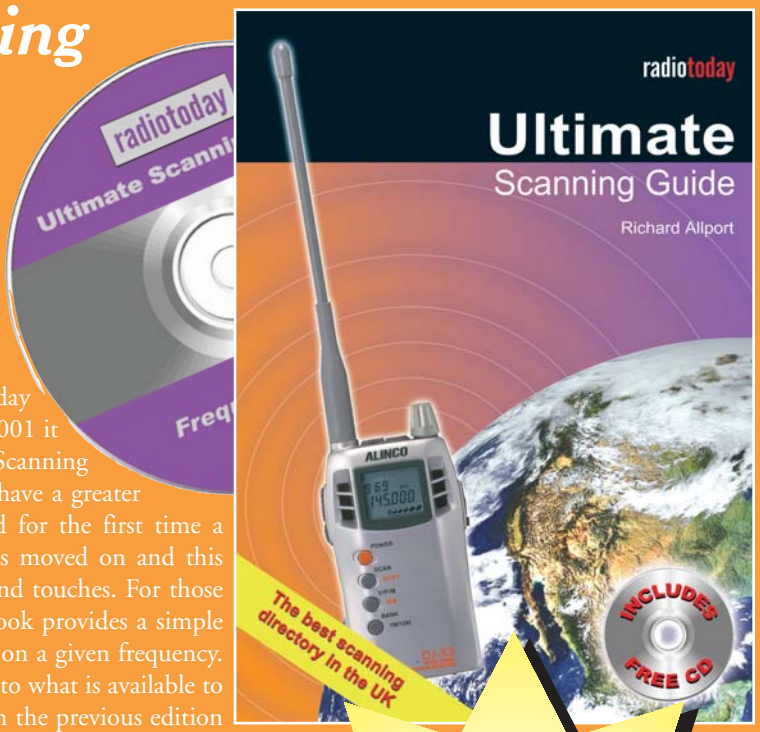

When the first edition of the 'Radio Today Ultimate Scanning Guide' first appeared in 2001 it set new standards in that expected from Scanning books. Not only did the directory claim to have a greater accuracy than other guides it also contained for the first time a searchable CD of the frequencies. Time has moved on and this edition of the book has many new features and touches. For those not familiar with Scanning directories this book provides a simple way to work out exactly who is broadcasting on a given frequency. The reader is provided with clear guidance as to what is available to listen to and what should be avoided. As with the previous edition the listings have been edited to ensure that defunct and duplicated entries have been deleted. This again makes the Radio Today 'Ultimate Scanning Guide' the most accurate and useable directory available. As before this book also contains a free searchable frequency CD. When this first appeared in the Radio Today 'Ultimate Scanning Guide' the CD caused a sensation and the new version is significant step forward. With an improved interface and lightening quick searching this is a boon to any scanning enthusiast. If you are a long standing scanning enthusiast or new to the hobby then you will find this book a "must have" for your book shelf and the yardstick by which every other book in this field is judged.

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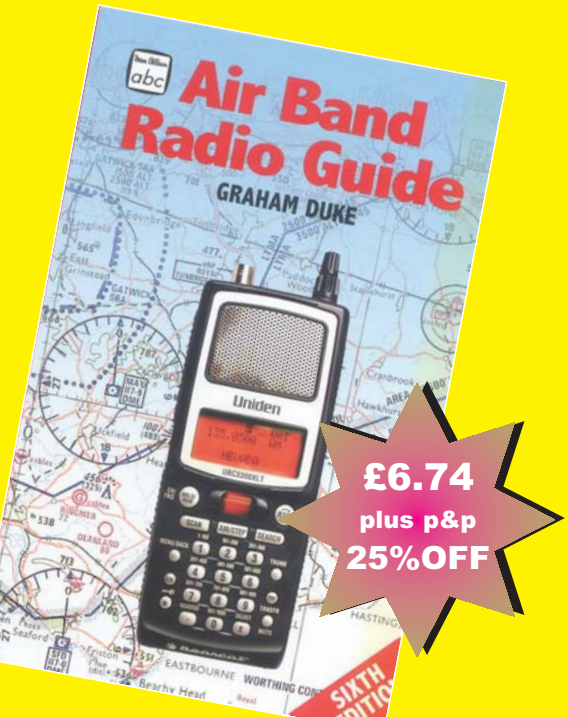

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By Graham Duke

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LF

The latest news from the LF front, including: verified G to ZL reception; a GUI for *WOLF*; a mod for the Ropex transmitter

YU7AR's signal was again detected in New Zealand by Bob, ZL2CA, on the 7th and 10 April. Reception was verified by Markus, DF6NM, who matched his grab of Teo's signal with that received by Bob. During this process, he also noticed a vestige of what could have been the signal of Laurie, G3AQC on the 7th. The big news came on the 11th when there was a positive identification of Laurie's signal on the grab of Mike, ZL4OL, at 1850UTC. This is the first verifiable G – ZL reception on 136kHz and a spectacular achievement by Laurie and Mike who have been trying for this since Spring 2004. Laurie and Mike paid compliments to Markus for the verification and to Alan, G3NYK, for his propagation forecasts.

WOLF GOES GUI

The G-ZL reception has stimulated interest in more sophisticated modes that might allow for a full callsign to be copied or even a contact to take place. One contender on which I have reported before is *WOLF*, developed by Stewart Nelson, KK7KA. It is very effective but difficult to use as it runs in *DOS* (not a window), and will only analyse a pre-recorded .wav file so cannot be used in real time.

Enter Wolf, DL4YHF, creator of the very useful *Spectrum Lab* software who has come to the rescue and written a real-time Windows front-end for Stewart's *WOLF* engine (see 'Web Search').

Within a week of DL4YHF's *WOLF GUI* being available it had been used for trans-Atlantic reception of John Andrews' beacon, WD2XES. [See also this month's 'Data' column on p63 for more information on the GUI – *Tech Ed.*]

John decided to test it to the limit and reduced his power by 6dB to 50W. This proved to be no problem for listener Hartmut Wolf in Northern Germany who got an almost perfect copy on the first attempt. John then further reduced the tx output to a mere 15W and was received by Alan Melia, G3NYK, real proof of the efficacy of KK7KA's novel mode.

Since then, G3YXM's 250W *WOLF* signal has been received by W1TAG, a couple of *WOLF* contacts have taken place, and development of the software has continued.

ROPEX

Production of the Ropex 'The First' LF transmitter has ceased and a few have appeared at knock-down prices. William, PA0WFO, has obtained one and has developed this useful VFO modification. "You will need the following parts: a miniature double-pole double-throw switch, a BNC chassis female connector, a 10nF capacitor, a short piece of RG-174 miniature coax (or similar) and a few pieces of hookup wire.

The Ropex transmitter exposed. The crystal can be seen next to the chips on the left.

"Next is the most difficult part. In order to remove the crystal, you have to remove the complete case including the heatsink. Carefully remove the crystal with solder wick. Make holes for the switch and the BNC connector on the rear panel to the right of the blower. Now connect the previous connections from the crystal on the circuit board to the poles of the switch by means of two pieces RG-174, and the crystal to one side of the switch. Next connect the BNC via the 10nF capacitor to the pole of the switch, which switches to pin 10 of the oscillator IC HCT4060. Any VFO giving about 200 to 500mV on the same frequency as the crystal (6.55MHz) will do for manual CW.

"To protect the transmitter against drive failure (VFO selected but not powered, etc), you need the following additional parts: one small pnp transistor type 2N2907 or equivalent; one diode type 1N4148 or equivalent; one miniature 150pF 63V ceramic capacitor and a small multi-terminal tag strip. Proceed as follows: fasten the tag strip with the screw in the corner of the PCB next to the HCT4060, disconnect the red wire from the solder lug marked 'key' on the PCB and connect it to a lug on the tag strip, solder the transistor emitter to the lug marked 'key' on the PCB and the collector to where the red wire is connected to the tag strip, solder the base to a free point on the strip and then solder the diode between the base and the emitter (anode to base, cathode to emitter). Next, connect the capacitor between the base and the hot side of R6 (1k) by pin 8 of the 4060. That's all.

"How it works: from R6 there is a 274kHz pulse train as long as there is drive. These pulses are fed to the base of the transistor and rectified by the diode. The negative voltage developed across the diode with respect to the emitter turns the transistor on and the transmitter can be keyed."

NEW CALLS

SP0PAPA appeared on the band in April to commemorate the death of Pope John Paul II who was, of course, Polish. The long callsign confused a few people but a few contacts were made. The station was operated by Marek, SQ5BPM, from the SP5ZCC Scouts Radio Club.

Dexter McIntyre, W4DEX, has at last received his Part 5 permit and callsign WD2XKO. We'll be hearing more from him soon.

Others to look out for are Pete, M0FMT, from Hitchin in Hertfordshire and Marcel, ON5VK, from Namur, who have both been active on CW.

RUGBY LORAN

As mentioned in the February column, Rugby radio was due to commence 100kHz Loran transmissions in June. It hadn't started at the time of writing but I'm sure it will cause some severe QRM over most of England. I will asses the situation next time.

SILENT KEYS

Sadly I have to report the death of two great LF enthusiasts. Jan-Martin Noding, LA8AK, died in April whilst on a walking trip near his home near Kristiansand in Norway. Jan-Martin was keenly interested in LF and had quite a lot of LF information on his website. He was a knowledgeable and helpful member of the LF community and will be sadly missed.

Andrew Corney, ZL2BBJ, died in May. Since the New Zealand amateur access to 165 – 190kHz was granted, he had been experimenting on LF and was a regular operator during the Quartz Hill 136kHz tests. Andrew was co-author of the 'LF' column in the NZARTS magazine *Break In.* ♦

WEB SEARCH	
Download WOLF GUI	http://people.freenet.de/dl4yhf/wolf/index.html
LA8AK's pages	www.agder.net/la8ak/index1.htm

Dave Lawley, G4BUO

Carramore, Coldharbour Road, Penshurst, Kent TN11 8EX.

E-mail: g4buo@compuserve.com

Morse – the 'cool' mode

If having the latest cellphone is considered 'cool', then using Morse must be even more cool. After all, you can now get your callsign in Morse as your phone ringtone, and Morse has been proved to be faster than SMS text messaging!

The last 'Morse' column generated quite a bit of correspondence, and I must say that I tend to agree with Norman's, GM3WIJ, comments in his letter to June *RadCom* and an e-mail making a similar point from Eddi, DK3UZ. My choice of the word "tap" was not a good way of describing the correct action when sending dots on a straight key. Sending dots requires more than a tap and the fingers should at no time leave the knob of the key. However, the downward wrist action when sending a dot is not as pronounced as when sending a dash. An old friend, Tony, G3ZRJ, pointed out that if you stand beside a good operator you should be able to read his sending from the wrist movement up to perhaps 12 or 16WPM.

SPEED TEST

I was also very pleased to receive a letter from another friend, John, G3MCX, passing on a clipping from *The Times* of 16 April. This told the story of a test that was set up in Australia to see which was the faster method of sending a message: cellphone SMS or Morse code. Those of us who are Morse fans could probably have predicted the answer, and sure enough in the session conducted in a museum in Sydney and reported right around the world, including on the BBC and several national newspapers, Morse won.

I just felt it was most unfortunate that the Morse experts were, let us say, not in the first flush of youth. The chap who did the sending was 93 and his receiving partner was 82. This gives the impression that Morse is only for the oldies. I know a number of young, recently-licensed hams in this country in their teens or early 20s who could have done an even better job of sending Morse, and at the same time would have demonstrated that Morse is for people of any age.

The producers of the Jay Leno's *Tonight* Show, a networked TV show in the US, picked up on this item from Australia and staged a similar test on the Friday night show on 13 May. Through a contact with the Ham Radio Outlet store, Chip Margelli, K7JA, and Ken Miller, K6CTW, came forward as the Morse experts. They were up against a youngster billed as the world's fastest texter. Video from the programme was captured by several amateurs and can be viewed by anyone with a fast Internet connection (see 'Web search').

Chip and Ken came on, and while they're not quite as ancient as the Australian Morse team, I was somewhat dismayed to see that they had been kitted out by the show's producers in old-fashioned telegrapher's gear including waistcoat, armbands and eyeshades. Media folk do love their stereotypes, don't they?

Anyway the radio link used a pair of FT-817s and the message was transmitted across the studio. The message to be sent had been preprinted on a card which the two competitors, telegrapher and SMSer, turned over at the same time and began to key. You could see Chip using a Bencher paddle and the sidetone came across clearly on the soundtrack. After 20 seconds Ken put his hand up and read out the complete message. The texters were still keying in the last two words. Chip sent at about 28wpm, which the pair explained in an Internet message later was judged to be fast enough to ensure success while minimising the risk of any errors.

It was unfortunate that there was practically no opportunity to tell the audience anything about amateur radio and Morse code though Chip did manage to get in a quick reference to ham radio, then it was on to another topic on the show.

Wouldn't it be nice if a paddle could be fitted to a mobile phone for the benefit of those of us who can certainly send CW faster than we can text?

PHOTO: MIKE ALLISETTE, GU4BDN

Chip Margelli, K7JA, at the RSGB HF convention and operating the mode he likes best - Morse of course!

PUBLICITY

It has been my observation at M2000A, GB50 and smaller special event stations that the public is still fascinated by Morse code and there are surely opportunities here to gain some valuable publicity for the hobby. When I went to Finland in 2002, most of the OHs that I met - many of whom work for Nokia - had ringtones programmed into their phones that sent their callsign in Morse code. It has long been my feeling that we should try to get youngsters, whether licensed or not, to think of Morse as 'cool'.

In 2001 I read that the RSPB was selling birdcall ringtones and I put forward the idea that the RSGB should do something similar with Morse ringtones. At the time my suggestion was not taken up, but now Morse ringtones are available from a company called, appropriately enough, CW Ring Tones, set up by RSGB member Tim Axtell, G4SVC, and business partner Simon Blampey (see 'Web search').

CORRESPONDENCE

I'm also grateful for a letter from Erland, SM7COS, and e-mails from Martin, DL5QE, and Brian, G3GJX. The latter relates that he learned Morse at the age of 11 from his father, who had been a signaller in World War One (as was my own grandfather). Brian's father had originally learned to copy on a Morse sounder, an electromechanical device which does not produce a tone at all, but only a pair of clicks, at the beginning and end of each dot or dash. So when the young Brian asked, "Dad, what's 'R' in Morse?" his father would reply "It's 'iddy umptee iddy' of course!" It was a good verbal reproduction of the noise made by a sounder. Brian has one of these instruments dating from 1910 and is able to hook it up to the rig and has copied QSOs using the sounder, though he says he feels humbled to think of the speeds that the old time telegraphers could copy using this equipment. ♦

WEB SEARCH

KA9FOX clips from Jay Leno show	http://home.qth.com
CW Ring Tones	www.cwringtones.co.uk

VHF/UHF

Norman Fitch reports on a busy month, particularly on the VHF bands, with excellent aurora and Sporadic E openings

At some time or other many of us may be attracted by the idea of *being* the DX instead of joining the queue to work it. Over the years there have been many memorable DXpeditions to rare locations all over the world, ranging from single operator 'holiday' efforts to full blown, sponsored events with teams of amateurs operating on several bands round the clock. Inevitably some of these ventures haven't quite gone according to plan and have resulted in loss of equipment, injuries and even loss of life.

In the April 'VHF/UHF' I gave details of the proposed CY9SS DXpedition to St Paul Island which was to include some VHF operation. Ted Collins, G4UPS (IO81), passed along a message from the *HF Radio Bulletin* posted on 12 June entitled, 'CY9SS - Medical Evacuation from St Paul Island', part of which read, "After a rocky landing - literally - on St Paul Island, the CY9SS DXpedition continues to have its problems. Robby Robertson, VY2SS, reports that the crew had a very rough landing the week of 5 June. While coming ashore, the team lost a generator and three tower sections overboard, and the landing craft's captain, a local lobster fisherman, hurt his leg. High wind and rain also hampered efforts to set up camp on the island, but CY9SS has been up and running since early on 8 June, with early activity on 80, 40 and 20 metres SSB.

"Ken McCormick, VY2RU, informed us that the CY9SS DXpedition temporarily went QRT later in the week. The weather has not been very kind to these intrepid hams, and now one of the team members was air lifted off the island and taken to a hospital in Nova Scotia. Following that medical evacuation, Krassy Petkov, K1LZ, broke a leg and had to be evacuated from the island by Canadian Search and Rescue helicopter. On top of all the other things that have happened, a major storm with lightning came through late in the first week of operation, further adding to their woes and keeping the CY9SS team off the for the evening."

At the time of writing, CY9SS operation was due to continue till about 7 July, so let's hope that they will have had no more dramas. In the Moonbounce section, there are details of the trials and tribulations of the ZK1EME team that operated from Rarotonga in the South Cook Islands.

This is Peter Whitburn, GW4EAI, a founder member of the Blackwood and District ARS and keen VHF operator who died on 21 May, aged 62. RIP.

GW4EAI, SILENT KEY

Andrew Powell, MW0LAO, the secretary of the Blackwood and District ARS, passed along the sad news that Peter Whitburn, GW4EAI, a founder member of the society, died on 21 May at the age of 62. He was licensed in 1972 and was a keen 2m and 6m operator. He also taught CW and was a Morse test examiner for the RSGB. Andrew wrote, "I feel honoured to have been taught and guided by him over the last nine years and hope that a mention on your VHF page would do justice to a man who gave his all to amateur radio."

SOLAR AND GEOMAGNETIC DATA

In the 30 days to 14 June, solar activity was reasonably steady. The 10.7cm radio flux peaked at 116 on 8 and 9 June with minima of 82 on 21 and 22 May giving an average of 95.4 units, virtually the same as last month. The minimum SESC sunspot number was 22 on 20 May and the maximum was 103 on 10 June. 13 new regions were recorded. Geomagnetic activity was livelier and the estimated planetary A-index, Ap, reached 67 on 30 May and 35 on 12 June when there was auroral activity. On only 13 days was the Ap index in the quiet range.

METEOR SCATTER

Brian Oughton, G4AEZ, operator of club station G8VYK (JO01), has been QRV on 2m using FSK441 mode. In his late May e-mail he reports completions with IW4EHZ (JN54), YU7AA (JN95), OH1JCS (KP10), SM2CEW (KP15), OH8K/P (KP13), SM0EPO (JO89), OH1NOR (KP00), DL1ANA (JO50), I6BQI (JN72), SP8RHP/P (KN19), OM3WBC (JN98), SM3JBO (IP93), OE5MPL (JN78), IW1BCV (JN44), OK1CDJ (JO70) and ES2CM (KO29). Martin Andrew, GM6VXB (IO97), completed on 8 June with SP2IQW on 2m but didn't mention the mode.

According to the OH5IK *Mssoft* program the Perseids meteor shower should peak at 1720 ±3 hours on 12 August. Reflections are usually above half that at maximum for a couple of days with a predicted ZHR (zenithal hourly rate) of 110 and the radiant is above a UK horizon all day.

MOONBOUNCE

On the subject of DXpedition hazards, Bob Sutton, ZL1RS, posted the following message on the *Moon Net* website: "Here is a summary of the trip to Rarotonga in the South Cook Islands. Unfortunately nearly everything that could go wrong, did go wrong.

1 Weight of X-Pol phasing lines caused excessive bending of the lightweight booms. X-Pol was removed.
2 Warping of the lightweight elevation hinge. Rebuilt elevation hinge.
3 Phasing line joint failed causing high SWR.
3 PA transformer failure (lots of smoke!)
4 Transistor in sequencer failed resulting in GaAsFET preamp failure.
5 Short in wiring causing blown fuse in the IC-706.
6 The moonrise direction was obstructed by trees, severely reducing the European 'window'.
7 'White noise' in various directions sometimes degrading the receive performance.

"Fortunately the moonset was clear over the ocean and I saw some good echoes while testing before the PA failed. Stations worked with 800W+ and preamp W5UN, ON4IQ, KB8RQ, ON4GG. Stations worked with 50W and preamp RN6BN and RA3AQ. Stations worked with 160W and no preamp KJ9I, AA7A, RU1AA, DF2ZC, K7AD, ZL3TY, VK2KU, SP2OFW, VK7MO, W7GJ, K1CA. In all, 20 QSOs with 17 stations.

"Special thanks to Victor, ZK1CG, for loaning a rotator and PSU for the solid state PA, and all the help raising the antennas and in general while we were on Rarotonga. I learnt (and re-learnt!) many lessons and kept telling myself I needed bigger antennas and more power. Thanks to those who called, congratulations to those who completed a QSO, and hopefully there will be an opportunity for a return visit some time in the future and that the equipment keeps working."

The August activity weekend is

40 Eskdale Gardens, Purley, Surrey CR8 1EZ.

E-mail: g3fpk@compuserve.com

30/31 when London latitude station will have 33.4 hours of Moon time. The declination varies from +23.29° to +27.6° and the 144/432MHz sky temperature ranges from 405/28K to 518/39K. The signal degradation, referred to perigee, varies from -1.22dB to -1.54dB. The Sun offset at Saturday midnight is -57°.

BAND REPORTS

50MHz

It's all been happening on the 'magic band' with lots of single and some multi-hop Es, auroras and some openings across the 'pond' - that's the Atlantic Ocean for newcomers. Norman Vincent, G3NVO (IO91), is the only contributor to report working 9Q0AR* on 29 May for entity 192 on 6m. At the time there was single-hop Es to the south.

Bryn Llewellyn, G4DEZ (JO03), worked lots of the DX and on 25 May he contacted EH8BFK (IL38) for a new grid and EH8FQ (IL18). D4B and CT3 stations were widely worked in G but didn't reach JO03. He complains about Spanish stations operating in the 50.110 - 50.130MHz part of the European international DX window and splattering over the real DX. He worked S59MA (JN76) using JT6m and JT65a in some sort of scatter propagation mode with no Es apparent. On 9 June in an opening to the Caribbean he contacted FM5JC, FG5FR, KP4EIT, NP3CW, KP4YI, WP4EJH, WP4MZA and HI3TEJ. C31JM was an all-time new DXCC entity and GM4ODA/P (IP80) was a new grid.

For Phil Catterall, G4OBK (IO94), the summer Es season started on 16 May with QSOs with stations in EA and YO and a multi-hop one at 1232 with KP4EIT (FK68). Next day stations in 9A, DL, OE and YU were worked. The 19th brought QSOs with stations in CT, S5, LY, SP, HB9, IS0, F and I. On the 28th he worked LZ, 4Z5LA, YO and ZB2CF. He highlights the 29th and 30th as red-letter days, bringing contacts with ZC4CW* (KM64) for a new DXCC entity, A45XR* (LL93), A71EM (LL55) another new entity, A61Q* (LL75), SV0XAI/9 (KM25) and SV8RV (KM07 for a new grid). An aurora started at 1000 on the 30th bringing QSOs with stations in SM, GD, GM, EI, LA, OZ, ES, LY and GI. In the afternoon of 11 June Phil worked SV8CRI* (KM39) but the evening opening to the Caribbean and Azores didn't reach IO94. Next day from 1145 there was long DX to CU3EQ and CU3AK (HM68) for another new entity, followed by FM5JC* (FK84), C31JM (JN02), FG5FR (FK96), OY4TN (IP62), FJ5DX (FK87), yet another new entity, finishing at 1442 with KP3A (FK68).

G4UPS's report for May through 13 June runs to five A4 pages and reveals that the Es really got going on a regular basis from 16 May. To pick out a few of the highlight QSOs from Ted's May list I note UR7TO* (KN39) on the 19th; ZB3B, ZB2CF and ZB2FK* (IM76), A61Q* for entity 187 and A45XR* on the 22nd; 5B8AD/P* (KM65), 4Z5LA*and 4Z4KX* on the 23rd. The 29th brought QSOs with 5B4FL* and ZC4CW* (KM64) and 9H1AW* (JM75). Next day he worked SV0XAI/9* (KM25) and SV1TP* (KM17) in morning Es and an afternoon aurora resulted in a few QSOs with EI, G, GI and GM stations. Coming to June, there was lots of European Es activity on the 1st until 2025 then things were quiet till the 10th which was another mainly European Es day although he heard PZ5RA* at 2123 with a huge pile-up. Next day at 1810 he copied that station working into Poland. Ted made a few CW contacts in the evening aurora on the 12th.

Mike Lee, G4VPD (IO92), notes that the Es season started earlier this year. His ODX so far was a double-hop Es QSO on 30 May with 5B4FI (KM64) at 3394km. Ray Taylor, G6TNZ (IO94), was QRV on 10 June from 1710 and, running 20W from an FT-690R to an HB9CV antenna mounted on a home-brew mast at the side of his holiday caravan, he worked 20 stations in DL, OK, SP, UT and 9A. Next day Es propagation was mostly towards Italy and resulted in another eight contacts.

For Bob Harrison, G8HGN (JO01), during May EH1EJ (IN62), CT3MD (IM13), SM7UZD (JO87) and ES4EQ (KO39) were all new grids on the 19th and next day he worked EN50KIEV (KO50), a special event station during the Eurovision Song Contest. In the UKAC on the 24th he only made five very local contacts. On the 29th in the late afternoon he worked a few short-skip stations in France and Spain and on the 31st he completed with UT4UO and 5B4FL. In June he worked UT7LK on the 1st for a new grid and on the 5th PB6F/P (JO22) was another new grid. Two more new ones were contacted on the 11th, YL2LW (KO26) and SP4TKR (KO04).

Niels Montanana, G8RWG (JO01), has only recently started on the band and highlights on 29 May were CN8IG (IM75), 7X0AD (JM16) and UT5DL. From 1930 next day he worked a string of Italians. Kevin Jackson, M0XLT (IO83), made Es QSOs on 17 days in the 16 May through 12 June period. To pick out the May highlights; on the 19th UT1FG/MM (JM58), the 20th EH9IE (IM75), and the 29th ZB3B. June brought QSOs with UT1YV and UR7QR on the 1st, CS0RLC/P (IM66) on the 10th, SV3FUP/M (KM08) on the 11th and CT3FT on the 12th. In an aurora on 15 May he worked GM8IEM (IO78).

Clive O'Hennessy, GM4VVX (IO78), caught only very short bursts of Es propagation for most of May until the 30th. It started with Italian stations, moved across France then Guernsey and finally into England and the Irish

LOCATOR SQUARES TABLE

Starting date: 1-1-1979

Call	50MHz	70MHz	144MHz	430MHz	1296MHz	Total
G3XDY	-	34	261	179	130	604
G4DEZ	717	48	258	103	49	1175
G8TOK	424	44	145	58	34	705
G6TTL	416	-	140	94	28	678
G0FYD	736	1	305	57	26	1125
G3FIJ	278	29	108	51	23	489
G4YTL	11	56	560	141	14	782
M5MUF	155	23	70	-	6	254
G4FUJ	111	20	28	6	5	170
GW3LEW	438	14	252	42	4	750
MU0FAL	563	4	57	9	4	637
G0JHC	1040	26	48	4	-	1118
GW7SMV	684	-	260	-	-	944
G4VPD	488	19	237	18	-	762
GW3HWR	478	31	187	34	-	730
M5BXB	453	15	192	57	-	717
G8HGN	358	-	215	81	-	654
G4OBK	489	38	95	11	-	633
GM4VVX	323	34	184	2	-	541
G3IKR	340	52	45	-	-	437
G0ISW	240	7	103	22	-	372
M1DUD	294	1	54	10	-	359
EA7IT	209	-	108	-	-	317
M3CVN	249	-	46	5	-	300
G4APJ	192	-	64	32	-	288
G3FPK	30	-	246	-	-	276
M0XLT	215	-	21	2	-	238
G8VYK	67	4	140	16	-	227
MM3ERP	91	3	83	22	-	199
G8RWG	50	-	132	-	-	182
M1FEO	59	-	26	1	-	86
M3GUA	17	-	20	14	-	51

No satellite, repeater or packet radio QSOs. If no updates received for a year entries will be deleted. Band of the month 1296MHz. Next deadline is 9 August.

Republic for some very short distance QSOs. GM6VXB (IO97), is QRV on all bands from 50MHz to 3.4GHz and reports that Es propagation was good at the end of May. Andrew worked CT3FT and SV8RV on the 30th plus stations in F, PA, 9A, S5, DL, ON, EH, G, LX and 2U. At one point in the late evening beacons in LA, OH, OY, JX and TF were all audible but there were no stations on the band: he comments, "Very frustrating when the Jan Mayen beacon is S9+40dB for nearly an hour." A new one at the beginning of June was GM4ODA/P on Foula.

Colin Fallaise, MU0FAL (IN89), reckons that May was a great month for Es. He worked EH8BPX on the 20th; LX1JZ (JO30) and G7KHF (JO01) the nearest G grid he has worked by the mode on the 22nd; D4B* (HK76), CT3MD, CT3IA, CT3FT, CT3DZ, EH8FQ (IL18) and EH8BFK on the 25th.

70MHz

Derek, G8TOK (JO01), wrote, "In a message on the *DXCluster*, LZ5UV reports that recent activity using his callsign is a pirate. He does not use 70MHz and confirms that operation on 70MHz in LZ is unauthorised." Jules Smith, G0NZO (IO90), reports an Es opening at 1630 on 19 May to Slovenia in which he tried to complete on FM from his mobile with S51DI (JN76). On the 22nd at 1430, using 20W to a Slim Jim antenna from his extremely poor home VHF location he managed to complete with him on FM receiving an RS56 report.

G4OBK completed 27 contacts in the three hour RSGB CW contest on 15 May, with plenty of high-scoring QSOs, ODX being GM4VVX at 475km. Es on the 29th brought a contact with ZB2CF for a new entity. In an aurora on the 30th Phil worked some OZs. On 11 June the band opened up again and in the 1630-1800 period he worked 9A6R, 9A1Z, 9A2EY, S54M, S59MA, YU7EF and YU1EU via Es. Then, as in previous years, YO2IS and YO4FYQ popped up but he queries whether Romanian amateurs do have permits to operate on 4m. Does anyone know for sure?

Ross Wilkinson, G6GVI, was out for a stroll on Winter Hill (IO83RO) on 30 May with his handheld 4m FM transceiver and, after a few local QSOs, heard several Danish stations. Using 4W to its quarter-wave antenna he managed to work OZ2LD (JO54), OZ3ZW (JO54) and OZ0TE (JO53). On the previous day from home he worked S51DI on FM. He was QRV on SSB and FM in the UKAC on the 31st and made 10 contacts in six grids.

In the big aurora on 8 May GM4VVX worked G8IYG (IO82), OZ1DJJ (JO54), GW8ASD (IO83), G0JHC (IO84), OZ2LD, G8FDJ (IO93), G3JHM (IO91), GW8IZR (IO73) and G3UVR (IO83). On the 15th he went out /P for the CW contest but only worked three stations. On the 30th, after the Es on 2m, Clive checked 4m and found only S54M (JN86) for a new grid then was called by GU6EFB (IN89) for another new grid. The aurora came up strongly from 1230 and he made QSOs with G4PBP (IO82), G4DEZ, G3JYP (IO84) and G3JHM. Out portable at IO88BC for the UKAC on the 31st he only had three QSOs.

On 30 May GM6VXB worked 9A and S5 plus a couple of stations in the aurora later in the day. Martin also worked GM4ODA/P. On 1 June MU0FAL contacted OZ3ZW, OZ1DJJ* and OZ2M (JO65). Nice to have so many reports on 4m now that an increasing number of European countries are granting permits to their amateurs.

144MHz

So far 2005 seems to be a good year for 2m Es propagation. Ray Web, G3EKL (IO94) reports a confirmed QSO at 0843 on 1 June with 9H1CG (JM75), who was running just 10W to a 15-ele Yagi, when RS57 reports were exchanged. 29 May gave G3NVO his first Morocco contact with CN8LI (IM63) on SSB followed by CN8CJ on 145.500MHz FM. It was Norman's 46th country on the band. That same day Paul Selwood, G3YDY (JO01), worked stations via Es in IM57, 58, 66-68, 87, IN80 and 85 between 1830 and 1856. In an aurora the following day, 1358-1634, he contacted stations in DL, EI, F, G, GI, GM and PA. In the UKAC on 7 June he completed 75 tropo contacts, ODX being OZ9KY (JO45) at 776km.

On 29 May G4OBK made Es QSOs into EA7 (IM87 and 89 grids) at 1600 and at 1803 a contact with CN8LI at 2354km was ODX followed by EA9IB. Phil's last QSO of the day was with CT1EPC (IM68) at 1815. The following morning from 1000 he made auroral QSOs with stations in DL, EI, F, G, OK, ON, OZ and PA. G4VPD caught a brief Es opening on 19 May working CT1CAD and EB7AEY (IM67) but Mike reckons the best Es event for years was on the 29th when he worked 17 stations in EA4, EA5, EA7, CT, CN and EA9, ODX being CN8LI at 2136km.

A high-pressure weather system on 25 May afforded Brian Pickrell, G8ARM (IO70), to get into a duct down to the Canary Islands to work EB8CDX (IL18) at 1528. In the evening of the 29th he made Es QSOs with EA5RM (IM98), EA7DBO (IM88) and EA7WP (IM97). G8HGN caught the Es opening on 29 May and worked EA7BHO (IM87) and EA7BYM (IM66) in a first phase. Then later on, from 1756, EA7TN (IM66), EA7HBP (IM67), EA7DUD (IM76), EA7TL (IM66), CN8LI (for ODX at 2047km, a new grid and entity), EA7OC (IM77), EA7RM (IM87), CT1DIZ (IM58), CT1EPC, EB7AEY, EA4EKS (IM68) and CT2GQN (IM67). Bob was QRV in the UKAC on 7 June and made 75 tropo QSOs with stations in 25 grids and five countries; ODX was OZ9KY at 782km.

On 29 May, M0XLT made Es QSOs with EH9IB, EA7TN (IM66), EA7TL, EA7BHO, EA7DFH (IM87), EA7AJ (IM87) and EA5DIT (IM99) using 20W to a tri-band collinear antenna 6m AGL. Gordon Fiander, G0EWN (IO93), worked eight stations in IM56, 85-87 and IN80 grids between 1816 and 1850, ODX being EA9IB at 1833. The same day MU0FAL worked EB7AEY, EA7HBP, EA7IT (IM87) and CT1HZE (IM57).

GM4VVX was out portable at IO87VB for the six hour section of the 22 May contest but only managed 30 QSOs. Fleeting bursts of Es on the 30th resulted in 'MS-style' QSOs with DK2RY, DL5MAE, DF3RU, DC9NM, DK5RQP and OE2UKL. In the aurora from 1200 he made 75 contacts with DL, EI, F, G, GI, GW, LA, ON, PA and SM stations. On 1 June short bursts of Es resulted in QSOs with F1EYB (JN23 at 1774km and a new grid), F9HS (JN23), F1HMQ (JN25) and F6EGD (JN24) another new grid. In the 7 June UKAC, operating /P from IO78VB again, Clive made 35 QSOs in good tropo to the south with ON4IQ (JO20) ODX at 973km.

430MHz

Like G4DEZ, G3YDY finds that calling CQ on an apparently dead band often results in QSOs. On 8 June his CQ call brought QSOs with OZ8AFC (JO45), PA0EZ (JO22), OZ7DW (JO46) and OZ6OL (JO45) who was ODX for the evening at 882km. Paul runs 100W to a 19-ele Yagi. As well as working into EA8 on 2m on 25 May, G8ARM also made it on 70cm at 1437 with EB8AHT (IL18) but Brian's attempt with EB8CDX an hour later failed. On 27 May G8HGN worked ON7GB (JO21) at 0614. Next morning Bob got up early and tried on 70cm with F4DXX (IN97) after working him on 2m. At 0706 he contacted F5ADT (IN94) at 780km for grid no. 81.

FINAL MISCELLANY

Dave Gilligan, G1OGY, has revamped the Colchester Contest Group website and the new style is designed to be consistent across the content and will include logs and reports. The structure has been implemented using Cascading Style Sheets (CSS) and Server-Side Includes (SSI) where possible - see 'Web search'. Thanks to Neil Clarke, G0CAS, for the May issue of *Sun Mag* and to the UKSMG for the May issue of *Six News*. The Summer edition of *VHF Communications* and issue 2/2005 of *DUBUS* have also been received and read with interest: thanks all.

A very busy month, hence the full three pages. The deadline for copy for October is **9 August** and for November it's *very* early, **6 September**. My telephone answering and fax machine is on 020 8763 9457 and my CompuServe ID is g3fpk ♦

WEB SEARCH

Colchester Contest Group	**www.m1cro.org.uk**
G0CAS	**www.g0cas.demon.co.uk**
UKSMG	**www.uksmg.com**
VHF Communications	**www.vhfcomm.co.uk**
DUBUS	**www.DUBUS.org**

Andy Talbot, G4JNT

15, Noble Road, Hedge End, Southampton SO30 0PH.

E-mail: data.radcom@rsgb.org.uk

Frequency generation by numbers

Text compatibility between *Windows* and *DOS* ♦ Numerically-controlled oscillators ♦ A GUI for *WOLF*

A bit of feedback from last time. David Wooley, G3ZZF, wrote: "In your JT65 article, you say that you cannot copy text from a *DOS* box to another *Windows* application. That isn't true. You just need to go to the Control menu (top left), select Edit and then Mark, then drag the cursor over the text. When you press Return it is copied. This assumes that you have the *DOS* box windowed, not full-screen (use Alt-Enter to switch).

Also, you comment about the quality of the *DOS* emulation. Up to *Windows ME*, home *Windows* systems were *DOS* systems with windowing software running on top of *DOS*.

Nowadays, what looks to be a *DOS* program is as likely to be a *Win32* console mode application, especially if ported from *Linux*. *Win32* console mode applications are native to NT-based *Windows*, including *Windows XP*, although not so often used by end-users. It could also be a .NET console mode application."

Well, I tried Dave's copy and paste suggestion and it worked straightaway on one machine, not at all on another. Further investigation showed that right-clicking the mouse on the title bar of the *DOS* screen, then going to Properties and clicking on the Quick Edit tab turned on this copying function. Its great, it works – if only I'd known years ago!

THE NUMERICALLY-CONTROLLED OSCILLATOR – A VALUABLE DSP TOOL

A central feature of much Digital Signal Processing is the requirement to be able to generate an arbitrary frequency, or tone, in software. All DSP systems work at a given sampling rate which we know from the Nyquist criteria must be at least twice the highest frequency of interest, for sound cards this is often 11025Hz (F_{max} = 5.5kHz). Within DSP software, it is usual to operate with normalised numbers, so that the sampling rate is assigned a value of 1, and all other frequencies are represented by values derived by dividing the frequency by the actual sampling rate. Therefore, all normalised frequencies are less than 0.5 to fall within the Nyquist limit. A 1kHz tone in sound card-based systems will be represented by a normalised frequency of 1000/11025 = 0.090703 (just a number, not Hz or anything)

In software, a sine wave of any arbitrary frequency can be generated by maintaining a counter, or value, that is continuously updated every sampling interval then used to define a point on a sinusoidal curve. By a happy coincidence, the value by which the value of the counter has to be incremented each sample is exactly this value of normalised frequency, and when the counter has been incremented to a value higher than 1, it overflows with the fractional part only taken. To turn these samples back into a 'real' waveform to feed into a D/A converter (replay via the sound card), each instantaneous value of the counter from 0 to 1 is taken as representing an angle between 0 and 360° (or 0 and 2pi radians), and the value of its sine becomes the amplitude of the tone waveform at that interval. In practice, the sine function is usually generated in a lookup table for speed, and the counter, or angle, becomes a binary number from 0 to (say) 255 pointing into the table, rather than 0 to 1, which makes the truncation and overflow simple to arrange in software.

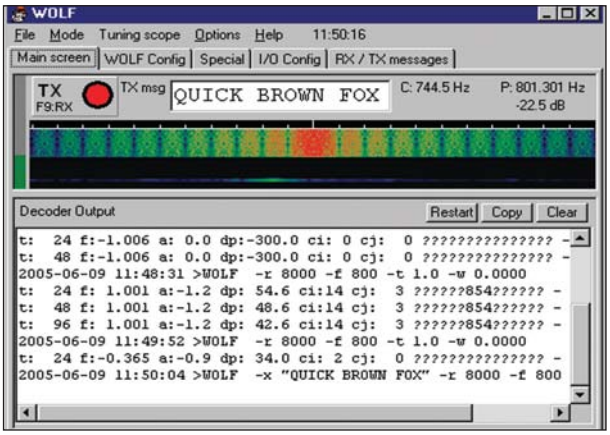
By sending the results of the lookup table to a Digital-to-Analogue converter, we end up with a real audio tone. The operation of such an NCO is shown in the software listing. The same technique can be used on any platform where a real frequency needs to be generated that is unrelated to the sampling rate; from software written in a high-level language in a PC, to simple jobs on a PIC processor, to a Direct Digital Synthesiser chip. The sine lookup table need only be as long as necessary - the longer it is, the more memory is required. In a PIC implementation, for example, a table of only 128 or 256 entries may be possible, using the most significant bits of the counter only to form the address. Shorter tables mean higher spurious products in the generated tone and a compromise is usually necessary.

```
// Software listing for a numerically-controlled oscillator
// Generates a 1kHz tone at a sampling rate of 11025Hz
// Uses the SIN function rather than a look-up table for
// simplicity

SamplingRate = 11025              // Soundcard standard rate
ToneFreq = 1000                   // Maximum allowed 5500Hz

Do
        Counter = Counter + ToneFreq / SamplingRate
        If Counter > 1, Counter = FRACTIONAL(Counter)
                                  //Counter constrained to 0 to 1

        Angle = Counter * 2 * PI          //Radians
        Amplitude = SIN(Angle)
        [Send Amplitude value to D/A converter]
Loop
```



The *WOLF* GUI.

NEW WOLF GRAPHICAL USER INTERFACE

The LF data mode, *WOLF* (Weak-signal Operation on Low Frequencies) developed by Stuart Nelson, KK7KA, makes use of extensive error-correction coding, data interleaving and repetition around a 10b/s BPSK waveform, to give a very robust medium for sending short messages of up to 15 characters on LF. Since it was introduced (See 'Data', June 2001), a few operators have discovered its incredible robustness for LF communications – knocking spots of any other mode using visual signal detection and the SlowCW (QRSS) modes in use at 137kHz. Trans-Atlantic contacts have almost become a norm now, using *WOLF*.

But a lot of operators found the mode complicated and difficult to set up. Now, Wolf(gang), DL4YHF (we have been assured the coincidence of his name is just that – a coincidence!), has written a graphical user interface to assist in using the mode. In an e-mail to the LF reflector he writes "I have started working on a graphic user interface for Stewart Nelson's *WOLF* . It is in an early development stage, but at least it does what Stewart's original console application did, plus operation in real-time using the sound card (receive and transmit). It still lacks some features (especially a tuning aid and time-synchronized automatic operation), but maybe you'd like to help to develop it further. For that purpose, the full source code is included in the archive - **http://people.freenet.de/dl4yhf/wolf/index.html**"

Wolf promises to update this when he finds the time to do the work. The GUI variant uses the same command line arguments as Stewart's original version, so the *WOLF* documentation is valid for the GUI variant too. Any suggestions, test reports, etc are appreciated! ♦

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★ Superb performance SW receiver ★ 0.2-30MHz (all mode) ★ Selectable tuning steps (down to 100Hz) ★ 240 or 12V ★ Digital S-meter ★ Attenuator ★ Key pad entry ★ 160 memories ★ Noise blanker.

OUR PRICE **£199.95** P&P £10

PSUs

DIAMOND GZV-4000

Diamond quality power supplies/ switch mode. 40 amp version

Includes built-in speaker

£129.99

Model	Input voltage	Output voltage	Output current	Dimensions (W x H x D)mm	Weight	Price
GZV4000 (switching)	240V	5-15VDC variable	40A continuous	210x110x300	3.5kg	£129.99
GZV2500 (switching)	AC 240V	5-15VDC variable	25A continuous	210x110x220	2.5kg	£99.99

NISSEI MS-1228

28A at 13.8V yet under 2kgs. (H 57mm, W 174mm, D 200mm approx). Fully voltage protected. Cigar socket & extra sockets at front/rear. Ultra slim.

NISSEI HAVE BECOME RENOWNED FOR PUTTING QUALITY FIRST, YET MAINTAING A GOOD PRICING STRUCTURE. A TRULY SUPERB POWER SUPPLY UNIT

'Smallest version to date' now with cigar socket.

OUR PRICE **£69.95** Delivery £10.00

NISSEI PS-300

TRUE 'LINEAR' PSU

Features: ★ Over voltage protection ★ Short circuit current limited ★ Twin illuminated meters ★ Variable voltage (3-15V) latches 13.8V ★ Additional "push clip" DC power sockets at rear. Dim'ns: 256(W) x 135(H) x 280(D)mm.

A truly professionally made unit built to outlast most PSUs.

30 AMP/12 VOLT PSU

SUPERB VALUE AT **£119.95** Del £10.00

VHF/UHF RADIOS

YAESU VX-2E

Tx:- 2m/70cm. Rx:- 0.5-999MHz. Includes battery (Li-/on) + charger.

OUR PRICE **£115.00**

Optional speaker microphone £27.99

YAESU BARGAINS

FT-8900.....£325.00 FT-2800M £149.99
FT-8800.....£259.00 FT-7800.....£219.00

ICOM IC-2725

Optional extended receive available which includes AM airband.

2m/70cm (50W/35W) dual receivers (true dual), D T M F microphone included.

OUR PRICE **£265.00**

ICOM BARGAINS

IC-E208.....£235.00 IC-910H £1075.00
IC-E90 .....£265.00 IC-910X.....£1199.00

ALINCO DJ-596

2m + 70cm Handie. Includes: (NIMH) Battery/Charger. Wide + narrow switchable. High power (4.5W) OP as standard. Alpha Numeric channeling.

Now includes free remote mic **£129.95**

Optional case £16.99
Cigar lead.....£19.99
Optional headset (Boom mic) £24.99

SUPER-GAINER RH-9090

SMA 40cm flexible whip that is ideal as replacement. Tx:- 2m + 70cm. Rx:- 25MHz-2.9GHz OUR PRICE **£26.95** P&P £1.50

SUPER-GAINER RH-9000

BNC 40cm flexible whip for the ultimate in Tx:- 2m + 70cm gain. (Rx:- 25MHz-2.9GHz). OUR PRICE **£21.95** P&P £1.50

KENWOOD TH-F7E

Transceiver & scanner 2m/70cm Tx (5W). Rx:- 0.1-1300MHz, all mode (incl SSB). Incls:- Lithium ion battery & charger.

Incl's free remote mic

OUR PRICE **£229.99**

Optional case £19.99
Optional cigar lighter lead.....£19.99
Optional headset (Boom mic) £24.99

NISSEI PWR/SWR METERS

RS-502 1.8-525MHz (200W).....£79.95 P&P £5
RS-102 1.8-150MHz (200W).....£59.95 P&P £5
RS-402 125-525MHz (200W).....£59.95 P&P £5
RS-3000 1.8-60MHz (3kW) Incls mod meter £79.95 P&P £5
RS-40 144/430MHz Pocket PWR/SWR .....£34.95 P&P £2
DL-30 diamond dummy load (100W max) ...£26.99 P&P £3

ACCS

MFJ-259B

UK VERSION

HF digital SWR analyser + 1.8-170MHz.

NOW **£189.99** P&P £7

Optional case £22.99

MFJ-269 160-70cm analyser .....Now £259.99
MFJ-969 HF + 6m ATU.....Now £169.99
MFJ-260C 300W dummy load (0-600MHz).....£39.99
MFJ-901B Superb versitile ATU .....Now £72.99
MFJ-784B DSP filter ~~£249.00~~.....Now £149.99

MFJ-993

NEW INTELLITUNER 300W, fully automatic. Will tune wires G5RVS, verticles, trapped dipoles, you name it.

NOW **£209.99**

MFJ-949E

● 1.8-30MHz 300W ATU ● Large cross needle meter ● 30/300W PEP power meter ● VSWR ● 3-way antenna selector ● Internal balun

SPECIAL **£129.99**

SGC MAC-200

New auto tuner 1.8-54MHz (200W) wire, vertical, dipole. You name it. (5 selectable outputs).

OUR PRICE **£229.95**

SGC-239 Mini tower ATU (1.8-30MHz).....£169.99
SGC-230 (HF-200W) ATU £319.99
SGC-237 HF+6m Tuner.....£269.99
SGC-231 HF+6m (Deluxe) £319.99

YAESU G-450C

Heavy duty rotator for HF beams, etc. Supplied with circular display control box and 25m of rotator cable.

OUR PRICE **£319.99**

G-650C .....our price £359.99
G-1000DXC.....our price £499.99
G-5500 (azimuth/elevation) rotator .....our price £499.99
GC-065 thrust bearing.....£48.00
GC-038 lower mast clamps.....£25.00

AR788 *NEW MODEL*

Quality rotator for VHF/UHF. Superb for most VHF-UHF yagis, 3 core cable required. 3 core cable 50p per mtr.

OUR PRICE **£44.99**

AE-201 thrust bearing £14.99

New station log books (A4) **£4.99** P&P £2.00
5 log books **£20.00** P&P £6.50

D-308B DELUXE DESK MIC

(with up/down). Many amateurs using this mic (over 4000) have expressed extreme pleasure with it's performance. Includes 8-pin round Yaesu mic lead.

£49.95 P&P £6.00

Yaesu 8 pin round to modular adapter (8 pin).....£19.99
Yaesu 8 pin round to 6 pin modular adapter £19.99
A-08 8 pin "Alinco" round.....£9.95
K-08 8 pin "Kenwood" round £9.95
I-08 8 pin "Icom" round.....£9.95
IM-08 Modular phone "Icom" £9.95
KM-08 Kenwood modular lead £9.95

CUSHCRAFT BARGAINS *Delivery £12.00*

MA5B	Mini beam 10, 12, 15, 17, 20m	~~£389.00~~	£329.95
A3S	3 ele beam 10, 15, 20m	~~£499.95~~	£379.00
A4S	4 ele beam (10-20m)	~~£599.95~~	£449.99
R-6000	Vertical 6, 10, 12, 15, 17, 20m	~~£349.95~~	£315.95
R-8E	Vertical (40-10m) "special"	SPECIAL ~~£499.95~~	£399.99

CAROLINA WINDOM

CW-160S	(160-10m) 40m long	£129.95 P&P £8.50
CW-160	(160-10m) 80m long	£119.95 P&P £8.50
CW-80	(80-10m) 40m long	£89.95 P&P £8.50
CW-80S	(80-10m) 20m long	£109.95 P&P £8.50
CW-40	(40-10m) 20m long	£84.95 P&P £8.50

MFJ-125

12" Dxer's quartz wall clock. give:- 24hr time + 3 smaller dials give 12 hour time/day of week/date.

£37.99 P&P £5.00

HHC-2 Police style holster

A unique "stretch case" designed to fit atatched to your belt or fixed to your body via the 3-point body harness (supplied). (Ideal for hand-held/mobile phones).

£22.95 P&P £2.50 2 for £35.00

TH-887 headset

ADAPTERS FOR MOBILE TCVRS AVAILABLE – PHONE

Superb headset for most handies. 887K (fits Kenwood) £24.95. 887 fits most twin socket-Alinco, Icom, Yaesu, etc.

£24.95 P&P £3

FIBRE GLASS POLES *Del £10.00*

	1½"	1¾"	2"
1m	£8.50	£10.50	£12.50
2m	£16.00	£20.00	£24.00

Longer lengths available – phone

COPPER ANTENNA WIRE ETC

Enamelled (50m roll) .....£16.95 P&P £5
Hard drawn (50m roll).....£16.95 P&P £5
Multi-Stranded (Grey PVC) (50m roll).....£13.95 P&P £5
Flexweave (H/duty 50 mtrs) .....£30.00 P&P £5
Flexweave H/duty (18 mtrs) .....£15.95 P&P £5
Flexweave (PVC coated 18 mtrs).....£18.95 P&P £5
Flexweave (PVC coated 50 mtrs).....£40.00 P&P £6
Special 200mtr roll PVC coated flexweave .....£99.00 P&P £10
Copper plated earth rod (4ft).....£13.00 P&P £6
Copper plated earth rod (4ft) + earth wire .....£18.99 P&P £6
New RF grounding wire (10m pack) PVC coated.....£12.50 P&P £5

MAST HEAD PULLEY

A simple to fit but very handy mast pulley with rope guides to avoid tangling. (Fits up to 2" mast).

£8.99 + P&P £2.50

30m pack (4.4mm) nylon guy rope.....£12.50

NEW EASY FIT WALL PULLEY

Pulley will hang freely and take most rope up to 6mm. (Wall bracket not supplied).

PULLEY **£8.99** + P&P £2.50

Wall bracket, screws not supplied. Simply screw to outside wall and hang pulley on

WALL BRACKET **£2.99** P&P £1.00

BARGAIN WINCH

500kg brake winch.
BARGAIN PRICE
£59.95 Del £8.50

Winch wall bracket.....£19.99

COAX BARGAINS

Genuine high quality coax

RG-213 Mil spec x 100m.
NOW **£59.99** P&P £10

MILITARY SPEC

RG-58 Mil spec x 100m.
NOW **£25.00** P&P £10.00
Coax stripping tool (for RG-58) £4.50

COAX SWITCHES (P&P £4.50)

2 way CX-201 (0-1GHz) SO239 .....£19.95
2 way CX-201 'N' (0-1GHz) 'N'.....£24.95
4 way CX-401 (0-500MHz) SO239 .....£69.95
4 way CX-401 'N' (0-500MHz) 'N'.....£79.95

LOW LOSS PATCH LEADS £2.50 P&P

Connectors	Length	Price
PL-259 - PL-259	0.6m	£5.99
PL-259 - PL-259	4m	£9.99
BNC - BNC	1m	£6.99
BNC - BNC	5m	£10.00

MOBILE ANTENNAS *P&P £8.50*

DB-770M	2m/70cm (3.5 - 5.8dB) 1m PL-259	£24.95
DB-7900	2m/70cm (5.5 - 7.2dB) 1.6m PL-259	£39.95
PL-62M	6m + 2m (1.4m) PL-259	£21.99
PLT-20	20m mobile whip (56" long)	£24.95
PLT-40	40m mobile whip (64" long)	£24.95
PLT-80	80m mobile whip (64" long)	£24.95
PLT-259	PL-259 converter for above	£5.95

NEW NOISE FILTER!

A superb TDK 'snap fix' ferrite clamp for use in Radio/TV/ Mains/PC/Phone etc. *Simply close shut over cables and notice the difference!* Will fit cables up to 13mm diameter. Ideal on power supply leads/mic leads/audio leads/phone leads.

On thin cable simply wind cable round clamp 1-to-2 times. Simple yet effective!

OUR PRICE: **2 for £10** (p&p £2.50)

DOUBLE THICK FERRITE RINGS

A superb quaility ferrite ring with incredible properties. Ideal for "R.F.I". Width 12mm/OD35mm. 6 for £12.00
12 for £20.00 P&P £3.50
50 for £40.00 P&P 7.00

METAL WORK & BITS *P&P available on request*

2.4m/2" alloy poles £19.99
2" Mast base plate .....£12.95 P&P £5
6" Stand off.....£6.95 P&P £5
9" Stand off.....£8.95 P&P £5
12" T&K Brackets .....£18.00 P&P £8
18" T&K Brackets .....£22.00 P&P £8
24" T&K Brackets .....£26.00 P&P £8
U bolts (1½" or 2").....£1.20 each
8 nut universal clamp (2" - 2") £5.95
2" - 2" cross over plate £10.95
3-way guy ring £3.95
4-way guy ring £4.95
2" 3-way rotary guy ring £29.99
2" mast sleeve.....£9.95
Heavy duty guy kits (with wire) .....£29.95 P&P £6
Ground fixing spikes (3 set) powdered coated £24.00 P&P £8
30m pack nylon guy 4.4mm/B/load 480kg .....£12.50 P&P £3
132m roll nylon guy (4.4mm) .....£40.00 P&P £7.50
Self amalgamating tape (roll).....£6.50
'Nylon' dog bone insulators.....£1.00 each
PL-259 plugs (large or small entry).....£1.10
N-type plugs (large or small entry) £3.95

DIAMOND CP-6

A superb (diamond quality) 6 band trap verticle antenna with trap radials – "rotary" trap system allows "flat wall" mounting. 80m/40m/20m/ 15m/10m/6m. 200W SSB, HT 4.6m

SEND SAE FOR DATA SHEET

OUR PRICE **£219.99**

Q-TEK PENETRATOR

"We've sold 100s all over Europe"

★ 1.8 - 60MHz HF vertical ★ 15 foot high ★ No ATU or ground radials required ★ (200W PEP).

ONLY **£179.95** Del £10.00

SEND SAE FOR LEAFLET

DELUXE G5RV

P&P on either full/half size £6.50

Multi-stranded heavy duty flexweave wire. All parts replaceable. Stainless steel and galvanised fittings.

Double size - 200ft (160-10m).....£84.95
Full size - 102ft (80-10m) £42.95
Half size 51ft. (40-10m) £36.95

Inline (SO-239) line isolator (ideal for G5RV).....£29.99

STANDARD G5RV

Full size 102ft (now includes heavy duty 300Ω ribbon)....£28.95 P&P £6
Half size 51ft (now includes heavy duty 300Ω ribbon).....£24.95 P&P £6

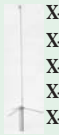
Q-TEK INDUCTORS

80mtr inductors + wire to convert ½ size G5RV into full size. (Adds 8ft either end).....£25.00 P&P £4.00 (a pair)

G5RV PARTS

Open wire dipole centre £5.99
SO-239 dipole centre £5.99
SO-239 to 300Ω joiner £8.99
300Ω ribbon (Extra heavy duty).....£1/mtr

Q-TEK COLINEARS (VHF/UHF) *P&P £10.00*



X-30 GF 144/70, 3/6dB (1.1m) £39.95
X-50 GF 144/70, 4.5/7.2dB (1.7m) £54.95
X-300 GF 144/70,6.5/9dB (3m) £69.95
X-510 GF 144/70, 8.5/11dB (5.4m) .....special £89.95
X-627 GF 50/144/70, 2.15/6.2/8.4dBi (2.4m) ..£79.95

BALUNS & TRAPS

1.1 Balun .....£25.00 P&P £4
4.1 Balun .....£25.00 P&P £4
6.1 Balun .....£25.00 P&P £4
40 mtrs Traps .....(a pair) £25.00 P&P £4
80 mtrs Traps .....(a pair) £25.00 P&P £4
20 mtrs Traps .....(a pair) £25.00 P&P £4

1kw Handling

TELESCOPIC MASTS

6 section telescopic masts. Starting at 2"/2" in diameter and finishing with a top section of 1"/4" diameter we offer a 8 metre and a 12 metre version. Each mast is supplied with guy rings and steel pins for locking the sections when erected. The closed height of the 8 metre mast is just 5 feet and the 12 metre version at 8 feet. All sections are extruded aluminium tube with a 16 gauge wall thickness.

8 mtrs **£109.95** 12 mtrs **£149.95** *Carriage £12.00.*

Tripod for telescopic masts £89.95

REPLACEMENT POWER LEADS

DC-1 Standard 6-pin/20A fits most HF £20.00
DC-2 Standard 2-pin/15A fits most VHF/UHF £10.00

YAESU REPLACEMENT MICS

MH-IC8 8 pin Yaesu mic (8-pin round) £22.50
MH-4 4 pin fits older HF, etc. (4-pin round) £15.00

CAR BOOT MAST SET

Once they've gone, they've gone! 5 section (15') 4.5m 1¼" slot together mast set. Collapsed length 0.92m (3') makes this ideal for travelling.

£24.99 Del £10.00

2 for £35.99 del £12.00 3 for £45.99 del £12.50

NEW 20' SLEEVED MAST SET

A heavy duty-sleeved, mast set that will tightly slot together. 4 x 5' (2" dia) 16 guage heavy duty aluminium tubes. (Dimensions approx).

£49.99 Del £10.00.

TWO FOR £90.00 DEL £12.50

ALUMINIUM POLE CLEARANCE

We have sets of 4 (2') poles (3 of which are swaged) that slot together to make a (approx) 20' pole. Each section is approx 5' long – some have small dents in – some have been swaged slightly off centre – hence the price.

3 FOR £40.00 DEL £15.00

SCRAP PRICE **£19.95** Del £10.00

EMC

This month's 'EMC' includes a feature on some comprehensive reports on PLT measurements that have recently been published by Ofcom, and information on ADSL immunity

On 17 May, I presented a paper at the IEE seminar 'EMC and Broadband for the Last Mile' about my research in this area. Robin Page-Jones, G3JWI, of the RSGB EMC Committee gave a presentation called, 'The Effect of Radio Interference from DSL and PLT'. There were also presentations from Jonathan Stott of BBC Research on 'Co-existence of PLT and Radio Services' and from Trevor Morsman of BT on ADSL interference issues (see below). All the presentations from this IEE seminar are available on the IEE website (See 'Web Search').

ADSL IMMUNITY

At this IEE seminar, Trevor Morsman of BT presented a paper, 'How clean is your home?', about BT's experience in assessing radio frequency interference issues in ADSL services. BT has over 5 million ADSL lines in the UK and a small number of these suffer interference from nearby electronic equipment. Most interference to ADSL has been caused by equipment that dos not comply with the applicable EMC standards, either by design or due to a fault. In some cases it has been due to equipment that complies with the more relaxed Class 'A' limits, intended for commercial use, but is being used in the home. The type of equipment that interferes with ADSL is also likely to cause interference to amateur radio reception, broadcast reception, etc.

Trevor Morsman showed examples of products that had caused loss of ADSL service to some BT customers nearby. In some cases, 10 or more ADSL customers in a street were affected. A remote light dimmer was found to be 30dB above the EN55015 limit and some flashing 'rope lights' caused interference to ADSL. These comply with EN55015 when the lights are steady but if they are set to the 'waving' or 'slow fade' mode, the interference emissions exceed EN55015 by over 40dB. These lights were popular before Christmas and over 20,000 have been sold. It appears that EMC compliance tests were done incorrectly and that they were tested in the steady mode only. Decorative 'rope lights' are also known to cause problems to radio reception, especially around Christmas. Some types of switch-mode power supply 'electronic transformers' for low voltage halogen lighting have also caused interference to ADSL.

His presentation also showed that interference emissions from a faulty TV or satellite receiver can exceed the EN55013 limit at frequencies up to 5MHz, with the highest emissions being 55dB over the limit at 150kHz. It appears that if the main electrolytic smoothing capacitor in the switch-mode power supply dries up, this can cause a large increase in emissions of interference via the mains but the equipment still works.

There are many similarities between the problems that BT faces in dealing with interference to ADSL and the problems that radio amateurs face in dealing with interference to amateur radio reception. In both cases, it may be difficult to locate the source of interference as it may be hundreds of metres away or it may be intermittent. It may also be difficult to persuade the owner of the equipment in question to do anything about it.

OFCOM PLT REPORTS

In Autumn 2004, the Radio Technology and Compatibility Group (RTCG) of Ofcom (formerly part of the RA) undertook measurements of RF interference radiated from three types of Power Line (Tele)communications (PLC/PLT) systems. RTCG closed down in December 2004 and the reports were published by Ofcom in May 2005. These reports are comprehensive and of a high technical standard. They are available on the Ofcom website (see 'Web Search').

Two of the PLT systems were in Crieff, Central Scotland, and one was in Winchester, Hampshire. At the time of writing, it seems unlikely that such systems will get beyond the trial stage in the UK. Nevertheless, the Ofcom reports provide a valuable insight into the interference emission potential of PLT systems, particularly the 'in house' sections.

A key issue with PLT is standards. The 'Background' sections of the Ofcom reports sum up the EMC standards situation rather well - "The PLT interference issue has proved to be contentious and remains under discussion both within Europe and elsewhere. Various radiated emission limits have been proposed, either for establishing network compliance or, less rigidly, for the purposes of adjudication in cases of reported interference. It appears, however, that none of the proposed emission limits can currently satisfy the dual objective of protecting radio reception whilst, at the same time, allowing PLT to operate in a commercially viable manner."

Existing EMC emissions standards below 30MHz measure 'conducted emissions', that is, RF voltages emitted at mains or communication port terminals of the equipment under test. There are no Harmonised European EMC standard for radiated field strength limits below 30MHz but the Ofcom reports refer to the German NB30 limit or the US FCC Part 15 limits for comparison purposes. The German NB30 limits are higher than radio amateurs and short wave listeners would like. The US FCC Part 15.209 radiated emission limit between 1.705 and 30MHz is 30μV/m (29.5dB(μV/m)) measured at 30 metres from the source in a 9kHz bandwidth using a Quasi-Peak (QP) detector. This limit is far too high to protect HF radio communications, but it was not really intended to do this. This FCC limit has existed for about 50 years for 'current carrier devices', in the US, ie communication via power networks, but on a basis of non-interference with radio communications. It was only ever intended for narrow-band signals on spot frequencies, not signals carrying high-speed data that spread over a bandwidth of many megahertz.

There is pressure to relax existing EMC standards so as to allow 'access' and 'in house' PLT systems to operate. Although 'access' PLT may be unlikely to become established in the UK, 'in house' systems such as home powerline networking are already available even although there is some doubt about their EMC compliance. Home powerline networks can be used for networking computers in the home to allow sharing of any type of broadband Internet connection such as ADSL or a cable TV modem.

Another important issue is the sensitivity of the measuring system. Most measurements of PLT emissions by other organisations have used a standard CISPR16 type 60cm loop antenna, which results in a rather 'deaf' measuring system with a relatively high 'noise floor'. Ofcom used a Rohde and Schwarz HM525 active loop antenna, which is a specialised loop with a substantially lower noise level than a CISPR16 loop. Nevertheless, the 'noise floor' of

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the Ofcom measuring system using an HM525 active loop antenna is approximately +10dB(μV/m) using a receiver with peak detection and 9kHz bandwidth. This is still well above the background noise levels on the HF bands so the Ofcom results do not show the full extent to which leakage from PLT networks can raise the background noise level.

PLT IN WINCHESTER

Scottish and Southern Energy plc started a commercial trial of 'access' PLT at Winchester in late summer 2003 using first generation Ascom APM-45 equipment. The RA/Ofcom made measurements of PLT leakage emissions at the Chaundler Road substation network in the Abbotts Barton area of Winchester in December 2003 and October/November 2004.

The Ascom APM-45 PLT equipment claims to achieve bulk data transfer rates of up to 4.5Mbps (shared between multiple users). It uses three carriers at 2.4, 4.8 and 8.4MHz for the 'access' or outdoor' part of the network. Each PLT customer's premises has a 'gateway unit' that converts the 'outdoor frequencies' to three other carriers at 19.8, 22.8 and 25.2MHz for the 'indoor' network. Each carrier is modulated with high speed data using Gaussian Minimum Shift keying (GMSK) modulation. The sidebands of each carrier occupy a bandwidth of approximately 2MHz.

The power of each carrier is adjustable up to +8dBm per carrier, that is up to +8dB relative to one milliwatt or 6.3mW. This corresponds to a power spectral density of -50dBm/Hz, that is a power of -50dBm in each 1Hz bandwidth. It is understood that +2dBm per carrier is normally used but the maximum power of +8dBm may be used if necessary to deliver sufficient signal to a receiver. For the Ofcom tests, +8dBm per carrier was used, to provide a 'worst case' situation. Under these conditions, the emissions in the Ascom access PLT band, measured at 3m from the substation distribution cables peaked at 50dB(μV/m) on 4.8 MHz, which exceeds the German NB30 emission limit by up to 15dB. Another test at 22.8MHz indicated that field strengths likely to be found inside a PLT customer's premises or inside adjacent premises would exceed the German NB30 emission limit by up to 20dB.

FIG 1 © RADCOM 537

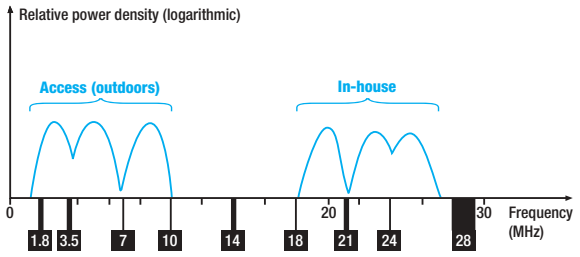

FIG 2 © RADCOM 538

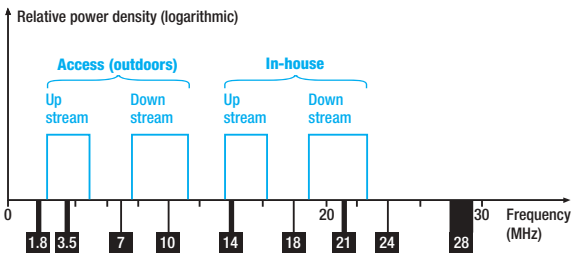

Fig 1 shows an outline of the Ascom PLT spectrum. This is derived from Figs 4 and 23 in the Ofcom report, but for information on field strengths it is necessary to refer to the Ofcom reports. The 7MHz amateur band falls between the sidebands of the 4.8MHz and 8.4MHz 'outdoor' carriers but there is still significant sideband energy from the 2.4MHz and 4.8MHz Ascom carriers in the 3.5 – 3.8MHz amateur band. Although the 21MHz amateur band falls between the sidebands of the 19.8MHz and 22.8MHz Ascom 'indoor' carriers, there still appears to be some sideband energy in the amateur band.

Fig. 1
Outline of the frequency spectrum of the Ascom PLT system used in Winchester trials.

Fig. 2
Outline of frequencies used for the DS2 PLT trials in Crieff (without notches).

PLT IN CRIEFF

Ofcom made measurements on an 'access' PLT system in the Ancaster Road area of Crieff. This system is operated by Scottish and Southern Energy plc and uses DS2. DS2 is a multi-carrier system with 1280 subcarriers spaced at intervals of 1.1kHz. The downstream spectrum has 768 carriers and occupies a 3.75MHz bandwidth. The upstream spectrum uses 512 carriers with a 2.75MHz bandwidth. The operating frequency range can be programmed between 1MHz and 38MHz and it is also possible to programme 'notches' at certain ranges of frequencies in the downstream direction.

The Crieff DS2 network uses 2.5 – 5MHz and 7.8 – 11.3MHz for the 'access' (outdoor) network. The in-house network uses 13.8 – 16.3MHz and 19.0 – 22.75MHz. **Fig 2** shows these frequency ranges in relation to amateur bands but for information on field strengths it is necessary to refer to the Ofcom reports. These frequency ranges used include the 3.5, 10, 14 and 21MHz amateur bands. Most Ofcom measurements were made with the DS2 equipment operating at its normal power density of -62dBm/Hz but some were made at the maximum power of -50dBm/Hz in order to assess the depth of 'notching'. The capability of 'notching' to reduce power by 20dB or 30dB in the 10 – 10.15MHz and the 21 – 21.45MHz amateur bands was demonstrated. The system could easily achieve a 20dB 'notch' but a 30dB 'notch' generally resulted in a substantial reduction in the number of sub-carriers available for carrying data.

Another PLT system that Ofcom tested in Crieff was an Amperion PLT system operating on 2.3km length of 11kV overhead power lines. This system is designed for the US electricity distribution network where it is known as Broadband over Power Line (BPL). In the Crieff trial, it was part of the 'back haul' link from the electricity substation to the service provider and is probably the only equipment of its kind used in the UK. To cover a distance of 2.3km, five sections were used with repeaters between each section. The Amperion system also uses the DS2 chipset and the Crieff system used 10 blocks of frequencies with centre frequencies between 14MHz and 48MHz. The system was tested at its maximum power density of -50dBm/Hz, but the manufacturers were not happy about publication of test results under these conditions, as they state that the normal operating power would be lower. Nevertheless, there can be little doubt that for the same launch power, a PLT system on overhead lines radiates significantly more than an underground PLT system. ♦

WEB SEARCH

Presentations from the IEE Seminar on 'EMC and Broadband for the Last Mile', 17 May 2005
http://www.iee.org/oncomms/pn/emc/broadband_event.cfm

Three Ofcom reports on PLT measurements at Crieff and Winchester
www.ofcom.org.uk/research/technology/cet/powerline/

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Remote receivers at GB3DX

New Chairman appointed to the RMC ♦ On-line repeater application form

The RSGB decided at a meeting in May to appoint John McCullagh, GI4BWM, as the new Chairman of the Repeater Management Committee. John takes over from Andrew Barrett, G8DOR, who accepted the role on an interim basis when the previous Chairman, Carlos Eavis, G0AKI, decided to retire. John has been involved in the electronics industry since the early 60s. He first became licensed and joined the Society in 1973 after passing the RAE some years earlier. Professionally, John is a Civil Servant working in the radio field for 'Blue Light' Services in Northern Ireland, where he is currently Chief Engineer. His experience in the world of amateur radio repeaters comes from the construction and maintenance of GB3NI (the first 2m repeater in Northern Ireland in 1978) together with GB3UL, GB3LY and GB3PK. John is also involved with Raynet, being the controller of the North East Northern Ireland Raynet Group. John was awarded the MBE for Public Service in the 2005 New Years Honours list.

John, GI4BWM, recently appointed as RMC Chairman.

ON-LINE REPEATER APPLICATION FORM

Colin Dalziel, GM8LBC, the webmaster for the RMC, has developed an on-line version of the repeater application form, built using Microsoft *Excel*. The form is intended to be downloaded to your own PC, completed locally, then e-mailed to your local RMC regional manger for processing. It is *not* to be sent directly to the RMC proposals manager. Supporting documentation – for example, a copy of personal validation document – can be scanned and sent with the application spreadsheet. Once the details of the application have been checked it will be sent to the RMC Proposals Manager for processing, after which a final submission document will be sent by post to the Keeper for signing. More details can be found on the RMC website. Look under the documents tab on the menu bar and select 'application form e1'.

It is worth clarifying other issues surrounding applications for repeaters. There must be at least four closedown operators included on all applications. These operators do not have to be licensed, as they are only required to switch the repeater off in an emergency. All listed closedown operators must have a telephone number listed. This may be a mobile number.

GB3DX REMOTE RECEIVERS PROJECT

Repeater receivers occasionally fail to hear stations in areas that may be low-lying or are shielded from the repeater for other reasons. The Birmingham Online Repeater Group has been running an experiment to overcome this problem, with the agreement of Ofcom and the RMC, by installing multiple remote receivers to GB3DX and connecting them to the main unit via the Internet.

The system has been running for some time without any major technical or operational issues. Remote receivers are accessed using CTCSS sub-audible tones, a different tone for each separate receiver. Feedback from some operators showed that they consider that they are at a disadvantage by not having CTCSS fitted to their radios.

In addition, the system is fitted with a commercial audio compression and limiting device in the Internet audio path. This is to prevent Internet-connected stations (not those using the remote receivers) from over-driving the system. As a result, anyone listening to the repeater output is not able to detect any difference in audio quality generated by the repeater itself.

The repeater group is continuously reviewing the operation of the system and has come up with a number of technical and operational problems that need to be overcome. These are:

- Allowing users to access remote receivers without CTCSS.
- Remove any possible safety issues with mobile operators needing to change CTCSS sub-tone frequency while on the move.
- Removing the need for users to remember separate sub-tones and their relationship to location.
- The sub-tone switching at the repeater site requires a high signal-to-noise ratio to inhibit the main receiver. With mobile flutter, there is a danger that both the remote and the main receivers will 'ping pong' between each other, introducing delays to the received audio.
- If an amateur station close to the repeater site uses low power with a CTCSS sub-tone, the audio is, in some cases, inhibited. This is unacceptable.

It has been decided to improve things by using a voting system to select a dedicated receiver that, at the time, is receiving a signal stronger than the main repeater receiver. This has been implemented on one of the existing remote receiver sites that overlooks the repeater's main coverage area. This receiver will be 'voted' into the system automatically. Users will not need to alter their equipment in any way to access this remote receiver, as it will be 'transparent' to them.

You can be kept up to date by visiting the redesigned GB3DX website. Feedback from users is important and the website has a facility for this.

REPEATER PROPOSAL STATUS AS OF 29 JUNE 2005

The latest clearance status can be obtained from the RMC website. Please note that, even though an application may have cleared, it is beyond the control of the RMC as to when the keeper will bring the repeater into service. ♦

OUTSTANDING VOICE REPEATER PROPOSALS SUBMITTED FOR LICENSING SINCE MAY 2005:

Callsign	Type	Proposed Keeper
GB3NF	New 2m, Nottingham	M1FJB
GB3TO	2m modification, Northampton	G6NYH
GB3IS	New 2m, Isle of Skye	MM0BGQ
GB3RC	New 2m Alveston, Glos	GW4TQD
GB3DX	2m modification, Birmingham	G4LCH

WEB SEARCH

RMC	www.coldal.org.uk/rmc
GB3DX	www.gb3dx.co.uk

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E-mail: g3ldo@ukonline.co.uk

Antennas

G3LDO looks at his Double-D antenna, the VK2ABQ, the Moxon Rectangle, and modelling HF antennas at VHF

Sending and receiving material with images over the Internet and e-mail had been testing my patience of late, so last month I invested in broadband. While exploring antenna article sites on the Internet I came across *Rothammels Antenna Buch*, see [1]. This German antenna book comprises 42 chapters and is larger than the ARRL *Antenna Book*. To give an example of the scope of the book, the first five chapters cover: 1. Terms, fields, waves; 2. Propagation of electromagnetic waves; 3. Antenna forms; 4. Antenna characteristics; 5. Transmission lines. The best method of looking at this website if you don't understand German is to go via Google and use the translation facilities. The site contains a full contents list and index, plus some sample pages and other information.

Chapter 18, HF directional antennas (beams) has a sub-title, '18.1.4 Miniature Yagis', and under this sub-title I was surprised to find '18.1.4.3 G3LDO-Beam'. In references [2] and [3] it is called the 'Double-D Antenna'.

MODELLING HF ANTENNAS AT VHF

The G3LDO or Double-D antenna configuration was conceived by mischance. When I first moved to my present QTH nearly 20 years ago I looked for a method of making a small compact beam to go on the chimney of this rather small house. The only configuration that I was aware of at the time that would fit the bill was a wire beam by VK2ABQ [4], the basic structure of which is shown in **Fig 1**. I didn't know how this antenna would perform and (this was before the days of computer modelling) so I made a VHF model. This technique had been used with some success to investigate the performance of other HF beams, and is described in [5].

The model was constructed with wire elements laid out on a wooden X-spreader with the element ends tried in various directions. The results were rather disappointing. It would give the gain of a two-element Yagi provided the elements were not folded too far back on themselves, or directly towards each other on the same plane as shown in Fig 1.

The VHF model indicated that the ends of the elements could be folded back towards the mast and down to an angle of 20° from the horizontal before the gain started to deteriorate. This resulted in a structure shown in **Fig 2**. The antenna proved to be a simple and stable mechanical arrangement and the HF model survived some very strong gales.

Since that time, antenna modelling programs such as *EZNEC* have shown the antenna configurations shown in Fig 1 do work quite well, even at VHF. So why did my VHF model fail in this regard? It is possibly that it was due to capacitive end-coupling. With VHF modelling, wavelengths, capacitances and inductances in the VHF scale model are reduced in proportion to the linear dimensions while gains and impedances are unchanged. However, the insulator supporting the ends of the elements represents a fixed capacitor, the reactance of which is frequency-dependent.

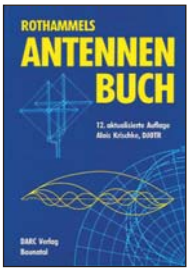
THE MOXON RECTANGLE

The original VK2ABQ antenna is a square structure, see Fig 1. The driven element and the reflector are a quarter-wavelength apart, although the tips of the elements support each other using insulators. G6XN [6] changed the structure from a square to a rectangle, thereby reducing the centre section spacing of the elements from 0.25λ spacing to 0.17λ spacing. This resulted in improved gain and directivity. It also reduced the feed impedance from around 120Ω to 50Ω, thereby overcoming the need for a matching network. Multiband editions of these antennas can be made by nesting the elements.

C B Cebik, W4RNL, reduced the element spacing further to 0.14λ, and obtained yet more gain and improved directivity. The downside of this higher performance is that the design is more critical, the feed impedance is down to around 35Ω and multibanding can pose a challenge. This antenna was called the Moxon Rectangle.

The first documented account of a two-element Yagi with bent elements (that is what all the antennas described above are) was by John Reinartz, W1QP, and a model was constructed for 14MHz by Burton Simson, W8CPC. It was described in *QST*, October 1937 [7].

These antennas are also described in an earlier 'Antennas' column [8], and in [9]. ♦



Front cover of the German antenna bible, '*Antennen Buch*'.

FIG 1 © RADCOM 539

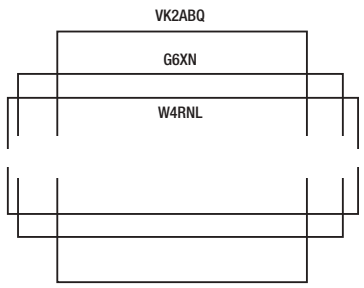
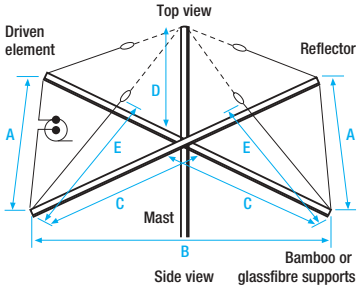


Fig 1
The original VK2ABQ antenna structure compared with the G6XN and the W4RNL. The G6XN has a centre section spacing of the elements of around 0.17λ spacing, while the W4RNL has element spacing further to 0.14λ, the closer spacing gives a greater gain and front-to-back ratio.

FIG 2 © RADCOM 540



Design data
A & B = 79.00/f (MHz)
C = 55.89/f (MHz)
D = 16.41/f (MHz)
E = 31.41/f (MHz)
Total element length = 1417.83/f (MHz)

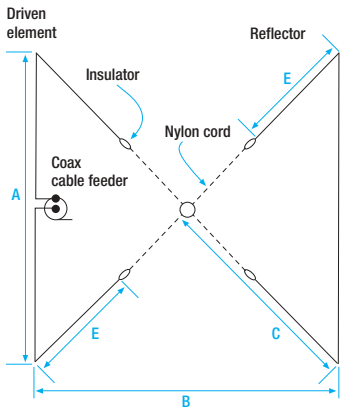


Fig 2
The basic G3LDO Double-D wire antenna with approximate design data. Multiband versions of this antenna have been made by fixing nested elements to the existing support structure.

REFERENCES

[1] http://www.antennenbuch.de/antennenbuch.html
[2] 'Wire Beam Antennas and the Evolution of the Double-D', G3LDO, *Radio Communication*, June/July 1980. Also *QST* October 1984.
[3] 'Further Evolution of the Double-D', G3LDO, *Radio Communication*, April 1990.
[4] 'VK2ABQ Antenna', VK2ABQ, *Electronics*, Australia, October 1973.
[5] *The Antenna Experimenter's Guide*, G3LDO, 2nd edition.
[6] *HF Antenna for all Locations*, G6XN.
[7] 'Concentrated Directional Antennas for Transmission and Reception', W1QP & W8CPC, *QST* October 1937.
[8] 'Antennas', *RadCom*, March 2002.
[9] *Backyard Antennas*, G3LDO.

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Whatever next

The next generation: the finale – for now ♦ A new, colourful, Icom

PHOTO: ICOM

The new Icom IC-7000. Not available at the time of writing.

The final design aspect considered by the delegates at the Stevenage talk was 'facilities'. The topic also encompassed a number of miscellaneous attributes.

Early in the design process, it was established that the transceiver should be far more modular than that to which we are accustomed, and this approach came once again to the fore when the subject of a mains power supply was raised. Having read about the previous parts of the design, you wouldn't expect to win a prize for working out that the delegates wanted a 12V transceiver with an optional mains power supply.

The subject of ventilation was raised, and it was agreed that, because just about everybody wants at some time to put books on top of their transceivers, there ought to be no reason why they shouldn't. Consequently, there should be no air vents in the top of the 'ideal transceiver'. The loudspeaker should also be kept away from the top panel. Although the delegates did not pursue the subject of the loudspeaker's location any further, I would like to suggest a front-mounted speaker. Traditionally, this has meant allocating a significant surface area to it, but modern loudspeaker technology has resulted in handheld transceivers having perfectly good audio performance from speakers not much larger than a coin. Alternatively, a larger loudspeaker could be mounted behind some front panel controls, such as a keypad that had the keys set into a grille rather then solid plastic.

When it came to the software, the delegates wanted it to be (1) open standard, (2) able to be updated, and (3) have a self-diagnostic function.

A simple security facility was seen as a worthwhile addition. In the days before removable front panels, I'm sure we have all had car radios with a security code, such that if the radio was removed from the car's power we needed to input a PIN to reactivate it. The next generation transceiver should also have such a facility, such that *every time* it is switched on it requires the operator to input a PIN. Indeed, it was suggested that different levels of functionality could be offered by different PIN numbers, the advantage of this being that if one has a keen (but unlicensed) family member whom one wishes to encourage into shortwave listening, a receive-only function could give them hours of enjoyment and you the peace of mind that they can't (accidentally) transmit. Adding a security feature would cost practically nothing, but make the transceiver worthless to a thief.

The subject of the user and workshop manuals was raised, and the delegates wanted them to be available from day one on the manufacturers' websites.

We're coming towards the end now and, as you might imagine, I have saved what could be the best until last. Some months ago in this column I wrote about the desirability of a Din-E sized mobile transceiver, ie something that could mount in the standard-sized hole of a car's dashboard. The delegates like the idea of the next generation transceiver having a Din-E slot. The question is, what would you plug into it? A mobile transceiver, or course. It leaves the overall picture of the next generation transceiver as shown in the box.

In due course I will let you know what the commercial manufacturers have to say about your ideas.

THE NEXT GENERATION?

When unloaded, the next generation transceiver would actually be two transceivers – a top-flight HF–6m transceiver for home and an HF-UHF all-mode mobile for the car. The main transceiver would have 100W output, but with the ability to be (a) upgraded with a supplementary plug-in PA module, and (b) silenced with the option of a large clip-on heatsink. The main receiver would employ IF DSP and all detection would be accomplished by software. The second transceiver would be a lower power mobile that could plug straight into the car. It would be multi-mode and would cover all bands up to 70cm. It would be equipped with analogue detectors. Plug the mobile into the base and you would gain the additional functionality of a second receiver, indeed it could be possible to override the analogue detectors of the mobile when it is docked. On top of that, the transmit side of the mobile could be used to connect to the DX Cluster while you work other bands.

COLOURFUL ICOM

After 10 years and three incarnations, it looks like the end of the line for IC-706 family of multi-mode mobile transceivers. At the Dayton Hamvention in May, Icom launched a successor, the IC-7000. As you might imagine, it employs a number of scaled-down facilities from the IC-7800.

The IC-7000 is equipped with a 2.5in colour TFT screen that not only acts as a frequency display but also as a television (VHF NTSC only). IF DSP is standard, with 41 bandwidths available. Soft and sharp filtering is also standard. Something I haven't seen before in an amateur transceiver are independent bass and treble controls. Finally, a new innovation – for an HF mobile, at least – is that a lot of functionality has been added to the standard microphone. ♦

WEB SEARCH	
Icom IC-7000	www.universal-radio.com/catalog/hamhf/0700.html

KENWOOD

Listen to the Future

On or off the road, Kenwood's new TM-271E delivers powerful mobile performance with 60W maximum output and such advanced features as multiple scan functions, memory names, and TNC connectivity for packet communications. Yet this tough, MIL-STD-compliant transceiver goes easy on you, providing high-quality audio, illuminated keys and a large LCD with adjustable cool-green backlighting for simple operation, day and night.

l 200 memory channels (100 when used with memory names) l Frequency stability better than ±2.5ppm (-20~+60°C) l Wide/Narrow deviation with switchable receive filters l DTMF microphone supplied l Data connector for packet communications (using 1200/9600bps TNC) l CTCSS (42 subtone frequencies), DCS (104 codes) l 1750Hz tone burst l VFO scan, MHz scan, Program scan, Memory scan, Group scan, Call scan, Priority scan, Tone scan, CTCSS scan, DCS scan l Memory channel lockout l Scan resume (time-operated, carrier-operated, seek scan) l Automatic repeater offset l Automatic simplex checker l Power-on message l Key lock & key beep l Automatic power off l Compliant with MIL-STD 810 C/D/E/F standards for resistance to vibration and shock l Memory Control Program (available free for downloading from the Kenwood Website: *www.kenwood.com/i/products/info/amateur.html)*

144MHz FM TRANSCEIVER

TM-271E

60W Model

- **High RF power output (60W)**
- **Alpha numeric LCD and illuminated keypad**
- **200 memories, memory name function**
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In practice

Clean signals in VHF contests

Q ***The VHF/UHF Contest code of practice tells me to check the quality of my transmitted signals. How can I do this? How can I tell whether the results are good or bad?***

A This question obviously extends way beyond VHF/UHF contesting. For many years the code of practice for VHF contests has pointed out that: "All transmitters generate unwanted signals; it is the levels of these signals that matter. In operation from a good site, levels of spurious radiation which may be acceptable from a home station may well be found to be excessive to nearby stations (25 miles away or more)."

That is a basic summary of the situation, and here is the technical background behind it. We begin with the 'dB ladder' of signal levels in transmitters and receivers, as presented by W2VJN [1] and referenced recently by Pat Hawker.

Fig 1 shows the enormous difference between the power level leaving your transmitter, and the power level entering your receiver. The decibel scale can make it easy to be glib about large differences in power levels, so let's remind ourselves that every 10dB step on the vertical scale of Fig 1 is a factor of 10 up or down. For example, a 100dB difference means that your receiver sees only 1/10,000,000,000 of the power transmitted – and even such a tiny fraction will often be an S9+ signal. For weaker signals, the difference between transmitted and received signal levels is vastly greater, approaching 200dB or 1/100,000,000,000,000,000,000. I make no apologies for printing all those zeroes – it's the only way to help you grasp the dizzyingly large or small numbers that radio communication truly involves.

Returning to the comfort of the decibel scale, Fig 1 has two different sides, for HF and for VHF/UHF. The transmitted power at the top of the chart is the same on both sides (a watt is a watt, at any frequency) but you can copy far weaker signals at VHF/UHF than at HF. This makes an enormous difference to the levels of spurious transmitted signals that can be tolerated.

The reason for the difference is that background noise levels are much lower at VHF/UHF. At HF, the background noise levels are strongly frequency-dependent, being much higher at 1.8MHz than at 30MHz. Fig 1 shows the two major components of *natural* background noise, as assessed many years ago by CCIR [2]. These are 'atmospheric' noise of terrestrial origin, which dominates below 10MHz; and 'galactic' noise which dominates all the way from 10MHz to 30MHz and beyond. Atmospheric noise in particular can be highly variable, especially at lower frequencies. Particularly at 1.8MHz, it can vary from 20dB above the line in Fig 1, down to almost undetectable [2]. However, many of us have never heard these low natural background levels at HF, because our radio environment is totally dominated by man-made noise.

The relatively high levels of background noise at HF determine our perceptions of what 'S9' should mean. The standard definition of an 'S9' signal at HF is 50µV, and although very few amateur receivers meet this 'standard' accurately, there is a general consensus that this figure is about right [3]. You can see from Fig 1 that 50µV represents a signal that is 40 – 60dB above the lowest background noise you're ever likely to encounter on the higher HF bands, although many of us know to our cost that noise levels on the lower bands can easily approach S9 or even exceed it on a bad night.

Given that the strongest signals in or near the HF amateur bands are of the order of -40dBW, from high-power broadcasters on 7MHz at night, we can see from the left-hand side of Fig 1 what the spurious-free dynamic range of HF receivers and transmitters needs to be. Peter Chadwick, G3RZP, has discussed this in some detail [4].

But the situation is very different at VHF and above. The natural background 'noise floor' for terrestrial operation tends towards about -170dBW, estimated from a combination of thermal noise, galactic noise and some receiver noise. You can see from Fig 1 that this is far below the lowest noise level on HF, so all our perceptions about weak and strong signals are shifted down the scale by 20dB at the very least. At VHF, the standard for S9 is a 5µV signal [3], which is typically 50dB above the background noise in a contest-grade receiver.

Now let's look at a couple of scenarios for interference from strong signals.

Interference Case 1 is a station running 26dBW (400W) PEP output at a distance of 100km... and in a busy portable contest there may be several of these stations, all on line-of-sight paths to your own hilltop. The received signal strength, P_{RX}, is easy enough to estimate:

$$P_{RX} = P_{TX} - L_{PATH} + G_{ANT} \text{ (dBW)},$$

where P_{TX} is the transmitted power level (dBW), L_{PATH} is the path loss (dB) and G_{ANT} represents the combined gains of both stations' beam antennas (dBi).

For a line-of-sight path between two hilltops, L_{PATH} can be estimated from the free-space formula:

c/o RSGB HQ.

E-mail: gm3sek@ifwtech.co.uk
Website: www.ifwtech.co.uk/g3sek

$L_{FS} = 20\log_{10}R + 20\log_{10}F + 32.5$ (dB),

where L_{FS} is the free-space path loss, R is the distance in km, and F is in MHz. For a distance of 100km at 144MHz, L_{FS} is thus 115.7dB. There may be some gain due to ground reflection or tropospheric refraction, but also some losses due to other causes, so this estimate is probably quite close to the actual value.

The combined antenna gain is rather harder to pin down. Although each of the two stations may be using antennas with a gain of 15dBi or more, they are relatively unlikely to be beaming right at each other. So let's assume that one station is beaming roughly towards the other, while the other is beaming somewhere else, so they are only managing a combined total gain of about 10dBi. This would be typical of the operational case where the two stations are roughly in line, but are both beaming in similar directions (because that's where the DX contacts are to be found).

Plugging all these numbers into the above formulae yields a received signal level of about -80dBW for Case 1. Next, Fig 1 shows what happens if the transmitting station has wideband spurious noise or splatter at a level of 100dB below PEP. With the assumptions of Case 1, there should be no interference because the spurious signals will be below the noise floor. This kind of analysis provides the basic justification for the VHF Contest Committee's recommendation that spurious signal levels should not exceed -100dB. It is what's needed to allow other contestants to operate without undue interference, provided of course that their own receivers can handle the signal levels involved.

Interference Case 2 is much worse. Here, the range has shortened from 100km to 10km, which increases the free-space signal levels by 20dB. Also the two beams are now pointing almost at each other, achieving a combined gain of 20dBi. A spurious signal level of -100dB will now be 20dB above the noise floor at the victim station, making all but the strongest signals unworkable. Obviously, this isn't the worst imaginable scenario, so this illustrates the other general principle behind the contesting code of practice: the stronger you aim to be, the cleaner your signal has to be – or else it is likely to attract complaints.

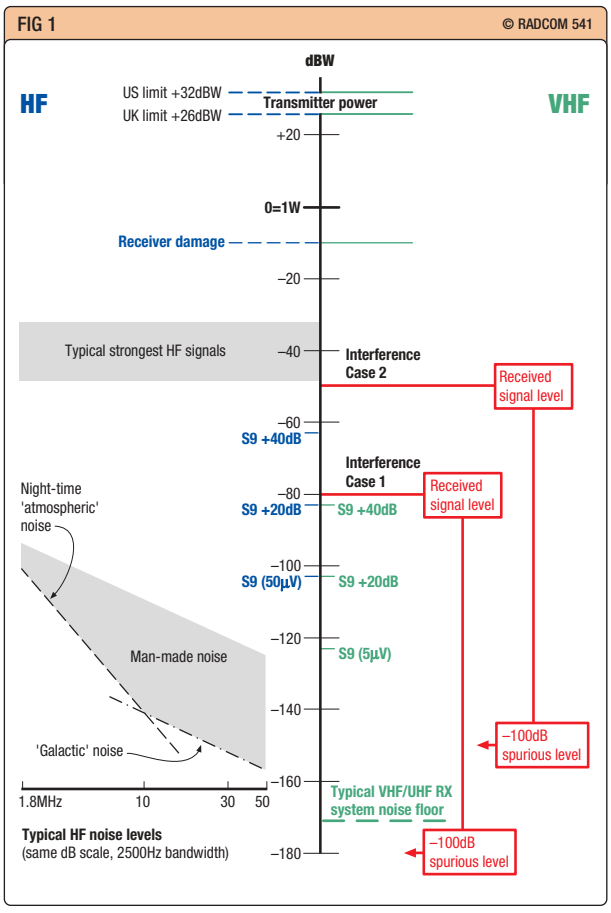


Fig 1
Transmitted and received signal levels at HF and at VHF/UHF (lower left: HF noise levels on the same vertical dB scale).

It has been rightly argued that spurious suppression levels of -100dB are extremely hard to measure; and so they are, with laboratory-style test equipment. But a good receiver, in the hands of a discriminating operator who understands the technical background, is well capable of detecting and interpreting spurious signals at this level. The main requirement is to understand how your receiver reacts to strong but *clean* signals at this high level, and suitable home-made test equipment has been covered extensively in the amateur literature [5].

However, there is also another criterion that contestants and adjudicators apply – and this one cuts through all arguments about "It's your transmitter!" "No, it's your receiver!" The simple question is: if you turn the beam away, to make the offending signal no stronger than many others on the band, is it still dirtier than the others? If the answer is yes, you can still hear that signal spreading much wider than the others, then you have genuine grounds for a complaint. But both sides must follow the code of practice, which gives extensive advice on what both stations should do. Above all, keep your cool! ♦

NOTES AND REFERENCES

[1] *Managing Interstation Interference* by George Cutsogeorge, W2VJN. Follow the links from the 'In Practice' website.
[2] *CCIR 322-2: Characteristics and Applications of Atmospheric Radio Noise Data*, 1983.
[3] IARU Region 1 HF and VHF Managers' Handbooks. Follow the links from the 'In Practice' website.
[4] Peter Chadwick, G3RZP, *HF Receiver Dynamic Range: How Much Do We Need? QEX*, May/June 2002.
[5] Follow the links from the 'In Practice' website.

TRANSMISSION 2005

24-25 SEPTEMBER

SIGN UP TODAY FOR TRANSMISSION 2005

The money YOU raise on 24-25 SEPTEMBER helps BWBF provide specially adapted audio equipment to UK-registered blind and partially sighted people in need.

FOR AN OFFICIAL SPONSORSHIP FORM...

Ring: 01634 832501, Fax: 01634 817485, E-mail: janet@blind.org.uk

Download from: www.blind.org.uk or write to: Transmission 2005, Gabriel House, 34 New Road, Chatham, Kent ME4 4QR

TRANSMISSION is a national fund-raising event open to all Amateur Radio Clubs and individuals to aid the work of **BRITISH WIRELESS FOR THE BLIND FUND**

BWBF

REG. CHARITY No: 1078287

www.blind.org.uk

ALL ABOUT TRANSMISSION 2005

'Transmission' is the annual amateur radio fund-raising event for the British Wireless for the Blind Fund (registered charity number 1078287). This year, 'Transmission 2005' takes place over the weekend of 24 – 25 September.

All radio amateurs are encouraged to take part in order to raise funds for this very worthwhile charity. The idea is that you ask your friends, family, workmates - anyone in fact – to sponsor you for contacts made during the weekend of 24 – 25 September.

Trophies will be awarded to the individuals and clubs/groups who make the most contacts or raise the greatest amount of money for the charity. Certificates will be sent to all individuals and groups/clubs who either raise more than £10 for BWBF or who make a donation of at least £10 to BWBF. In order to qualify for one of the trophies you must be a current member of the RSGB and resident in the UK. However, overseas amateurs and non-members of the Society are also invited to join in the fun and raise funds for BWBF (they simply do not qualify for the trophies, although they are eligible for the certificates).

Rules:

1. Obtain an official sponsorship/pledge/donation form from: 'Transmission 2005', British Wireless for the Blind Fund, Gabriel House, 34 New Road, Chatham, Kent ME4 4QR; tel: 01634 832501; fax: 01634 817485; e-mail: info@blind.org.uk; or download one from the BWBF website at www.blind.org.uk

2. Ask as many people as you know – family, friends, workmates, other radio amateurs – to sponsor you for contacts made during 'Transmission 2005' on 24 –25 September. Sponsorship can be for either a certain amount per contact or for a single sum, irrespective of the number of contacts made.

3. Sponsored contacts can be made at any time between 0000UTC on Saturday 24 September and 2400UTC on Sunday 25 September.

4. The definition of a "contact" for the purposes of 'Transmission' is a two-way exchange of callsign and signal report. Each station may only be contacted once per frequency band *per day*. In other words, every station contacted on 24 September may be contacted again, on the same frequency band(s), on 25 September and that second contact may also be counted towards the overall number of contacts made.

5. This is *not* an amateur radio contest, so sponsored contacts can be made on any band for which you are licensed, including 10, 18 and 24MHz.

6. Sponsored contacts may be made with your own callsign, a club callsign or a GB special event callsign. (Applications for GB special event callsigns must be made in the normal way at least 28 days prior to the event. Full details from AR Dept, RSGB, Lambda House, Cranborne Road, Potters Bar EN6 3JE; tel: 0870 904 7373 or e-mail: ar.dept@rsgb.org.uk).

7. Trophies will be presented to:

(a) the individual raising the most funds for BWBF;

(b) the group or club raising the most funds for BWBF;

(c) the individual making the greatest number of contacts during 'Transmission 2005'; and

(d) the group or club making the greatest number of contacts during 'Transmission 2005'.

Certificates will be awarded to *all* stations raising at least £10, or making a donation of £10 or more to BWBF. Please send cheques made payable to 'British Wireless for the Blind Fund' to the address in 1. above.

All donations are gratefully received, no matter how small, but the minimum amount to be raised to qualify for any trophy is £50. The minimum number of contacts to qualify for an award in category (c) or (d) is 50 contacts.

8. An "individual" is when only one person operates a station callsign, whether that callsign is a personal callsign, club call or GB special event station. The definition of a group or club is any operation of a callsign by more than one individual. Groups and clubs are invited to operate on more than one frequency band simultaneously.

9. To qualify for the trophies, you *must* return the sponsorship form *and a cheque for the amount raised*, made payable to 'British Wireless for the Blind Fund', to arrive *not later than* 31st October 2005.

To qualify for the trophies for the greatest number of contacts you must state how many contacts were made during 'Transmission 2005' and enclose a copy of the log. Either a *photocopy* of a hand-written log or a hard-copy print-out of a computerised log is acceptable. Please do *not* send the *original* of hand-written logs as they cannot be returned, and do *not* send computerised logs on disk. The minimum information required is the date, time, frequency band, and callsign of station contacted. The log should be signed by the licence-holder (or NoV-holder in the case of GB special event callsigns) as follows: "I certify that this is a true copy of the log-book entry for (callsign) during the period 24 – 25 September 2005. (signature)." Sponsorship forms and cheques returned without log copies will only qualify for the trophies for raising the most funds for BWBF.

To qualify for any trophy you *must* be a current member of the RSGB on 24 September 2005 and be resident in the UK. (However, special certificates will be sent to *all* stations raising more than £10.)

10. The trophies will be presented at the Kempton Radio Fair, which this year takes place at the Kempton Park Race Course on Sunday 13th November 2005. The trophies may be taken home by the winners but must be returned as arranged with BWBF for presentation to the winners of 'Transmission' next year.

Pat Hawker, G3VA

37 Dovercourt Road, London SE22 8SS.

TT

Digits, digits everywhere ♦ Buying overseas ♦ Short-span multiwire folded dipole ♦ The coming of coax

WILL DIGITS DOMINATE?

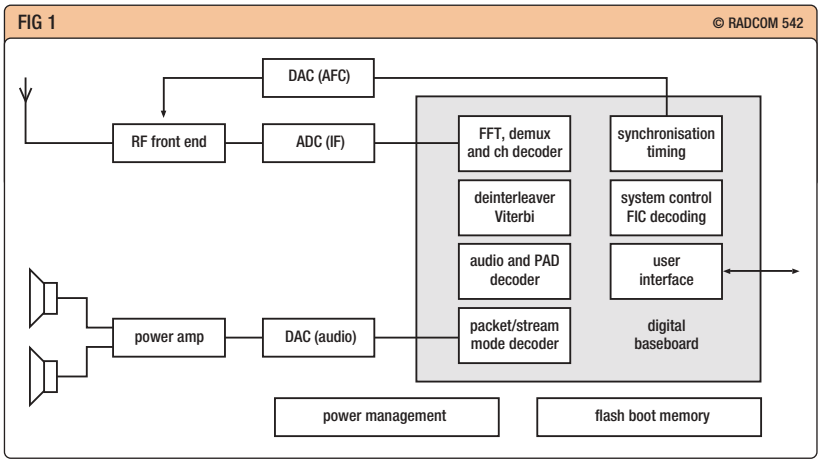
Like it or lump it, multi-mode high-speed data (including audio) seem set increasingly to take over our bands from HF to EHF, following in the footsteps of other telecommunications services. For broadcasting, there are already DAB (Digital Audio Broadcasting) multiplexes and DRM (Digital Radio Mondiale) presently used only on HF, although theoretically capable of being used on all AM broadcast frequencies up to 30MHz. Both DAB and DRM can also transmit other forms of data. **Fig 1** shows a block outline of a typical DAB receiver

DRM, it is claimed, overcomes the problems on HF of multi-path, Doppler and most forms of electrical interference, although severe fading may still cause more problems than the less dramatic increase in noise on analogue transmissions. On DRM, appreciable amounts of redundancy provide error correction to increase robustness, but there remains a critical signal level below which the audio drops out. However, transmitter power needs be only about a quarter of that required for equivalent AM coverage. Several coding schemes can be used to offer optimum quality at different rates and with different programme content. These include subsets of the MPEG-4 AAC, CELP and HVCX codecs, with optional spectral band replication.

A DRM transmission may contain up to four audio or data components, enabling transmissions in two languages simultaneously, for example. A few DRM receivers are on the market, although there are also software-defined receivers that run in conjunction with PCs. Power consumption is a problem for battery-operated portable receivers. A useful short tutorial article appears as an advertisement feature in *New Electronics,* 26 April 2005: 'Digital Radio Developments', by Les Mable (sponsored by Texas Instruments, with more information on **www.ti.com/digitalradio**).

Digital audio (voice) is creeping into the HF amateur bands,

Fig 1
Block diagram of a typical DAB domestic receiver. (Source: Texas Instruments sponsored feature in *New Electronics*)



although it is mutually incompatible in regard to frequency-sharing with both SSB and narrow-band transmissions, including CW and low bit-rate digital modes. ARRL is proposing radical changes to HF band-planning and has submitted a draft petition to FCC seeking to govern the usage of amateur spectrum by emission bandwidth rather than by mode, with segments limited to maximum bandwidths of 200Hz, 500Hz and 3kHz and, on part of the 28MHz band, 16kHz. This proposal would seemingly restrict American NBFM, DSB and AM below 30MHz to only 29.0 – 29.7MHz.

The June *QST* includes an overview article on D-Star digital voice and data systems suitable for use above 30MHz, plus an article on the installation and testing of the new Icom UT-118 digital voice modules as fitted in their IC-V82 and IC-2200H models. The AOR ARD9800 digital HF voice modem using the G4GUO protocol was introduced in 2003, permitting digital voice on at least some HF transceivers..

To quote *QST:* "Interest in digital technology runs deep in amateur radio, back to the early days of radioteletype, or RTTY. Packet radio was created from the Bell 202 and X.25 standards, and more recently there has been an explosion of new modes such as PSK, PACTOR, MFSK and others. Voice transmissions have been slow to be adapted to digital transmission standards, but the G4GUO protocol ['Practical HF Digital Voice', by Charles Brain, G4GUO, *QEX,* May 2000] has been implemented on HF by AOR, and Icom has now released equipment that supports the D-Star standard for transmitting both voice and data.

"D-STAR was the result of three years of research funded by the Japanese Ministry of Posts and Telecommunications to investigate digital technologies for amateur radio. The research was conducted by a committee administered by JARL. Included in the group were representatives of the Japanese amateur radio manufacturers, including Icom, which provided the equipment used for development and testing. The committee produced a standard called D-Star in 2001. Although D-Star is a standard published by JARL, it is available to be implemented by anyone. It is an *open protocol*, meaning that any equipment complying with the published standard can inter-operate with D-Star-equipped radio equipment. Icom is the only manufacturer to date that makes equipment that supports the D-Star standard."

Voice signals are converted to and from a digital stream of data by a codec implementing the AMBE (Advanced Multi-Band Excitation) and connected to a computer with

either an RS-232 or USB serial connection for low-speed data, or a high-speed connection via Ethernet. Data speed for the D-Star air link is 4.8Kb/s for voice and 128Kb/s for digital data, sufficient to support communications-quality voice and about twice as fast as good-quality dial-up connections. The data is transmitted over the air in the 0.5GMSK format – Gaussian Minimum Shift Keying.

BUYING OVERSEAS – CAVEAT EMPTOR

The May 'TT' noted the appearance on the market of the first software-defined radio amateur transceiver (Flex-Radio SDR-1000) based on the review in *QST*, April 2005. The SDR-1000 comes in a black box containing a few printed circuit boards using miniature surface-mounted devices. The hardware is defined and controlled from a PC equipped with a suitable sound card. At present, the unit offers both analogue and digital (DRM) modes of reception, and the conventional forms of analogue voice and digital transmission with the possibility of additional facilities with further software developments. It is clear that this is a unit that is virtually still under development, and at present is not available through UK agents or retailers.

It thus seems opportune to suggest that any major purchase overseas, except perhaps from a firm with an established reputation in the amateur radio market-place, should be approached with some prudence and a little caution. What is the after-sales service offered? Can the surface-mounted components be serviced, or individual boards be replaced? Can we be certain there are no inherent or hidden glitches in the hardware or software? Does the relatively small amount of RF hardware conform to good analogue design practice? It may seem a simple matter to order equipment over the web from a source 3000 miles away, but the distance seems much greater if you run into the difficulties so often associated with new systems based on a massive amount of software and with novel circuitry.

I must stress that I have had no personal contact with FlexRadio or its equipment or its after-sales service, but simply feel that this is the type of situation that can give rise to the types of problem discussed in the item 'Buying and Selling of Equipment', 'TT' August 2004 (see also *Technical Topics Scrapbook 2000-2004*, pp235 – 236). Among other comments, I wrote of purchases made in the UK or Europe: "A point of considerable importance to amateurs is the supply of spare parts. There is a legal obligation on suppliers, retailers and manufacturers to make spare parts available for at least seven years from the time of selling a product without which a product is unusable… The Sale of Goods and Services Act, 1982, requires a service to be carried out with reasonable care and skill within a reasonable time and, where no price is agreed, the charge should be reasonable. Remember that the buyer's contract is with the retailer or supplier, not [usually] with the manufacturer."

With equipment bought from a UK-accredited agent or firm, this is all fairly straightforward, but it could prove difficult and expensive to attempt to argue a legal case in the USA. For example, to prove an inherent fault, to determine what is a 'spare part' for a faulty board based on tiny surface-mounted components that amounts to a 'throw-away' part rather than repairable. Then again, a glitch in the software may or may not be regarded as an inherent fault, but could cause problems to an operator dependent on his equipment functioning without requiring computer expertise. It would be interesting to hear from anyone who has been an early purchaser of the SDR-1000 of their experience in regard to the hardware, software and after-sales service. The web has opened the way to a global marketplace and competitive pricing and has encouraged the setting up of many enterprising new businesses. But it has also brought in train some problems.

There is much to be said for purchasing complete equipment, wherever it is manufactured, from an accredited UK or even a European firm, as it then comes with the protection of the various Sale of Goods Acts etc discussed at some length in the August 2004 'TT' item. *Caveat Emptor*!

FIG 2 © RADCOM 543

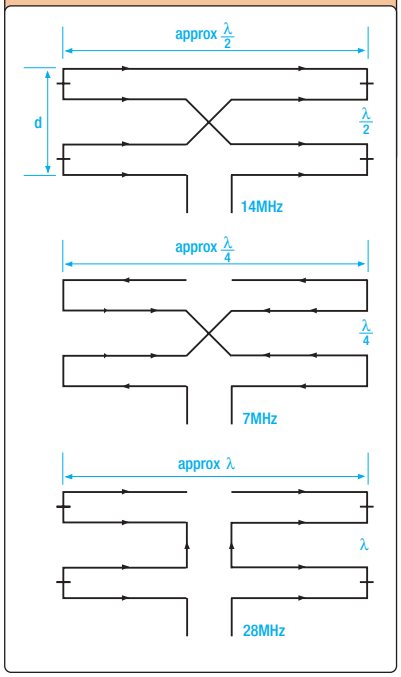


Fig 2 Arrangement of the driven element of the four-wire, three-band doublet described in 1940 in *Radio* by Dr Kraus, W8JK. With a span of approximately 34ft, five (remote-controlled or manual) switches could be used to configure the folded element as shown in (a) as a half-wave element for 14MHz, (b) as a quarter-wave element for 7MHz, and (c) as a full-wave element for 28MHz. It is possible that (b) could also have been used on 21MHz as a 0.75λ element had the 21MHz band been available before WWII.

Fig 3 Short, four-wire, double-folded dipoles. (a) The original W8JK quarter-wave version as shown in Fig 2(b). (b) The low-impedance-feed version as adopted by G3UUR.

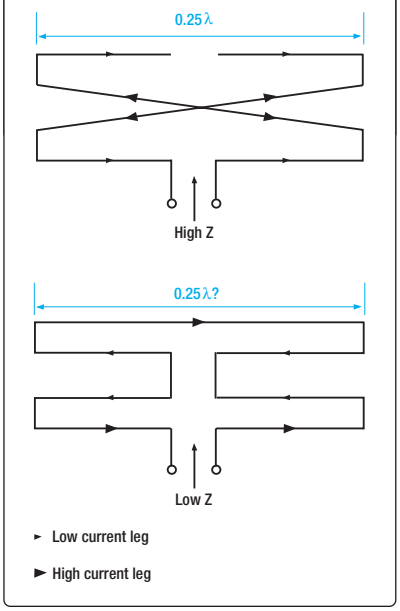
SHORT-SPAN MULTIWIRE FOLDED DIPOLE

While 300Ω or 450Ω balanced twin-wire feeder has much to recommend it – it can be used as both matched or resonant feeder – many amateurs remain wedded to the use of coaxial cable as a most convenient low-impedance feeder.

In 1939 – 40, the late, great John Kraus, W8JK, investigated and published details of various forms of folded dipole and monopole (folded unipoles), details of which have been published at various times in 'TT', most recently in April 2004, in an item marking his many contributions to antenna design. The folded antennas shown then had feed impedances of about 350Ω, 900Ω, 450Ω and 230Ω. The item also noted that Walter Roberts, K4EA, and Ham Clark, G6OT, had described how to calculate the feed impedance where wires of different diameter were used.

However, Kraus also published a further, half-sized, four-wire version in the form of a shortened, double-folded dipole in an article entitled 'The Three-band Rotary Antenna' (*Radio*, February 1940). This showed how a driven four-wire folded element with a span of some 34ft could be used on 7, 14 and 28MHz (no pre-war 21MHz band) if reconfigured by means of five switches (remote or manual switches in the element) to reconfigure it as outlined **Fig 2.** Dave Gordon-Smith, G3UUR, has developed the quarter-wave version

FIG 3 © RADCOM 544



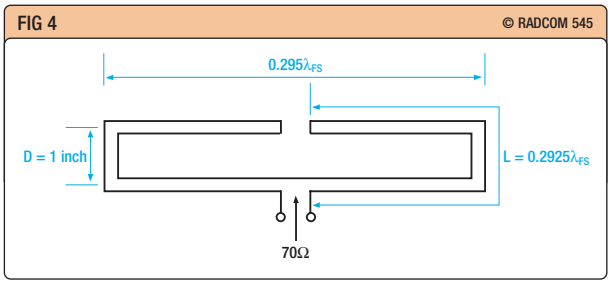
to provide a central low-impedance feed point that can be fed directly by coaxial cable without the requirement for an ATU. He has used this arrangement intermittently over several decades. He writes: "The Kraus half-sized, four-wire, folded dipole was fed with open-wire feeder, as shown in **Fig 3(a).** I saw that this could be modified to work with low-impedance coaxial cable quite easily: see **Fig 3(b).** The arrangement is equivalent merely to folding a folded dipole back on itself so that the ends almost touch, and the feed impedance should be close to four times 12Ω. This is a very obvious modification to make, and I'm sure Kraus would have done it if low-impedance cable had been in common use by amateurs in 1940. It is exactly the same as the structure of the FLA and BFDA on which the Japanese engineers based their Built-in Folded Monopole Antenna (BFMA), see 'TT' June 2005, p70.

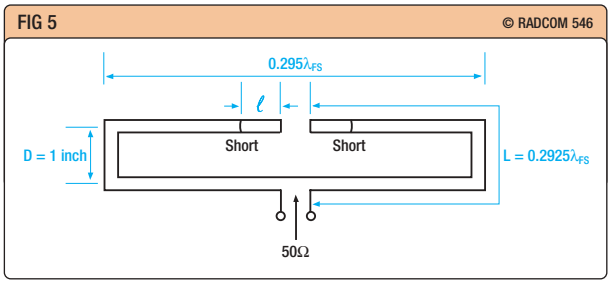
"Kraus did not mention the reduction in self-inductance caused by folding the element legs back on themselves, and I didn't appreciate what the effect would be at that time. In fact, the resonant frequency increases by about 17% with an average separation of about 1in between the conductors in each folded-back element. My first attempts to make a version that could be fed with low-impedance coaxial cable were very disappointing. W8JK didn't have to worry about the increase in the resonant frequency caused by folding the elements because he used open-wire feeder and a matching unit. I didn't have the knowledge, or equipment to find out where my version was resonant. Later, in the 1970s, when I was better equipped, I was able to make a rough prediction of where the design might be resonate, and got it to work very successfully. Since then, I've used it, on and off, on various bands, as a short rotary dipole and as a sloper. It could also be used as an inverted-V, of course, if the matching and length were tweaked slightly. The change in resonance, compared with the same conductors in a straight line, is very much dependent on the spacing between the two parts of each folded element, and the proximity of the ends of the two legs of the dipole. The reduction in self-inductance is the dominant effect, though, and this varies as the logarithm of the separation between the conductor in the folded-back part of the element and those in the original line of the antennas.

"There are three variations of this short, double-folded dipole, which allow 50Ω (T-match version) or 75Ω coaxial cable (simple version) to be used with it, or 50Ω cable with a tuned version, which may be remotely tuned if desired. The tuned version can be used with a fixed capacitor if the bandwidth is adequate without remote tuning. The bandwidth of the shortened, folded arrangement is about one-third to one-quarter of the full-sized version, which is still considerably wider than an inductively-loaded dipole of the same span. Ground loss will increase the apparent bandwidth of this design if it is used at low heights on the lower-frequency bands, although having the high-voltage ends in the middle of the antenna does reduce the dielectric loss slightly in the inverted-V form. However, it is still preferable to have the tips of the dipole span as high as possible to minimise ground-induced loss, because the RF voltages at these points are still more than 0.7 of the voltages at the conductor ends, and these voltages are much increased compared with a full-sized dipole due to the folding/shortening of the antenna.

"The arrangement and dimensions of these three versions are shown in **Figs 4**, **5** and **6.** Generally, I have used 300Ω ribbon feeder supported by bamboo poles to make short, double-folded rotary dipoles, and have used small pieces of the same ribbon feeder to make fixed tuning capacitors for the tuned version. In this case, the exposed ends of the feeder should be sealed with blobs of wax to keep out moisture, and the wax should not be allowed to spread across the polythene dielectric between the conductor ends. PVC tape should not be used as it is very lossy at RF. Small beads of almost any adhesive will do instead of wax, as long as it is restricted to just sealing the conductor ends where they emerge from the polythene, and doesn't start to bridge the gap between them. There is very high voltage across the 300Ω ribbon when used as a fixed tuning capacitor, even at moderate power levels, and also between the two ends of the antenna. This ribbon cable is not the best material to use for either application, but is readily available and convenient. Heavy-gauge, enamelled wire would be much better if a convenient means of separation can be fabricated from readily-available material. Nowadays, fibreglass fishing-poles would be much better than bamboo poles for supporting these antennas.

"Sloping versions can be matched to 50Ω coaxial cable by shortening the tuned version down to something around 0.25 of a free-space wavelength to get a lower feed impedance, and re-resonating the antenna with more capacitance across the ends. Alternatively, the shorting connections on the T-match version can be moved further down the antenna, away from the ends, to achieve a better match. The sloping T-match version can take a bit of trial-and-error to set up properly, because of variations in the effect of the ground below the antenna, the angle of its slope, and its proximity to any conducting support poles. But it is well worth the effort, as these antennas are far better than loaded dipoles."





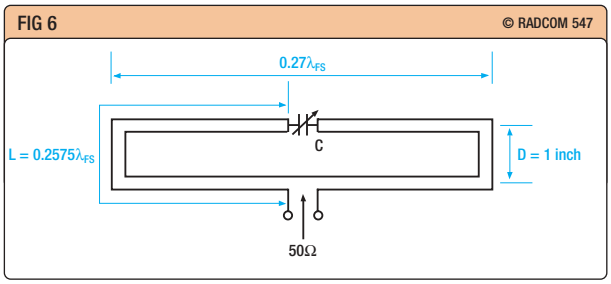


Fig 4
Practical dimensions of a simple, short, double-folded dipole intended for 70Ω or 75Ω feed as used by G3UUR. λFS = free-space wavelength.

Fig 5
T-matched short, double-folded dipole for l50Ω feed. l = 8% to 9% of L.

Fig 6
Tuned, short, double-folded dipole with 50Ω feed. C = 3 – 5pF for 14MHz, 5 – 9pF for 7MHz.

THE COMING OF COAX

Amateur radio without the use of flexible coaxial cables would seem almost unthinkable. Yet, in practice, RF coaxial cables were seldom used by amateurs in the pre-WWII era and only just beginning to appear as footnotes in the handbooks... The first time I ever saw such cables being used was in 1942 for the Hanslope Park SCU3 intercept station in conjunction with the wide-band distribution amplifiers of 'Dud' Charman, G6CJ, using the trusty 807 RF power valves to achieve excellent linearity over bandwidths of more than an octave (4 – 8MHz or 8 – 16MHz, if memory serves me) when fed by the multiple strong signals collected by the large rhombics or V-antennas.

I was reminded of this by receiving an enquiry from Stewart Revell, G3PMJ, querying when coaxial (concentric) cable was first used to deliver

RF power from a transmitter to an antenna. He had traced early patents, etc, on the use of such cables for submarine cable systems, and US Patent 1,835,031 of December 1931 (filed May 1931) by Lloyd Espenschied *et al*, *Concentric Conducting System* for cable television.

The answer was an easy one: C S Franklin of the Marconi Company, the eminent engineer who was responsible for the building of the Marconi Short Wave Beam System in 1926. To quote from a 1934 Science Museum publication by W T O'Dea on the history and development of radio communications: "In 1926, the first portion of the beam system between Bodmin and Canada was opened for regular service on 16.6 and 32.4 metres… The beam array at Bodmin, designed by C S Franklin, marked a great advance in directional aerial construction. It consisted of a vertical sheet of separate aerials, each with its own feed. The parallel wire feeders formerly employed were replaced by concentric copper air-spaced tubes fitted with expansion joints. The outer tube was earthed and the inner one connected to a suitable tapping on a screened transformer…" A Patent was issued to the Marconi company in 1929.

References to rigid and flexible concentric-line cables began to appear in American amateur radio publications about 1936. By 1938 the first edition of the RSGB's *Amateur Radio Handbook* included a photograph showing a collection of concentric and twin flexible cables, probably manufactured by The Telephone Construction & Maintenance Co Ltd (Telcon). The second edition, published July 1940, included a note: "Concentric lines are difficult to construct, but there are several varieties on the market, chiefly flexible. In particular the 'Teleconax' cables specially manufactured by the Telephone Construction & Maintenance Co Ltd may be used at all frequencies up to 56Mc [*sic*]. They are moulded, some solid, some partially hollow, and various surge impedances are obtainable from 60 to 100 Ωs. Another variety is marketed under the name 'Pyrotenax'. This consists of a copper wire with a ceramic covering fused on, and an outer copper tube drawn overall. It is not strictly flexible, though it may be bent as required without damage. The surge impedance is 50Ω or less, and the loss very low."

Home-constructed twin-wire balanced lines (usually about 600Ω impedance) were widely used by amateurs either as matched or resonant lines. Where low-impedance feeders were required, the usual solution was to use good-quality twisted electric flex (rubber insulated) which was reasonably satisfactory up to about 15MHz, but increasingly lossy at higher frequencies. With the coming of 405-line VHF television, Belling-Lee introduced a low-loss twin line appreciable better than conventional electric flex. I suspect that only a handful of amateurs used the early, expensive coaxial cables pre-war.

The post-war period saw coaxial cable feeders dominate the amateur radio scene, particularly in the UK and Europe, stimulated by the growth of VHF and then UHF television as well as for military communications. A couple of 'TT' items on coax usage appeared in May and July 1984. The May item included advice and suggestions on 'the coaxial jungle' from the late William Orr, W6SAI, that still bear repetition.

Inter alia, he noted that the highest quality cables are those manufactured to meet tight military specifications but, contrary to popular belief, not all RG-8/U cable comes into this category. "At one time, this cable (52Ω) was widely used by the US military, but subsequently they standardised on 50Ω cable (eg RG-213/U) manufactured to MIL-C-17D or E specification. New mil-spec cable is not cheap. RG-8/U and RG-8A/U cable is still manufactured in volume, but no longer to American mil-spec standards. The high cost of copper and other materials has led to cost-cutting. Some firms produce very-high-grade cable by normal standards, others have reduced the percentage coverage of the outer copper braiding from 97% to about 60% and use lower-grade materials. The quality of the outer jacket, the dielectric material and the inner conductors can all vary. Lower-grade cables may serve reasonably effectively at least for a time, but their attenuation is likely to increase more quickly than a high-quality cable and is more noticeable at VHF and UHF."

W6SAI listed six factors that can help prolong the useful life of coax:

- Keep the cable off the ground and make sure it can dry off after rain. Because modern outer jackets are slightly hygroscopic, moisture can penetrate the jacket material, reach the outer braid and cause corrosion.
- Try to keep the cable out of direct sunlight; ultraviolet rays (UV) are damaging over time. For prolonged exposure to strong sunlight, the cable outer jacket should be a high-molecular weight polyethylene with imbedded carbon black (expensive).
- Support the cable every 10ft or less. Do not let it sag on a long run.
- Do not let the cable whip around in the wind. Repeated flexing is not conducive to long cable life.
- Seal the ends of the cable. Use type-N (waterproof) fittings rather than the cheap and plentiful PL-259 plugs. Coat the termination with non-acid type silicone rubber sealant. ("If it smells vinegary this indicates acetic acid in the sealant. Don't use it.")
- Do not step on the cable or otherwise flatten it (eg with fixing staples). Do not bend it around a sharp radius. The minimum recommended bending radius is roughly equal to 10 times the outer-diameter of the cable (about a 5in radius for RG-8A/U or RG-213/U).

In the July 1984 'TT', I commented on a number of points after visiting the stands of Raydex International Ltd and Delta Enfield Cables Ltd at a CAI exhibition. These firms were then supplying much of the cable used in TV downleads (mostly 75Ω) and wired distribution systems. I noted the very wide variation of cable attenuation, even within the standard ranges. For example, attenuation in decibels/100m at say, 600MHz, can vary from over 20dB to under 8dB for distribution (relay or cable TV) cables and from about 17.5dB to around 20dB for 'low-loss' downlead cables, and up to 30dB for lower-cost cables (remember these figures are for *new* cables). The percentage coverage of the outer conductor of standard downlead cables was then between 40 and 60% with recently-introduced cables having finer braid wires in the outer conductor to cut costs. Delta cable intended for buried use had the addition of a moisture barrier under the outer polythene sheath; Raydex semi-air-spaced distribution cables include PVC-sheathed cables, polyethylene-sheathed cables, and various forms of bonded shield cables, including some having an aluminium barrier as part of the outer sheath. The outer sheath of standard feeder cables must be considered as providing only limited protection against moisture ingress with Raydex suggesting that "ingress of water in all types of trunk and distributive cables is the primary problem, resulting from sheath damage during installation or as the result of cables being inadequately sealed. Raydex was also then producing 93Ω 'data transmission cable' for video display units, etc.

It would seem that, more recently, some manufacturers of coaxial cable for CATV have substituted aluminium for copper for the outer braid conductor. ♦

ICOM

The Ultimate Line-up... 40 Years in the Making

IC-7800
HF/50MHz All-mode Transceiver
(SSB, CW, RTTY, PSK, AM, FM) 200W
The Ultimate Transceiver! Nothing else comes close.

IC-756PROIII
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There's a remote possibility...

This is the story of my five-year project to develop systems for the complete remote operation of an HF station. It describes the work that was done to obtain approval, and put two systems into operation, the successes achieved and the lessons learnt. The article also has a significant technical content describing not only the details of the components and technologies that I have used, but also looking at the pros and cons of some of the choices.

My operating interest in 160m has been significantly curtailed by the small size of my back garden. I also have a relatively high background noise level, and my XYL does not think antennas make attractive garden ornaments! These were some of the reasons that I became interested in the remote operation of an HF station. I should make it clear, right at the start, that in the UK, this type of remote operation is not allowed as part of the normal licence conditions. I had, therefore, to obtain specific permission by applying for a 'Notice of Variation', or NoV. At the time, this was through the Radiocommunications Agency (RA), now Ofcom. I was granted the NoV in October 2001 as a special research permit which has allowed me to operate remotely since then. It is worth noting that a *receive-only* system could be implemented without needing any regulatory approval (OK1RD has set up such a system on a 50-acre site 40km from his home in Prague, for low-band receiving antennas).

Remote operation has many benefits, such as the ability to put up much better antennas for both transmit and receive than might be possible in a typical suburban garden, to be able to operate where there is much lower background noise on receive, as well as reducing the risk of causing interference to others. However, there are some issues with remote operation and I will be describing these and how I minimised them with the second system.

This is the first of three parts, in which I will cover what I mean by remote operation, the regulation issues, and describe the design of the first system, the technologies used, as well as analysing how it performed in practice. Part two will cover the different technologies used to obtain the performance improvements of the second system. The approach I have taken with the second system is very specific to my interests and priorities and so the final part will look at some of the alternative approaches that are possible. By the end of 2006 I have to submit a report to the RSGB and Ofcom. Before producing this report I would like to undertake a wider consultation with others who are interested in remote operation, so I will also use the final part of the article as the starting point for this discussion.

MY DEFINITION OF REMOTE OPERATION

There are probably several interpretations of what remote operation is, but what I wanted to achieve was the ability to operate a station that was out in the countryside away from the restrictions of living in a suburban area and to be able to take advantage of the benefits mentioned earlier. In my case, the remote location is several miles away but within 30 minutes' travelling time, which gives reasonable accessibility for the development and maintenance work. I decided very early on that the link between the two locations would be by dial-up telephone line and that the system would be for my personal use only.

OTHER DEFINITIONS OF REMOTE OPERATION

In the USA there are some comprehensively-equipped remote sites, which are referred to as Internet Remote Base (IRB) systems, which have been set up by individuals allowing the system to be shared by a group of registered users. The access to these systems is via broadband

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Part One

Remote HF operation made practical

The beam which is fully-controllable remotely.

Internet and it effectively allows access from anywhere in the world. (W4MQ and W7DXX are examples of these – see 'Web Search'). There are some major technical and regulatory issues with this approach, so I chose not to go down this route.

Returning to the simpler situation of a single user requiring a separation between the equipment and the operating position, there are a couple of variations from my interpretation.

1 Separating the operating position a short distance, but still within the boundary of the property. For example having a neat compact operating position in one room but the equipment in a basement, loft or shed. This is relatively easy to achieve, would not need regulatory approval, and would not have to contend with the limitations of using telephone lines.

2 Separating the operating position a long distance, say several hundred miles, but still within the same country as the license holder. This is technically quite feasible, but would have practical difficulties for access and maintenance.

Both of these variations could use some of the technologies that I have used, but there are other options that could be more appropriate.

HOW THE PROJECT EVOLVED

In the mid 1990s, I made arrangements with a local farmer to use a field over a weekend for portable operation in the *CQ* WW 160m SSB contests. This temporary arrangement has developed into a more formal agreement where I rent part of the field and have a small room from which to operate. I now have a 108ft modified Titanex vertical, a K9AY receiving antenna and have recently added a small tower and an HF beam, as the photograph shows.

In early 2000, I started to think about the potential of using the facilities at the farm but be able to operate them remotely from home. In May of that year I decided to fulfil a long-term ambition to visit the Dayton Hamvention in Ohio. There, a company called Kachina were not only displaying their computer-controlled rig (the 505DSP, which had no controls on the front panel at all) but also a ready-made system for remote control over a single dial-up phone line. I came back from the USA with the intention of trying to gain approval to use this system in the UK. I thought that a commercially-made system with good security and safeguard features might be more acceptable to the RA than an unproven homebrew prototype.

I started with the RSGB and I was put in touch with the Licensing and Advisory Committee (LAC). As my idea was completely new, there were no guidelines, so I started off by writing a detailed proposal and, in addition, I was asked to fill out many sets of forms (including closedown operators, similar to that required for repeaters). The LAC reviewed the proposal and after some modifications they put it to the RA via their regular meetings. The RA deliberated on this for some considerable time but, eventually, asked the Radio Investigation Service, to do an inspection. I was somewhat surprised to get a three-man delegation, complete with test equipment to examine and test the system. They showed considerable interest in it and we had an enjoyable and wide-

FIG 1 © RADCOM 548

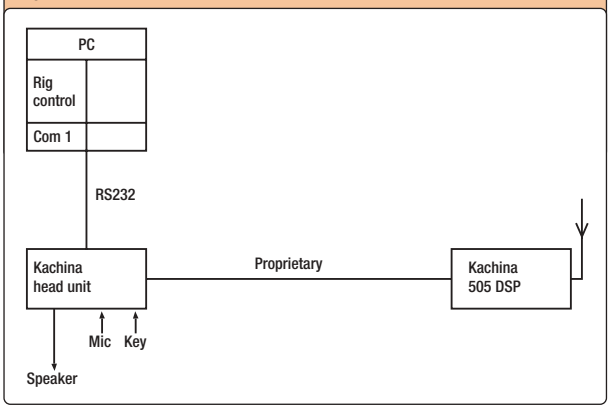

Fig 1
The Kachina set up for normal operation.

FIG 2 © RADCOM 549

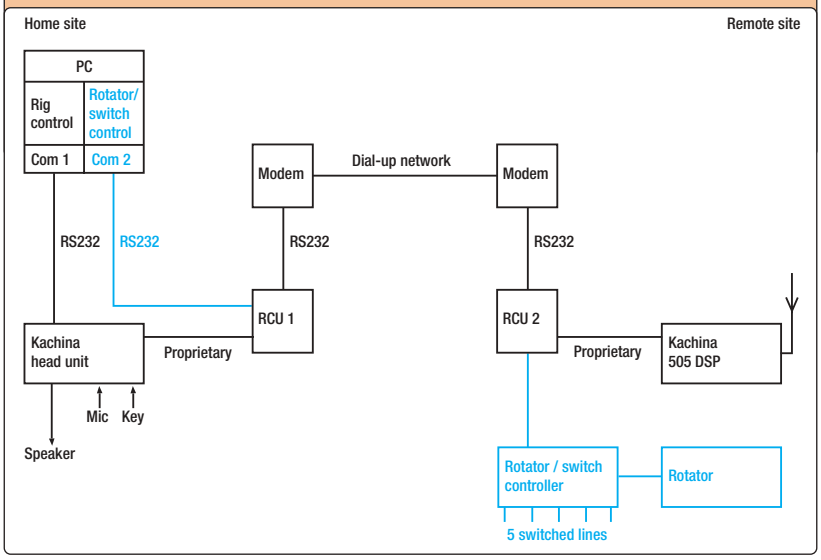

Fig 2
The Kachina set up for remote operation.

ranging discussion about the issues. I received the NoV shortly after the inspection and had my first remote QSO on 2 November 2001. It had taken a total of 16 months from start to finish for the NoV to be issued.

DESCRIPTION OF THE KACHINA SYSTEM

Since the early 1990s rigs have had 'CAT' interfaces to enable them to be computer-controlled. The early rigs had just a few functions such as band, frequency and mode that could be controlled from the computer but, since then, each new generation of rig has had more and more computer-control capability. As far as I am aware, of the transceivers aimed at the amateur market, only the Kachina and the Kenwood B-2000 [and the Ten-Tec Pegasus – *Tech Ed.*] went so far as removing the front panel completely.

Fig1 shows the Kachina set up for normal home operation, and the photograph shows the control screen. To operate the rig, all the user interactions are via the computer keyboard and mouse. For example, band and mode changes can be made by clicking buttons or selecting from drop-down menus, level adjustments can be made with slider controls and these all generate one data stream of control commands which are passed to the rig via the proprietary interface. This control data stream is bi-directional as the rig passes information such as S-meter reading, power output and even temperature of the PA back to the computer. The black portion of **Fig 2** shows the system as configured for remote operation with the inclusion of the two proprietary Remote Control Units (RCUs) and two standard modems.

To operate remotely, a dialler program is used to initiate a link between the two RCUs via the modems, allowing the control data stream to be passed backwards and forwards between the rig and the computer. In receive mode, the audio is digitised in the remote RCU to create a second digital data stream which is then multiplexed with the control data stream to give a single combined data stream which can then be passed through the modems and phone line back to the home RCU. There is some clever processing here that controls the quality of the audio digitisation dependent on the bandwidth available on the phone line. At the home RCU, the data stream is demultiplexed into its two component parts. The control stream updates the computer display and the audio is converted back to analogue, amplified and passed to the loudspeaker. In transmit mode, the reverse happens: the audio from the microphone is digitised in the home RCU, multiplexed, and then sent to the remote RCU where it is demultiplexed, with the control data stream controlling the rig and the audio being passed to the microphone input. As well as the basic rig control there is also the ability to include some additional remote switching that could be used for antennas as well as the ability to control a remote antenna rotator. The blue portion of Fig 2 shows how these additional controls can be added. The final photograph shows the setup at the remote site.

With a remote system, it is also necessary to consider what would happen if certain failures occurred, or if there was malicious intent to gain control of the system. The first and most fundamental security feature is that the phone number of the remote site is kept secret. In addition to this, the Kachina system adds two features to protect against these unwanted possibilities. As soon as the two RCUs are linked by the dialler, a safeguard feature, a watchdog timer, comes into play and every 15secs the two RCUs check that they can still communicate with each other. If the communication link fails for any reason, the remote RCU shuts down the transceiver, and the home RCU displays a message informing that communication has been lost, as the photograph shows. This safeguard would prevent the rig from being stuck in transmit if the communication link failed. The other feature, which is for security, is to ensure that the remote site only accepts commands from the legitimate home site. Each RCU has an encoder/decoder which is controlled by a set of eight DIP-switches, and, unless these switches are set identically, the two RCUs cannot talk to each other. There are only 256 combinations of these dip-switch settings, but it provides yet another barrier to being able to gain control of the system, thereby preventing misuse.

PRACTICAL EXPERIENCE

There were a few initial problems to be overcome, mainly with the dialler software, as the UK phone system and UK versions of the recommended modems were slightly different from those used in the USA; Kachina were very helpful in overcoming these problems. While I was waiting for the NoV to be approved I could not legitimately test the system between the two sites but, fortunately, I had the advantage of two phone lines coming into the house. This allowed me to test the system by having all the equipment at home and dialling out on one line and back in on the second line, so I could see what was happening at both ends of the system.

I got a tremendous buzz out of the first remote contact; there was a palpable sense of achievement after nearly 18 months' work since first having the idea. Rag-chewing was very straightforward, and I received many complimentary reports of the audio quality. After just over a year, I took the plunge and decided to use the system in the more pressured situation of a single-band 80m entry in the *CQ* WPX phone contest. It was

very enjoyable being able to use all the antennas at the remote site but still have all the creature comforts of operating from home. I worked for about five hours and recorded 151 contacts, not a massive score but it nevertheless gave me some additional and valuable learning experience.

When I started the project, I knew what some of the operating issues would be but, overall, this first system exceeded my expectations and, not only has it been interesting, but also very educational. It has shown that there is still scope for research, learning and self-training in the true spirit of amateur radio.

After gaining a variety of operating experience, I decided to analyse critically the aspects of remote operation that were significantly different from normal operating in order to see if there were ways of making improvements. This gave three areas to investigate.

1 **System Delays**. It was obvious that there would be delays in the system as the data streams had to pass over what I estimate to be 15 miles of phone line. I calculated that it would take the signals about 0.12ms to travel this distance, which turned out to be insignificant compared to the other delays introduced by the modems, telephone exchanges and in the audio digitisation. I really had very little idea what these delays would be but, in practice, they turned out to be quite noticeable and had a significant impact on the operation of the system. The first impact was on the transition from transmit to receive, when it was not uncommon to miss the first word of the other person's over. For casual rag-chewing this delay was noticeable, but was not a significant problem. However, for contesting, when running a frequency, it was a definite limitation, and several times I missed the callsign of someone calling me quickly.

I had always planned to monitor my own signal from the remote station by listening on a second rig at home. The first time I tried to do this, I was surprised by the magnitude of the total system delays, and found it almost impossible to talk when the audio I was monitoring was delayed by such a significant amount. At the time I was not able to do any testing to measure the delay accurately but I estimated it to be something over half a second. The phone link between the two sites was using standard 56K dial-up modems, but the Kachina system was using the older V.34 protocol which has a maximum rate of 33.3k. What I hadn't fully realised was that this rate was rarely achievable in practice, and the best I could achieve reliably was about 24K and this had to satisfy both the control data and the digitised audio.

2 **Frequency tuning**. This was more difficult for two reasons. First there were the delays mentioned above which made it harder to tune in a signal when there was a significant delay between making the change and hearing the result; for contesting this made search and pounce quite a challenge. The second reason was using a keyboard as the user interface. We are all used to tuning by twiddling a knob, so it is not until you have to do it another way that you realise the simplicity, and convenience of the tuning knob. Tuning the Kachina is done by clicking on a digit of the frequency display and then using the up/down arrow keys to increase/decrease the selected digit. In addition the left/right arrow keys are used to move the cursor to an adjacent decade of the frequency display. Kachina did have an option of a tuning knob, which improved things a little, but the system delays were the major problem.

3 **Received audio quality**. This issue was even more surprising given the comments earlier on the reports of good transmitted audio quality. The received audio quality was never really good and was only acceptable if the received signal was strong, and well above the noise level. Anything less than this was harsh and tiring to listen to over an extended period (this was one of the things I learnt while doing the WPX contest).

A MAJOR SETBACK AND PLAN FOR THE FUTURE

While I was waiting for the NoV, and before I had even used the system 'live', I learnt that Kachina had decided to leave the amateur market to concentrate on their commercial business. This meant that there was no future in the system and, if I had any major problems, there would be no support and I would be unable to continue. Fortunately, I have had no failures with either the rig itself or the remote control units. (Kachina have maintained their website so there is still detailed information available – see 'Web Search'.) However, I felt the need to plan for the future, so I started to think about a second system. This would then give me the opportunity to try to improve upon the three issues I described above. The first thing I did was to define a set of criteria for this second system which were:

1 to create a more open 'system framework' that was not dependent on any one single manufacturer;
2 to reduce the system delays;
3 to improve the user interface for tuning;
4 to improve the quality of the audio;
5 to maintain the security and safeguard aspects.

I have spent around 18 months trying various approaches and have eventually completed the build of a second system. Because my NoV was so specific to the Kachina system I had to go back to Ofcom to get my NoV updated, which was approved in March 2005 and this has allowed me to implement the second system. After gaining further experience with the second system I am pleased that it has delivered improvements in all three areas where there were issues. The system delays have been reduced considerably, and I now have substantially better audio quality on both receive and transmit. The user interface for tuning has been improved and, as a by-product, there are some additional security and safeguard features, which are an added benefit. The second part of this article will look at the design of this second system in more detail. ♦

The Kachina control screen.

The Kachina equipment at the remote site.

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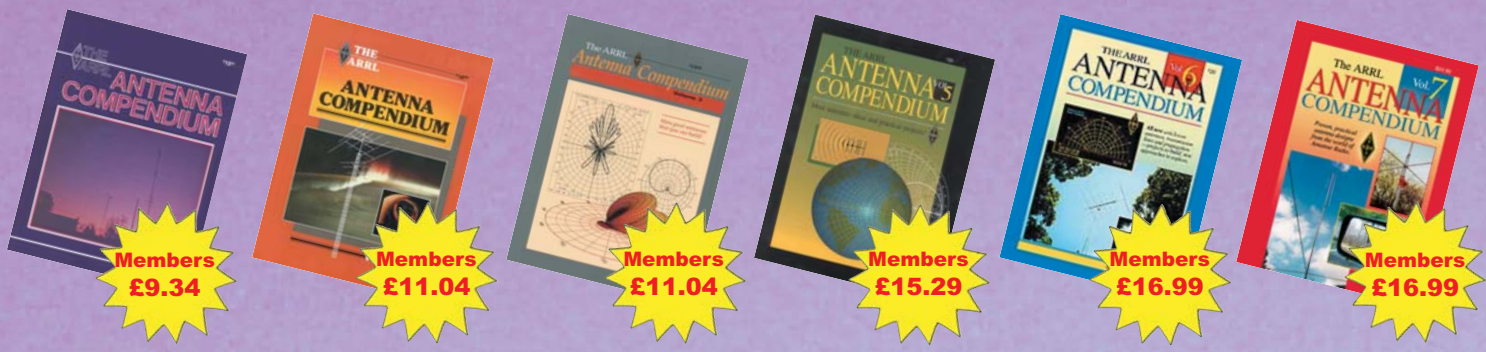

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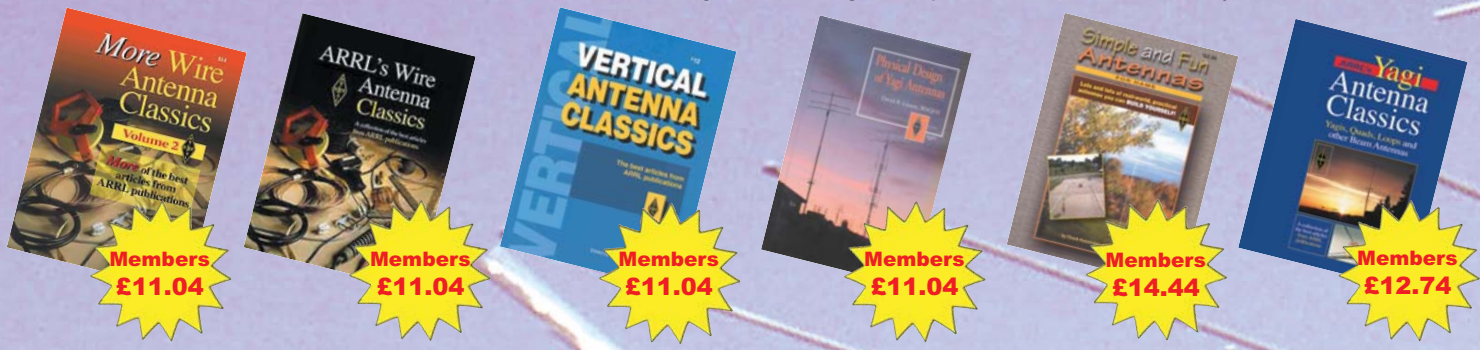

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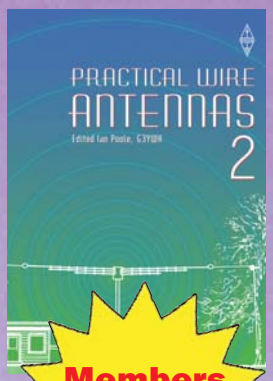

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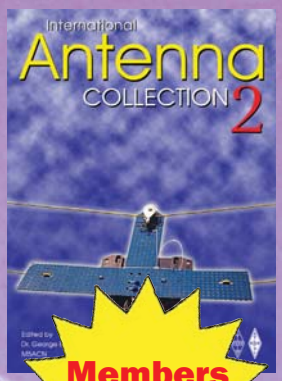

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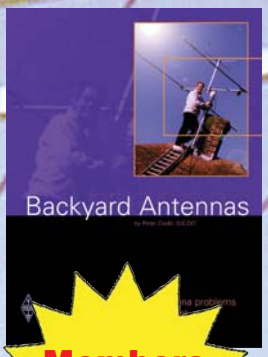

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E-mail: weber.reinhardt@t-online.de

Hybrid quad antenna arrays

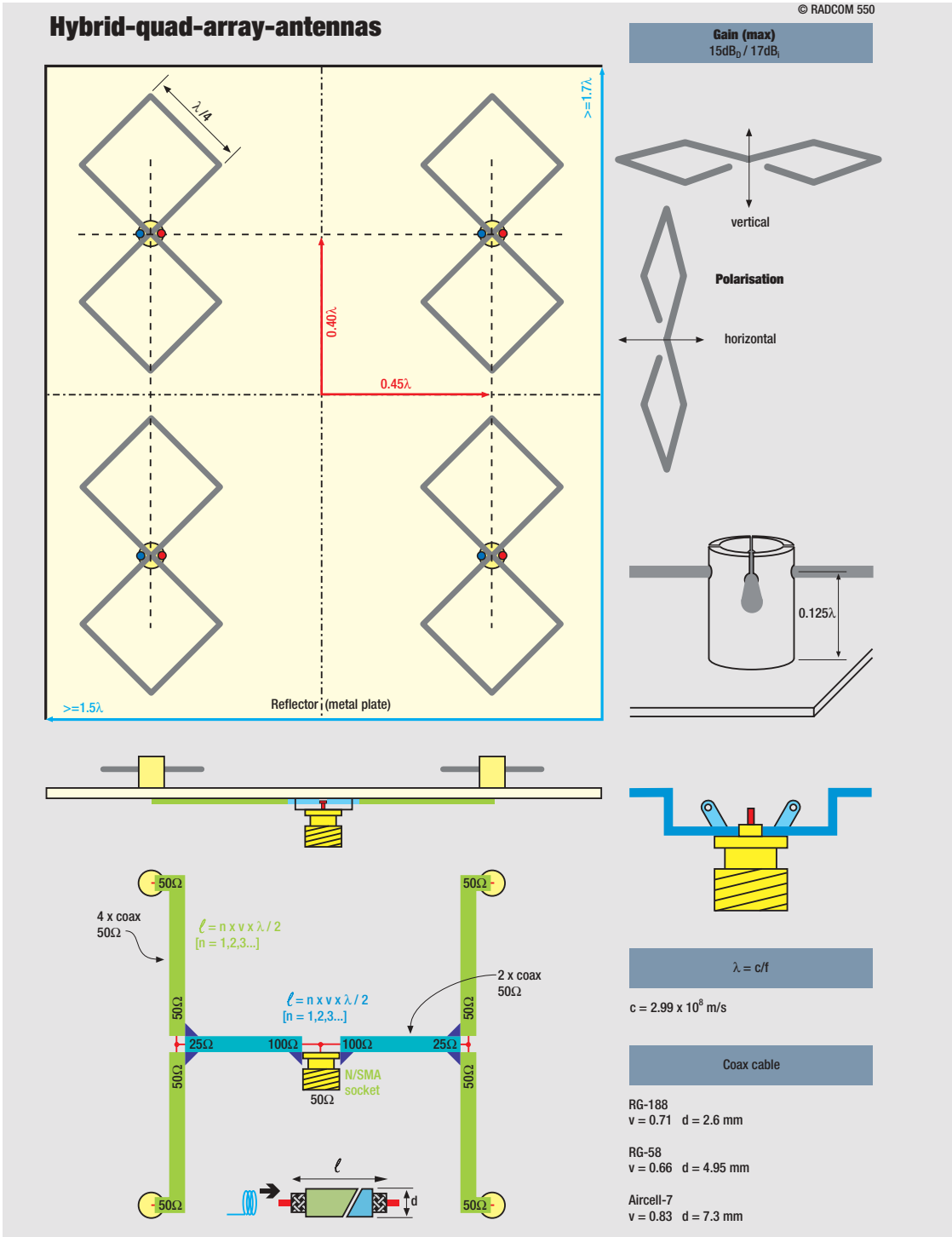
Hybrid quad antennas are easy to build and have high gain. In principle, they may be adapted to any frequency, but there is little doubt that their ideal application is at UHF frequencies.

The goal of this article is to show how construction can be made easy using cheap material available in any hardware store, such as cables and PVC-pipes intended for electrical house installations. Reflectors can be made with any metal plates or printed-circuit board.

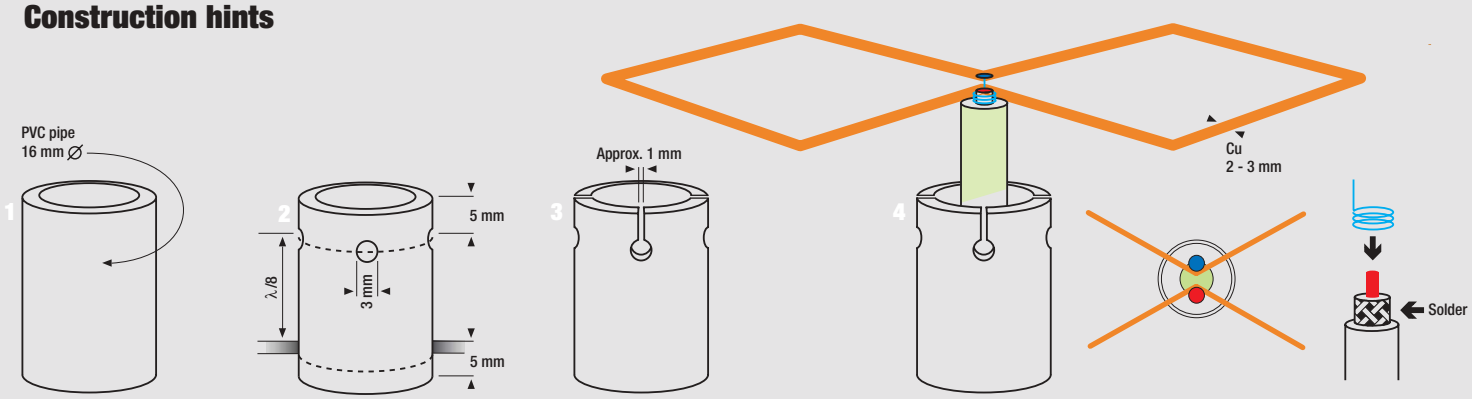
The impedance of a single double-quad-element varies with the thickness of the element wire and with distance to the reflector plate. Consequently, standard 75Ω satellite-type coaxial feeder can be used. Remember to take into account the velocity factor, *v*. Electromagnetic waves travel with the speed of light in a vacuum (and approximately so in air) only. When travelling in a dielectric as found in a coaxial cable, they are slowed down and the wavelength is shortened. This effect will be taken into consideration by multiplying the speed of light, *c*, with factor *v*.

The first three sets of diagrams give general hints for construction. The last two sets give detailed dimensions for building 13cm and 24cm antennas for ATV, FM or SSB.

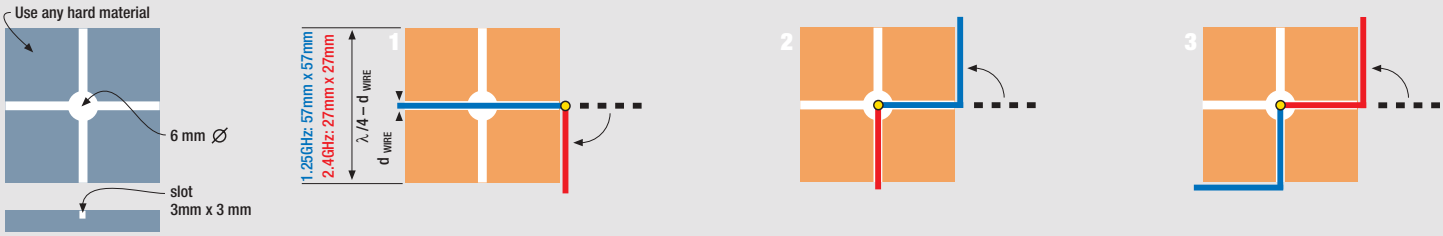
I would be happy to receive any feedback. Please e-mail your experiences of the antenna to me at the address above. ♦



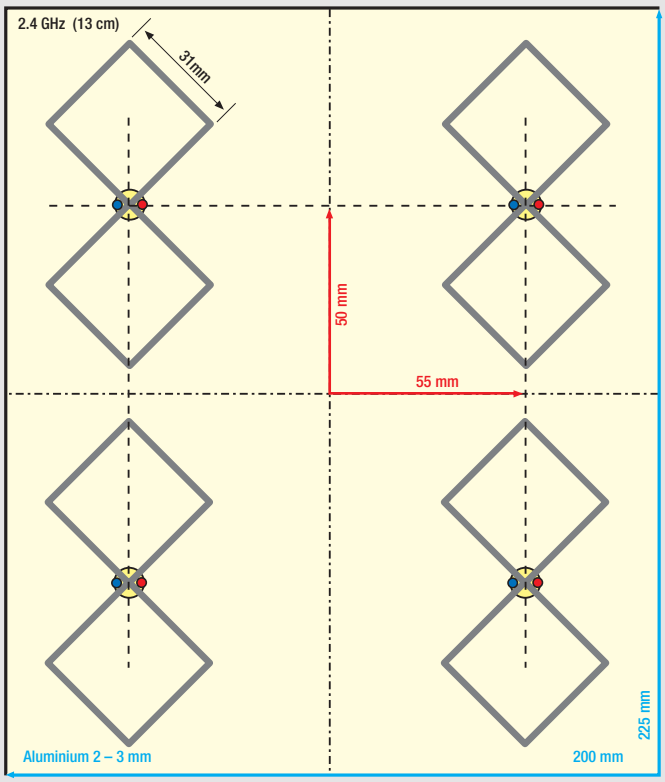
Construction hints

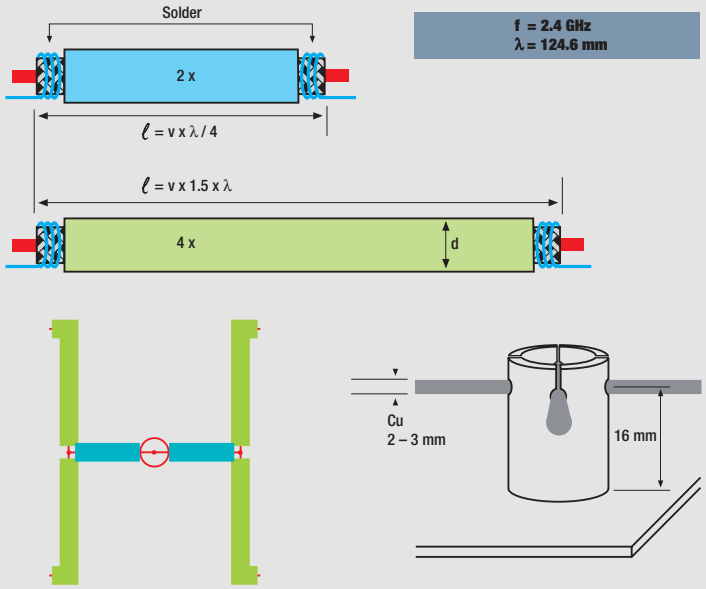


Bending gauge for quad elements

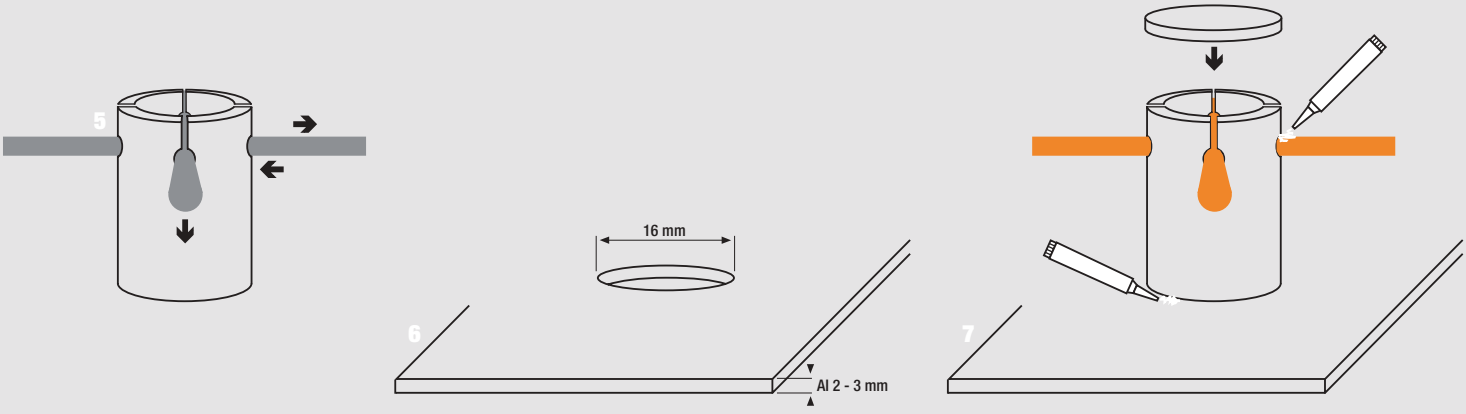


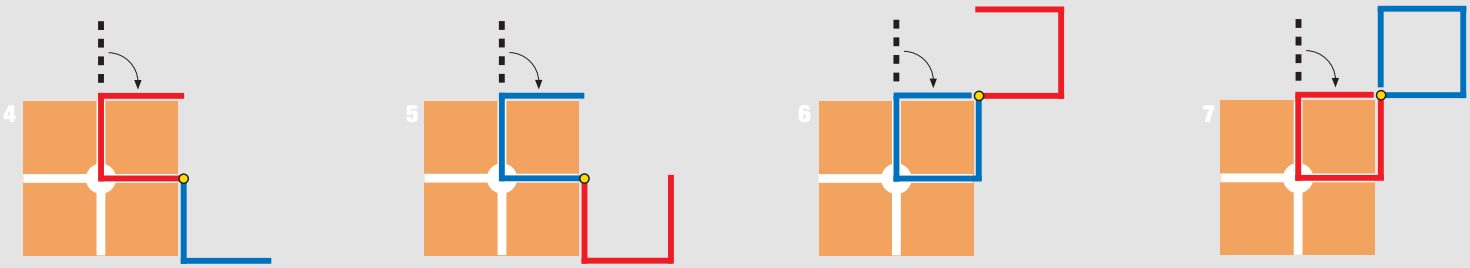
Hybrid-quad-array-antennas for ATV 2.4GHz / G= 15dBD



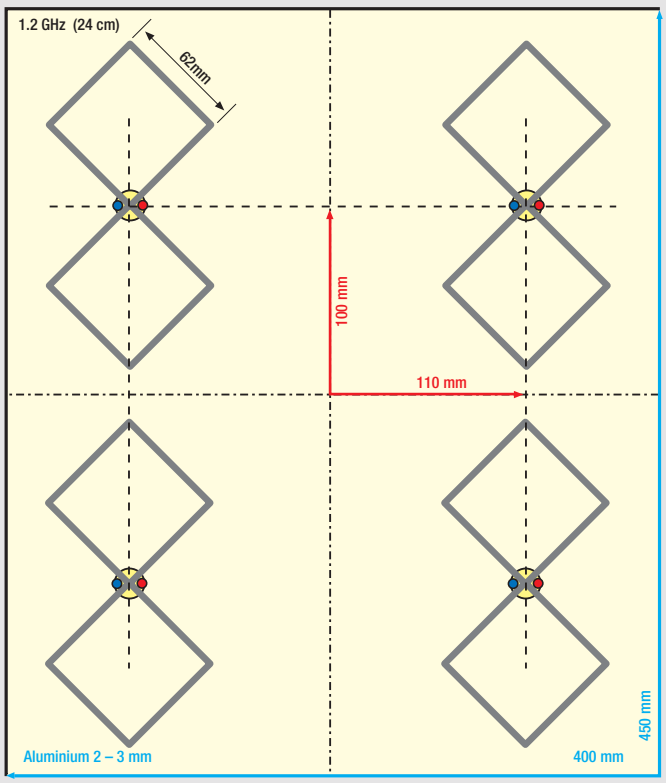


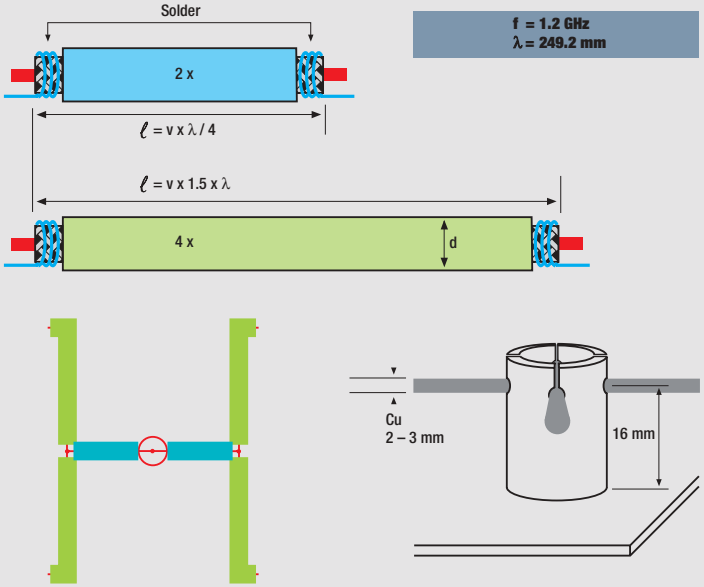
Coax type	d/mm	v	v x 1.5 x λ	v x λ/4
RG-188	2.6	0.71	132.7 mm	22.1 mm
RG-58	4.95	0.66	123.4 mm	20.6 mm
Aircell-7	7.3	0.83	155.1 mm	25.9 mm





Hybrid-quad-array-antennas for ATV 1.2GHz / G= 15dBD





Coax type	d/mm	v	v x 1.5 x λ	v x λ/4
RG-188	2.6	0.71	265.4 mm	44.2 mm
RG-58	4.95	0.66	246.7 mm	41.1 mm
Aircell-7	7.3	0.83	310.2 mm	51.7 mm

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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.

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VHF/UHF ACCESSORIES AND AERIALS, PMR equipment and spares, Garex Electronics, P O Box 52 Exeter EX4 8WX www.garex.co.uk Phone 07714 198374

G2DYM ANTI-TVI, ANTI INTERFERENCE AERIALS outperform any other commercial wire aerial. Information, testimonials, Large S.A.S.A.E:- G2DYM, Uplowman, Devon, EX16 7PH. 01398 361215 Anytime.

REPAIRS to all amateur and vintage RX/TX cost effective service phone or call in for details. Medway Aerials rear of 14 Luton Road, Chatham, Kent, ME4 5AA 01634 845073

COMPUTER SOFTWARE

SHACKLOG 5.6 – probably the most popular UK written logging software. £32.00. With IOTA addons £42.50. Alan Jubb, G3PMR, 9 Quidditch Lane, Lower Cambourne, CB3 6DD. www.shacklog.co.uk

MEMORY MANAGEMENT SOFTWARE for YAESU rigs. FT-817/ND, FT-847, FT-857/D, FT-897/D,FT-7800, FT-8800, FT-8900, VR-5000. 9 South Avenue, New Milton, Hants H25 6EY. Website: www.g4hfq.co.uk Email: bob.freeth@g4hfq.co.uk Phone: 01425 618092

MISCELLANEOUS

ROYAL NAVAL AMATEUR RADIO SOCIETY seeks your support and membership. Qualify? Join today! www.RNARS.org.uk

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G4TJB QSL CARDS. Large SSAE for samples. Unit 6, Worle Industrial Centre, Coker Road, Worle, Weston-Super-Mare BS22 6BX.

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BUSINESS CARDS

Members' ads

FOR SALE

40ft Aluminium triangular tower, 5ft x 8ft with heavy-duty base-plate. Buyer collects, offers? 07836 612 972 (Chessington). E-mail: g3sxw@compuserve.com

60ft Versatower (Strumech), HD telescopic/tilting mast with new stainless steel ropes and truncated ground post. KLM KT-34A Bandpass Tribander 4-ele beam. Daiwa rotator with controller unit. All the above items are dismantled c/w man. Buyer collects. Offers? Eric, G3FPY, QTHR, 0117 969 1349 (Bristol).

A3S Cushcraft tribander, boxed, never opened, £300 + shipping. 07836 612 972 (Chessington). E-mail: g3sxw@compuserve.com

ALINCO DX-77, MFJ Versa Tuner ATU, MFJ-816 SWR/power meter, £300 including carriage. G4GXU, 01299 828 487 (Stourport). E-mail: george.grieveson@tesco.net

CYPRUS – QTH in the sun! Fully furnished, semi-detached house for sale with 2 *en-suite* bedrooms and usual accom. Sale includes 60ft Strumech tower, beam and rotator. Located in Mazotos village, 15 mins from Larnaca Airport and 5 mins from quiet beach, £98,000 or local equivalent. Full title. Mike, 5B4MT, 00357 24811214 (Larnaca), 01787 311 418 (UK), e-mail 5b4mt@cyhams.org , or write to PO Box 40413, Larnaca, Cyprus.

DRAKE 'C' line with all filters and crystals superb cond. AVO CT-160 valve tester. Junkers Morse keys and some bugs. Also Drake spares and rare LF converter. Spare valves etc. 01634 250 427 (Rochester).

SILENT KEYS

We regret to record the passing of the following radio amateurs:

G0MHQ	Mr S E Meadows	
G0WLP	Mr E Pearce	24/05/05
G2FUD	Mr A Owen	04/05
G3DFA	Mr D Gaggs	11/03/05
G3LCZ	Mr T W Hickinbottom	
G3OGO	Mr J M Nisbet	06/06/05
G3VIJ	Mr G W Perkins	05/06/05
G3WDW	Mr J T Webster	08/05/05
G3XPH	Mr R S Grant	23/05/05
G6AKL	Mr R Boddy	
G7BVN	Mr S Sheppard	19/05/05
GI4SFV	Mr A Miller	30/04/05
M0BGX	Mr D Wilson	25/05/05
ZL2VAL	Mr A Leech	30/05/05

ELECRAFT K2 tcvr, £450. QRP version, 15W max 8-band dedicated to ham bands only. CW SSB c/w Heil hand mic DC lead, mans. Elecraft K2, as above but no mic, £400. Kenwood TS-140 immaculate cond, £225. Icom 765 vgc, £550. G0LWE, QTHR, 0121 3270 412 (Birmingham). E-mail: stokest977@aol.com

EVX-6000 new, still in box, £200. Tested to check OK. M0CVS, 01629 823 025 (Derbyshire). E-mail: amradio12@btopenworld.com

GOING QRT. All items are mint in orig boxes with mans etc. Alinco DX-70TH, HF/6m, 100W, under guarantee, £375. Kenwood TS-50S HF, 100W, £275. Kenwood MC-80 desk mic, £55. bhi digital speaker NES 10-2, £55. JRD-345 rcvr, £305. EA-150P mobile linear 26 – 30MHz, 90W, £50. Reasonable offers considered. 01386 881 034 (Evesham).

HF solid-state linear, Yaesu FL-7000, microprocessor controlled. Built in PSU and ATU 160 to 10m incl WARC bands, SSB QSK CW AMTOR, auto band-changing with most Yaesu tcvr. Man band-change with non-Yaesu HF tcvr, £750 ono. Inspect and collect. Alan, G4YYD, 0161 797 7893 (Bury).

IC-706 MkII, boxed with man, as new, exc cond. Owned by non smoker, £365 ovno. Trevor, G1UPX, QTHR, 01235 210 926 (Oxfordshire).

ICOM 706MkII/DSP + umbilical cable, £400 with SG-230 auto tuner, £200. The pair for only £550. Good mobile fun at reasonable costs. G4MPQ, 01579 343 787. E-mail: g4mpq@tiscali.co.uk

ICOM 746, with all filters fitted, as new cond with mans & box, £700. Also SM-8 desk mike, £50. Buyer collects or pays for courier service. Barry, G0BKD, QTHR, 01405 817 609 (Doncaster). E-mail: barryg0bkd@msn.com

ICOM 751A HF tvcr, £375. IC-251E 2m tcvr, £175. Ameritron AL-811 600W HF amp, £375. Ten-Tec Paragon HF tcvr with 6000, 2400, 1800, 500Hz filters and Ten-Tec PSU, £650. All unmarked, original packing, mans. G3GVV, QTHR, 01732 353 360 after 6pm (Tonbridge).

ICOM 756, new display fitted, £500. GW3NAS, 01545 581 110.

ICOM 775DSP flagship tcvr. Fitted all filters & voice synthesiser, with SP-20 spkr and filters. Boxed, man, fully checked at Icom, June 2005. Buyer collects or pays carriage, £1800. 01482 830 879 (Hull). E-mail: ric@ric.karoo.co.uk

ICOM HF tcvr IC-725 with man, exc cond, £295. Kenwood TS-440S HF tcvr, also Kenwood AT-230. Both with mans, exc cond. £400 for both. Post and packaging extra. T J Davies, MW0TJD, 01443 772 745 (Treorchy). E-mail: tjdaviesautos@btinternet.com

ICOM IC-706 MkII DSP, mans, boxed, mint cond complete with Icom PS-55 PSU, £500. Diamond SX-200 SWR/power meter, boxed, mint, £25. MFJ-948 Versa Tuner ATU, boxed, mint, £45. Either collect or carriage at cost. Kevin, G0RDJ, QTHR, 01278 686 983 (Bridgwater). E-mail: kevin@dower.wanadoo.co.uk

ICOM IC-718 fitted DSP and 250Hz CW filter, boxed with man just over 12 months old mint, £500 ono. Please inspect and collect. Kenwood TS-830S 270Hz CW filter, boxed with man vgc no mic, £300. G0WDT, QTHR, 01782 717 837 (Newcastle, Staffs).

IC-R20 Icom's latest scanner rcvr 0.3GHz all-mode, mint, boxed, mans, £200. MFJ Differential-T tuner model MFJ-986 3kW roller inductor tuner, mint, boxed, man, £150. Tom, G0STF, after 6pm 0151 734 0565 (Liverpool). E-mail: g0stf@yahoo.co.uk

JAYBEAM HF tri-band Yagi with h/b in good cond and working order, £85. Geiger counter FH-40T + spare GM tube. Complete kit in strong case, gwo, £90. G3KAG, QTHR, 01335 324 393 (Ashbourne). E-mail: g3kagroston@yahoo.co.uk

KENWOOD 870S vgc, £700. Ten-Tec OMNI-V with 706 desk mic, £700. Mosley Pro-57B 5-band beam (7-ele) good cond, £200. Collins ATU 180L-3A, £100. Racal 41-turn 36µH roller coaster, motorised with power supply, £75. Buyer collects or carriage extra. May deliver locally. Jim, G4ACI, QTHR, 01695 622 754 (Skelmersdale). E-mail: jim@g4aci.fsnet.co.uk

KENWOOD R-1000, £100. Heathkit HW-8, £110. AEA ET-1 ATU, £50. NYE Viking memory keyer, £35. Datong FL-2 filter, £30. Hoka LF-3 code3 special converter, £15. Howes CTU9, £12. Yaesu YH-55 headphones, £20. Bremi 13.8V 3A PSU, £10. Half-size G5RV with traps for 80m, £10. FC-250 QRP frequency counter, £15. Mel, 01274 817 178, eves (Bradford).

KENWOOD TS-570DGE HF tcvr & matching SP-23 spkr, purchased new 2.5 years ago, little used, £495. Jeff, 2E1AFC, 01208 78351.

KW-1000 linear, £250. IC-756PRO, £975. G3WBN, 020 8654 2761 (Croydon).

LINEAR Amp UK Ranger 811H (4yrs old), little used, exc cond, £625 ono. New AT-1712 Butternut vertical. HF6V conversion kit to HF9V vertical for 17m 12m + 6m (boxed as new), £45 p&p extra. Don, G4OIV, QTHR, 01670 815 143 (Ashington). donald@mavin.freeserve.co.uk

MICROSET SR-200 200W VHF amp, £200. Microwave Modules 100W UHF amp, £200. MFJ-974H 160-10 incl 50MHz, £130. Icom IC-290D VHF multi-mode, never used, £165. JPS NTRI DSP unit, £95. Optoelectronics 3000A+, 3GHz counter. All boxed as new. Icom CT-16 satellite interface, £60. MFJ Morse keyboard interface, £45. FC-902 500W ATU, £160. Diamond GZV-4000 40A PSU, £95. AR 2001 scanner base, £65. FT-726R VHF multi-mode base, £250. Palstar AT-300 ATU, £90. Watson HP-100 headphones, unused, £10. IC-3220H dual-band mobile, £135. Watson W-300 dual-band colinear, £40. 2.5kW 4-way antenna switch, £40. MC-60A desk mic, £75. MD-100 desk mic, £75. Both as new. Solder station, unused, £20. Multi-meter, new, £10. P/X for QRO HF amp or HF mobile. G0NMP, 01953 884 305 or 07970 214 039 (Watton).

MORSE code super chip. Morse tcvr, modem, digital filter in one chip. Connect key and/or paddle & to rig audio. Re-transmits the key/paddle for perfect Morse. Also speaks the Morse and controls. Adjustable frequency 500Hz – 4kHz, bandwidth 40Hz – 1kHz, 80-position noise triggering filter. Can be computer-assisted. Kit, everything but box, £35 or chip & cct diagram, £20. Transmit software included. 01297 23421 (Seaton). E-mail: poisonpen@poisonpen.freeserve.co.uk

SHACK refurb – Yaesu FT-102 (x2), relays replaced, SP-102 (x2), FC-102 (x1), FV-102DM (x2), BNOS 70cm 50W linear, Trio 7010 2m SSB with VFO, Icom IC-211E 2m all-mode, Kenwood DSP-100 with all leads. All in first class cond. Phone or e-mail for price list. 07855 959 498. E-mail: glenn.holt@orange.net

SILENT key – Kenwood TS-2000, SP-31 ext spkr, Nissei DPS 300GL 30A PSU, £900. Kenwood TS-570D Nissei DPS 300 PSU, £450. E-mail for list of other items. Buyer collects. G8GTH, QTHR, 01323 422 353 (Eastbourne). E-mail: j.curzon@btinternet.com

SILENT key sale (G3NBB). Marconi AM sig gen, TF801D, offers? Rohde & Schwarz Polyskop II type SWOB 0.5 – 1200MHz, £80. HP 100MHz oscilloscope, type 1707B, £80. Marconi Bridge TF868B, offers? VC 300 antenna tuner, £50. Marconi FM/AM modulation meter, offers? Telequipment solid-state scope type D54, 0 – 10MHz, £20. Frequency counter, 600MHz, £10. Heathkit grid dip oscillator, £30. Timewave DSP9 processor, £60. Complete set of parts to build a double-sided light box, plus a very nice box, £30. David, 01946 811 418, or 07746 749 577.

SPECTRUM analyser 1-1000MHz 50ohm input. Hung-chan (Korean) with orig man and packaging, very good clean cond, working order, £475. Signal generator/counter Test Lab 100kHz – 150MHz INTA MOD freq counter i/p, gwo, £45. Prefer buyer collects. G0FJY, QTHR, 01903 240 113 eves (Worthing).

STRUMECH P-40 Versatower, complete with both winches and cables, head unit with Alinco rotator (please note there is no ground post, but I believe these are still available), £120, buyer must collect. G4EUF, 01509 550 269 (Leics).

TRIO 130S HF tcvr, covers 80 – 10m, good on receive and audio, plus 300VA HD PSU, astatic mic, half-size G5RV aerial and instruction man, £200 the lot. Dave, G0IQL, 01903 236 780.

WATKINS – Johnson WJ-8712-1 digital HF rcvr with man. 58 IF bandwidths down to 56Hz, £650. Baird televisor, kit model built from Baird parts ca1930. Restored to full working order, £4500. Yaesu FRG-100 HF rcvr

CONGRATULATIONS

to the following, whom our records show as having reached 60 or 50 years' continuous RSGB membership:

60 years

G3BVB	Mr D R J Adair
G2FSS	Mr J A Caley
W2CIH	Mr N A Champness
RS10548	Mr J B Gurney

50 years

G3KRZ	Mr J Greenwood
G3KGM	Mr D Maclennan
G3JWI	Mr R M Page-Jones
G3JZF	Mr J E Smith

with PSU. Little used, £220. 07973 502 741 (Ely). E-mail: jc@g4fit.com

YAESU FT-101ZD, fitted FM board, AM spare. New tubes, boxed spare. FC-902 ATU. All boxed and mans vgc, £325. BNOS, 10W in for 50W out linear for 2m, £45. G8HAK, 01582 536 012 (Luton).

YAESU FT-920 HF/50MHz tcvr. Yaesu VR-5000 + DSP all-mode HF/VHF/UHF rcvr, £350. Icom IC-R20 HF/VHF/UHF h/h rcvr, £200. Sony ICF-SW7600GR HF SSB/AM, VHF FM portable, £70. All as new, boxed, mans, accessories + p&p and ono. John, G3XLL, QTHR, 01379 652 043 (Diss).

YAESU G-800 rotator with approx 150ft of cable, £150. Kenwood TH-D7E dual-band h/held, boxed, £140. Cushcraft A-3S, £100 (buyer to collect). MFJ-945E tuner, new & boxed, £65. Carr extra on all items. 01352 771 520 (Mold), gw3tmp@tiscali.co.uk

WANTED

CORRESPONDENCE with anyone who has or intends to customise the 'Radionic' kits of the 70s for trying out new circuits etc. Also a source of blanks needed, eg for schools. James, BRS34064, 028 2564 4660. E-mail: james.garvin1@btinternet.com

EDDYSTONE spkr. Round diecast model. 01352 771 520 (Mold), g3tmp@tiscali.co.uk

GANGED tuning capacitor for a R B400 radio, or one breaking up. All cost paid. Graham, G7KYX, 01205 871 624 (Boston).

GRUNDIG Yacht Boy radio, must be model 210 from between 1970-1974. Must be in absolutely mint cond, will pay very good money for a set in mint cond. Peter Tankard, 01142 316 321 between 9am and 10pm. No time wasters please (Sheffield).

JOYSTICK antenna, circa 1963, is sought by AE4TP (ex-G3WYA) to recapture his early days on the air with it. E-mail: chaval@sc.rr.com.

LOOKING for a Kenwood power supply PS-52, any condition, but working. G4DFE, 01902 677 559 (Dudley).
E-mail: bill.raybouldw.freeserve.co.uk

MFJ-9420x 20m travel tcvr. G4KEE, 01392 664 519.

ONE Mosley tribander driving element coil, new or used, but intact to replace one internally disconnected. F D Shirreff, G3BGM, QTHR (Swindon).

SILENT key clearout or just not needed. I collect QSL cards for their historic interest, preferably from periods before 1970. Please don't throw them away. I can collect or arrange collection. Tony, G4UZN, 01132 693892 (Leeds). E-mail: g4uzn@qsl.net

RALLIES

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.

2 AUGUST 2005

CHELMSFORD ARS Table-Top Sale - Marconi Social Club, Beehive Lane, Great Baddow. OT 7.30pm, admission free. CP free, LB. Colin, G0TRM, 01245 223 835, colinpage@ukgateway.net [www.g0mwt.org.uk]

6 AUGUST 2005

RUGBY ATS Annual Rugby Radio Rally – Stanford Hall, Lutterworth, Leics. OT 10am, £2. T M Humphries, G0OLS, 01455 552 519, tonyg0ols@aol.com

7 AUGUST 2005

FLIGHT REFUELLING ARS Hamfest – RAFARS. Mike, M0MJS, 01202 883 479, hamfest@frars.org.uk [www.frars.org.uk]

LORN ARS Radio Rally – Crianlarich Village Hall, 12 miles N of Loch Lomond at jn of A82/A85. OT 10.30 / 11am, £1. Shirley, GM0ERV, gm0erv@dsl.pipex.com or John, GM8MLH, 01838 200 304. [www.gm0lra.freeuk.com]

12 AUGUST 2005

COCKENZIE & PORT SETON ARC Annual Junk Night – Cockenzie & Port Seton Community Centre, South Seton Park, Port Seton. OT 6.30, £1, proceeds to British Heart Foundation. DF, WIN, C. Bob, GM4UYZ, 01875 811 723, bob.gm4uyz@btinternet.com

14 AUGUST 2005

KING'S LYNN ARC 16th Great Eastern Radio Rally – ***New venue and date *** – King's Lynn Caravan & Camping Park, North Runcton, 2 miles east of King's Lynn on A47. OT 10am, £1. CBS, C, TI via G3XYZ on 145.550MHz. Andy, G1KLP, 07818 001 311, g1klp@btinternet.com [www.klarc.org.uk]

28 AUGUST 2005

MILTON KEYNES ARS 19th Annual Rally – St Paul's School, Chaffron Way, Leadenhall, Milton Keynes, 3 miles from jn 14, M1. OT 9am. TI on 145.550MHz. Dave, M0BZK, 01908 647 662, rally@bletchley.net [www.mkars.org.uk]

TORBAY ARS Communications Fair – Churston Ferrers Grammar School, Greenway Road, Churston, Devon. OT 10am, £2. CP free, TS, C, WIN, no B&B, but a free sales notice board. Colin, G4FCN, 01803 812 117, or Peter, G3VTO, 01803 864 528. [www.rally@tars.org.uk]

29 AUGUST 2005

HUNTINGDON ARS Bank Holiday Monday Rally – Ernulf Community College, St Neots (near superstore on A428). OT 10am, £1.50. C, CBS on hard standing, TI on 145.550MHz. Peter, M5ABN, 01480 457 347 (between 6pm and 10pm), peteherbert@aol.com

3 SEPTEMBER 2005

Northern Ireland Morse Proficiency Tests – Greystoke Community Centre, Antrim. Advanced booking (>10days prior to test) necessary. John, GI3YRL, 028 9336 7208, jbranagh@supanet.com or Jim, GI0DVU, 028 9266 2270, jim.henry@ntlworld.com

4 SEPTEMBER 2005

SUFFOLK DATA GROUP Five Ss Rally – Raceway Centre Green, Foxhall Stadium, Foxhall Road, nr Ipswich. OT 9.30, £1, accompanied under-14s free. TS, CBS, RSGB, C, CP free, TI on 145.550MHz. Peter, G8HUE, 01473 631 313, peter@sdgrally.org [www.sdgrally.com]

Telford Rally – *** Temporary change of venue *** – West Midlands Agricultural Showground, Shrewsbury. OT 9.30. RAFARS. Dave, G8VZT, 01952 222 101, or Martyn, G3UKV, 01952 244,516, or Bob, M0RJS, 01782 516 504, telford-rally@somervilleroberts.co.uk

10 SEPTEMBER 2005

W&S @ Lowe Open Day – Matlock Shop, 01629 832 375.

10 / 11 SEPTEMBER 2005

50th Weinheim VHF Convention – Karl Kübel Schule, Bensheim. LEC, FM, TS, CP, CBS. df1gw@amsat.org

11 SEPTEMBER 2005

LINCOLN SWC Hamfest – Newark Showground, at jn of A46, A1 and A17 at Newark. OT 10am. All rally favourites, RAFARS, plus craft, classic cars, possible fly-in by WWII Auster-V reconnaissance plane, FAM. Roger, 01522 693 848, hamfest2005@mail.com

18 SEPTEMBER 2005

SOUTH YORKSHIRE REPEATER GROUP Great Northern Hamfest – Metrodome Leisure Complex, Queen's Road, Barnsley. Less than two miles from jn 37 M1, five minutes' walk from train and bus stations – follow the brown 'Metrodome' signs from all directions. OT 10.30 / 11am. TS, components, SIG, DF,

GB CALLS

These callsigns are valid for use from the date given, but the period of operation may vary from 1 – 28 days before or after the event date. Operating details are provided in an abbreviated form as follows: T = 160m; L = 80 or 40m; H = HF bands (30 – 10m); V = 6 and/or 4m; 2 = 2m; 7 = 70cm; S = satellite and P = packet. Please send operational details of your special event station to the RadCom office at least five weeks before publication. The only QSL Bureau sub-manager for special event station callsigns is as follows: Mike Evans, 322 Heol Gwyrosydd, Penlan, Swansea SA5 7BR, e-mail mw0cna@ntlworld.com. Will organisers of special event stations please ensure that they lodge plenty of envelopes with their sub-manager?

1 Aug	GB0VJD: Victory in Japan Day. Chatham, Kent. LH2 (G4AKQ)
	GB2MGY: Titanic's Callsign. Belfast. TLHV27 (GI0PCU)
	GB4COM: Calf Of Man. Isle of Man. LH27 (MD0IOM)
	GB4VJD: Victory in Japan Day. LH2 (GW4XKE)
	GB5JCT: Jacinta. Fleetwood, Lancs. TL2 (G3UCA)
	GB6VIJ: Victory In Japan. Southampton. LH (G0SWY)
	GB6VJD: Victory in Japan. nr Great Yarmouth, Norfolk. LH (G4OHX)
6 Aug	GB0ATC: Air Training Corp. RAF Machrihanish. TLH27 (GM0KZX)
	GB0HHS: Hartfield Horticultral Society. Hartfield, East Sussex. H (G0NAR)
7 Aug	GB2CLB: Cromer LifeBoat. LH27 (M0CNP)
	GB2WOK: Work the World on a WOK. Westgate-on-Sea, Kent. TLH27 (G3TAJ)
13 Aug	GB2CPF: Clayton Playing Fields. Royton, Oldham. LH27 (G0BJR)
	GB2DSR: Driffield Steam Rally. Driffield, East Yorks. LH2 (G3XYF)
	GB2OIL: "OIL". TLHV27 (G4HTO)
	GB2PF: Peter Fidler. Chesterfield, Derbyshire. LH27 (G0THF)
	GB2TS: Tollerton Show. Tollerton, East Yorkshire. LH2 (G3WVO)
14 Aug	GB2VJD: Victory in Japan Day. Alum Bay, Isle of Wight. (M0CGO)
19 Aug	GB2BML: Blakeney Mariners Light. Blakeney, Norfolk. (G3YOA)
20 Aug	GB0HL: Happisburgh Lighthouse. Happisburgh, Norfolk. TLHV27 (G7UVY)
	GB0HL: Happisburgh Lighthouse. Happisburgh Norfolk. TLHV27 (G0LGJ)
	GB0PL: Paull Lighthouse. Hull, East Yorkshire. LH2 (G4VHM)
	GB0REL: Rathlin East Light. 55 18.1N 06.10.2W EU-122. TLHV27 (GI0PGC)
	GB0SH: Stumble Head. Strumble Head. TLH (MW0JZE)
	GB1SSL: South Stack Lighthouse. Holyhead, Anglesey. LH (GW0VML)
	GB2BLB: Bembridge LifeBoat. Bembridge, Isle of Wight. LHV27 (G1VGM)
	GB2BLB: Bembridge LifeBoat. Bembridge, Isle of Wight. LHV27 (M0TIW)
	GB2BTL: Belle Tout Light. TLH27 (M0AEK)
	GB2ELH: Eshaness LightHouse. Shetland. LH (MM5PSL)
	GB2FL: Flamborough Lighthouse. Bridlington, East Yorkshire. LH27 (G3YDL)
	GB2LBN: Lighthouse Barns Ness. LH (GM4UYZ)
	GB2LP: Lighthouse Portpatrick. Portpatrick, Stranraer. TLHV27 (GM0FSZ)
	GB2LT: Lighthouse Turnberry. Turnberry, Scotland. LH (GM4SUC)
	GB2MBL: March British Legion. March, Cambridgeship. LH (G3PWK)
	GB2PLH: Pakefield LightHouse. Lowestoft, Suffolk. TLH (G3KIJ)
20 Aug	GB2PSL: Plovers Scar Light. Plovers Scar. TL2 (G3UCA)
	GB2RFS: Ruthin Flower Show. Ruthin Denbighshire. LH27 (GW4WSU)
	GB2SCA: Scarborough Lighthouse. Scarborough, Nth Yorks. LH2 (G4SSH)
	GB4BPL: Burry Port Lighthouse. Burry Port Sth Wales. (G3CEN)
	GB4HCL: Hurst Castle Lighthouse. N50:42:44 W01:32:94. TLHV27PS (M0AUI)
	GB4MF: Maltby Festival. Rotherham, Yorkshire. LH27 (G1PQW)
	GB5PW: Pendeen Watch. 50:09:85N 05:40:20W. LH (G0CAM)
	GB5WL: Watchet Light. 51.12N 03.20W Watchet Som'set. LH2 (G0NKZ)
26 Aug	GB0MF: Mediaeval Festival. Hailsham, East Sussex. TLHV2PS (M0CHW)
	GB1HA: Headcorn Aerodrome. Headcorn, Kent. TLHV27 (G0UXG)
	GB2GCS: Grimsby Cleethorpe Scouts. Grimsby, N E Lincs.. L27 (G0MNI)
27 Aug	GB0VSF: Vectis Summer Fayre. Newport, Isle of Wight. L27 (G0EEB)
	GB2TER: Traction Engine Rally. Leeds, West Yorkshire. LH27 (G3YDL)
	GB4GMF: Glenn Miller Festival. Clapham, Beds. LH2 (G6CNQ)
28 Aug	GB0HTS: Havering Town Show. Hornchurch, Essex. TLHV27P (M0MAC)
	GB0VSF: Vectis Summer Fair. Newport, Isle of Newport. TLHV27 (G1VGM)
	GB0VSF: Vectis Summer Fair. Newport, Isle of Wight. TLHV27 (M0TIW)
29 Aug	GB0SVR: Severn Valley Railway. Bridgenorth, Shropshire. (G7LPY)
3 Sep	GB0PC: Peterlee Carnival. Peterlee, Co Durham. LH27 (G0NSK)

B&B. Ernie, G4LUE, 01226 716 339, 07984 191 873 6pm – 8pm.

30 SEPTEMBER / 1 OCTOBER 2005
Leicester Amateur Radio Show – Donington International Centre, Castle Donington, Leics, close to jns 23A and 24 of the M1. Geoff, G4AFJ, 01455 823 344, geoffg4afj@aol.com [www.lars.org.uk]

2 OCTOBER 2005
BELGIUM Amateur Radio & Computer Rally – Hall 'La Louvière Expo', La Louvière, access direct from motorway 50km S of Brussels. OT 9am. FM, TS from UK, Holland, Germany & France. Michel, ON7FI, 0032 64 849 596, michel.dewyngaert@skynet.be [www.qsl.net/on6ll/]

7 – 9 OCTOBER 2005
RSGB HFC2005 – Gatwick Worth Hotel, Sussex. 0870 904 7373. hfc@rsgb.org.uk [www.rsgb-hfc.org.uk]

9 OCTOBER 2005
BLACKWOOD & DARS Rally – Newport Centre, Newport, 1 mile from jn 25A of the M4 (jn 26 travelling W–E.OT 10.30/ 10.45am, £1.50. CP free, B&B, TI, TS, SIG, LB, C, DF, WIN. George, 2W1JLK, 01495 724 942, or Dave, GW4HBK, 01495 228 516.

EXETER ARS Radio Rally / Table-Top Sale – Moose Hall, Spinning Path Lane, Blackboy Road, Exeter. OT 10.30am, £1. C, ,CP nearby. Steve, M3WRS, 01392 498 934.

GREAT LUMLEY AMATEUR RADIO & ELECTRONICS SOCIETY Rally – Great Lumley Community Centre, Front Street, Great Lumley. OT 10.30, £2, accompanied under-14s free. B&B, CP, C, model club, radio, hobbies, electronics, computer, satellite and component stalls. Nancy, G7UUR, 0191 477 0036, 07990 760 920, nancybone2001@yahoo.co.uk

15 OCTOBER 2005
W&S @ Jaycee Open Day – Glenrothes Shop, 01592 756 962.

15 / 16 OCTOBER 2005
JAMBOREE ON THE AIR (JOTA)

16 OCTOBER 2005
HORNSEA ARC Annual Rally – Floral Hall, Hornsea. G4YTV, 01964 562 498.

Northern Ireland Morse Proficiency Tests – Carrick Rally. Advanced booking (>10days prior to test) necessary. John, GI3YRL, 028 9336 7208, jbranagh@supanet.com or Jim, GI0DVU, 028 9266 2270, jim.henry@ntlworld.com

19 OCTOBER 2005
HASTINGS ELECTRONICS & RADIO CLUB Autumn Auction of Used & Surplus Equipment – William Parker School, Parkstone Road, Hastings, at 7pm. Gordon, 01424 431 909.

22 / 23 OCTOBER 2005
HAMEXPO 27ème Salon International Radioamateur – Auxerre. [www.ref-union.org]

23 OCTOBER 2005
GALASHIELS & DARS Annual Open Day & Rally – The Volunteer Hall, St John's Street, Galashiels. 10.45 / 11am. TS, B&B, C. Jim, GM7LUN, 01896 850 245, mail@gm7lun.co.uk

29 OCTOBER 2005
ROCHDALE & DARS Traditional Radio Rally – St Vincent de Paul Catholic Church Hall, Caldershaw Road, off the A680 Edenfield Road, approx 2 miles W of Rochdale. Follow the orange arrows from M62 jn20. OT 10.15 / 10.30, £1. CP free, TS, B&B, C, TI on 145.550MHz. Please note that this is a Saturday Rally! John, G7OAI, 01706 376 204 (eve), radars@radars.me.uk [www.radars.me.uk]

30 OCTOBER 2005
RUSTY RADIOS CONTEST GROUP Rally – Cottered Village Hall, Herts (on the A507 between Baldock and Buntingford). OT 10.30, £1 + conc. C, CP, no computers! Sean, 01462 459 724 (eve). [www.rustyradios.com]

5 / 6 NOVEMBER 2005
NORTH WALES RS 19th North Wales Radio, Electronics & Computer Show – Jenny, MW0BET, 01492 549 413. [www.nwrs.org.uk]

13 NOVEMBER 2005
West London Radio & Electronics Show – Paul, M0CJX, 01737 279 108, m0cjx@radiofairs.co.uk [www.radiofairs.co.uk]

26 NOVEMBER 2005
Reddish Rally – John, G4ILA, 0161 477 6702, john@mckae.freeserve.co.uk

3 DECEMBER 2005
Martin Lynch & Sons' Christmas Hog Roast & Boot Fair – sales@hamradio.co.uk [www.hamradio.co.uk]

Northern Ireland Morse Proficiency Tests – John, GI3YRL, 028 9336 7208, jbranagh@supanet.com or Jim, GI0DVU, 028 9266 2270, jim.henry@ntlworld.com

RSGB Annual General Meeting – venue TBC. 0870 904 7373.

4 DECEMBER 2005
BISHOP AUCKLAND RAC Rally – Mark, G0GFG, 01388 745 353, or Brian, G7OCK, 01388 762 678.

5 FEBRUARY 2006
SOUTH ESSEX ARS Mobile Radio Rally – Ken G0BBN, 01842 861 089, hendryken@aol.com [www.southessex.ars.btinternet.co.uk]

5 MARCH 2006
CAMBRIDGE & DARC Rally – John, G0GKP, 01954 200 072, j.bonner@ntlworld.com

1 APRIL 2006
GMDX Convention 2006 – Robert, GM3YTS, gm3yts@btinternet.com

20 JUNE 2006
NEWBURY DARS Car Boot Sale – Kevin, G6FOP, g5xv@ntlworld.com [www.nadars.org.uk]

RSGB MEMBERS' ADVERTISEMENTS

RSGB members wishing to place an advertisement in this section should use the official form printed in *RadCom* each month and send it to 'Memads', *RadCom*, RSGB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE. No acknowledgement will be sent. Ads not clearly worded, or which do not comply with these conditions will be returned. If an ad is cancelled no refund will be due.

An advertisement longer than 60 words will be charged *pro rata*. **The RSGB believes that it is inappropriate for members trading in whatever way in radio equipment to place members' advertisements. We therefore regret that we are unable to take such advertisements, although we do welcome these in the 'Classified' advertising section of *RadCom*.** The editor reserves the right to refuse any advertisement for any reason. In such matters, the editor's decision is final.

The RSGB accepts no responsibility for errors or omissions, or for the quality of goods for sale or exchange. Each advertisement must be accompanied by the correct remittance, as a credit card payment, cheque or postal order made payable to the Radio Society of Great Britain.

Please note that because this is a subsidised service to members, no correspondence can be entered into. Members may submit *one* photograph of equipment being sold / wanted at an additional cost of £5.00. This *must* be a .jpg or .gif file and the file name *must* be included on the Order Form. The photograph may be e-mailed to radcom@rsgb.org.uk or sent on a floppy disk or CD.

Licensed members are asked to use their callsigns and QTHR, provided their addresses in the current edition of the *RSGB Yearbook* are correct. RS members will have to provide their names and addresses or telephone numbers. Please include your town and phone number in the free boxes provided to assist readers. Advertisements will be placed in the first available edition. Please do not send Members' Advertisements to Danby Advertising (advertising agents). The closing date for copy is the first day of the month prior to publication, e.g. the deadline for the May issue is 1 April.

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 cash paid. Members' Ads also appear on the members-only website: www.rsgb.org/membersonly/membersads*

The Members' Ads order form is published below. If members do not wish to cut the form out of the magazine, photocopies will be accepted, as will recent copies of the form from previous months. As a last resort, members may also send in their advertisements on separate sheets of paper, but if you choose to do this, you must supply an accurate word count and, of course the correct fee in the normal way.

RSGB MEMBERS' ADS ORDER FORM

Application form for one For Sale, Exchange or Wanted advertisement. Do not mix classifications on this form; separate applications must be made.

Please ensure you read and understand the conditions of acceptance of these subsidised Members' Advertisements, printed at the top of the Members' Ads page of *Radcom*

☐ I enclose a cheque/PO for £ ☐☐.☐☐ p

☐ Please charge to my credit card

Number ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Expiry date ☐☐☐☐ Issue number (Switch only) ☐☐

Signed _____ Date _____

Section: ☐ FOR SALE ☐ EXCHANGE ☐ WANTED

RATES: UP TO 20 WORDS £5.50; 21-40, £6.50; 41-60, £7.50.
PHOTO (jpg or gif only) ADD £5.00

Free entries

Photo file name (if applicable) _____.jpg/gif

Town _____

E-mail _____

Phone _____

The last word

Letters published in 'The Last Word' do not necessarily reflect RSGB policy. 'Last Word' letters may be e-mailed to radcom@rsgb.org.uk Please note that letters submitted for 'The Last Word' may not be acknowledged. The RSGB reserves the right to not publish any letter, with no reason being given. It is a condition of publication that all letters may be edited for grammar, length and / or clarity. Due to the limited space available, please keep letters as short as possible. Additional letters may be published on the RSGB members-only website at www.rsgb.org/membersonly/lastword

The *T. & R. Bulletin*

From: D L Miller, GW6JMC

I received *RadCom* this month and was surprised when out fell the *T. & R. Bulletin* reprint. Interesting reading! Of particular interest to me and my wife was the advertisement for Mortley Sprague and Co Ltd. This company was founded by Mr G E Mortley, my XYL's grandfather, and presumably Mr Sprague. I never met Mr Sprague but Mr Mortley was living at Great Baddow near Chelmsford when I met my wife, and he died aged 95 in I believe 1974. Although frail, Mr Mortley got a monthly update on business from a director who I believe was in his seventies. We knew the visit was in progress by the appearance of an old but immaculate Riley saloon car on the drive. His wife died in 1977 aged 98.

From: Brian Vaughton, GOHRH

... Congratulations on a most interesting 80th anniversary issue. Pat Hawker's piece on the early years, and the one by Steve Telenius-Lowe, G4JVG, marking *RadCom's* 80th birthday, were full of interesting facts about the early days of amateur radio. And the inclusion of the *T. & R. Bulletin No 1* was an inspired idea. I particularly liked the picture on page 36 showing the editorial team hard at work preparing the copy!

From: Trevor Hawkins, M5AKA

... I've been hearing lots of positive comments about the inclusion of the *T. & R. Bulletin* in the July issue of *RadCom*. It's an excellent idea and has gone down very well with the members. I hope the RSGB will reproduce more early editions of the *T. & R. Bulletin* for other special occasions.

From: Richard Marshall, G3SBA

... The inclusion of the reproduction of *T. & R. Bulletin* first edition with *RadCom* was a lovely idea. Let's have further editions, please!

Regional meeting

From: Ian Munro, GM4GVK

As an RSGB member I would like to thank Peter Kirby and Jeff Smith for coming to Aberdeen to explain the Ofcom proposals. The licence for life suggested by Ofcom is a mere 'carrot' which will lead to the demise of amateur radio in the UK and our standing world-wide. I hope the RSGB will take over the licensing on a yearly basis in order to maintain an up-to-date database. There is no point of buying a *Yearbook* if it is five years out of date. Perhaps a reduced licence fee for RSGB members only would lead to an increase in membership?

May I also thank all those involved in running the Society and the excellent monthly *RadCom*.

Residents' association on the air

From: Davy Gregg, MI3IRZ, Rectory West Residents' Association

It gives me great pleasure to inform you that we have put seven people through their Foundation course. Our new centre is up and running and hopefully all seven candidates will sit their Intermediate exam very shortly. Courses are organised and run on demand.

Did you notice the callsign? I was one of the seven who got my ticket. Here's to the Intermediate!

Restoring valve radios

From: Steve Ireland, VK6VZ

I was amused and somewhat embarrassed to read the first part of the 'Technical Feedback' on my article 'Restoring Old Valve Equipment' from Geoff Darby, G7RTC, and Malcolm Perry, G8AKX. The two modern 'TKR'-type electrolytic capacitors I used in series to replace an ancient 16uF 500V electrolytic (in a power supply) were actually two 100uF 450V capacitors, not 10uF as stated in the article. This problem occurred because of poor proofreading on my part, which as a professional scientific editor / journalist for over 20 years is an admission that pains me.

Perhaps I can make up for this in part by offering a snippet of information to those interested in restoring 'boat anchor' radios. A vigorous application of Brasso to brass / copper switch contacts, using a cotton bud, will remove even the most stubborn corrosion and leave the contacts looking like new. Silvo, used in a similar manner, works wonders on silver-plated contacts. After applying either of these two cleaners, any residue must be removed, using a cotton bud doused in non-corrosive, non-staining, electronic contact cleaner.

Unnecessarily good?

From: Brian Clowes, GW4HBZ

The standard of technical articles in *RadCom* is generally very high and most are very interesting but I am beginning to tire of articles on bomb proof mixers and super low noise oscillators. It is becoming a bit like some of the silly audio magazines that claim you have to have special speaker cables, connectors and capacitors for audio use and that an amplifier with distortion of 0.000001% isn't good enough even though our ears can't detect distortion much below 1%. We have all read such things and laughed.

The fact is I have been using various equipment for over 40 years which on paper has a poor performance but in most cases has worked fine in practice. I have operated on 7MHz unaware of the massive broadcast signals slightly higher in frequency. There is so much noise and interference on that crowded band that any receiver imperfections don't show themselves unless the equipment is particularly poor. I have operated portable on 144MHz many times during openings or contests with lots of big signals on the band and never felt the need for a receiver with a 3rd order intercept of +90dBm or whatever. Any time there has been a problem is has been a badly adjusted rig or overdriven amplifier and not my receiver. A reasonable standard of performance is required as in audio but I feel some people are getting carried away by test results and specifications rather than how the equipment works in practice. Maybe someone could do some 'blind' tests. Ask a range of operators whether they are using a standard rig or a modified super duper low phase noise, high IMD mixer, low fat, turbo, sky blue pink version.

Three bouquets and a brickbat

From: Terry Sayner, G0VWP

I would like to give praise to Waters & Stanton for fixing my Heil headset, not once, but twice this year and free of charge on both occasions. I deal a lot with then and praise their service: I always get what I order the next day without fail.

I want to say as well that I've taken *RadCom* since 1995 and think it is a very good mag. Keep up the good work.

From: Mike Thomas, G0WKH

... In January this year my antenna rotator failed and, after discussion with my supplier, Ron Stone of Vine Antenna Products, I sent the rotator and its control box to him for repair. The parcel was sent using DHL Express and it arrived the following day. A faulty potentiometer in the rotator was replaced, the equipment tested and returned - again using DHL - to me. The rotator failed to function correctly and investigation revealed that two cable connecting lugs on the body of the potentiometer had broken away flush with its surface. Given the solid construction of the rotator the only way that this could have happened would be by shock, ie dropping the package. The whole package was returned to Vine via DHL, but failed to arrive at their given time. Following repeated representations by Ron Stone the package was eventually delivered some 10 days later. As one might expect the instruments did not arrive in the best condition - the control box was damaged on this occasion.

The bouquet goes to Ron Stone for all the trouble taken to chase DHL, rectify the damage, replace the potentiometer and return everything to me via another carrier at no charge. The brickbat, of course, goes to DHL for poor service, lack of care and abysmal communications. One month after writing an initial letter of complaint I had not received any reply. Resorting to some badgering by telephone I managed to get some compensation which was sent to Mr Stone to redress his losses. A letter to the Managing Director of DHL was eventually replied to and apologies were forthcoming but at the time of writing I am still awaiting return of an original document which was sent at their request. I have no pecuniary interest in either company but do feel that their contrasting standards will be of interest to our members.

'Poor man's caesium clock'

From: Alan Strong, G3WXI

I cannot recollect seeing any feedback to G A Moore's question ('The last word', March 2005), so I offer the following, for what it is worth. I too have G4NJU's device (originally published in *CQ TV*, the British Amateur Television Club's journal) and I have recently purchased a Freeview set-top box. During the setting up process I arrived at the situation where the image from the digibox and that from the TV set's analogue tuner were displayed simultaneously. With the settings that I had accidentally stumbled upon, the terrestrial image was displayed correctly and locked but the digital image was 'quartered', ie the line and frame blanking periods were visible in the viewed frame so quite clearly the two images were not synchronised. I have repeated the experiment again, this time ensuring that I was viewing the same channel being broadcast on digital terrestrial and analogue terrestrial transmissions and this confirmed the previous results.

Simply out of interest I plan to make further observations, comparing the line and frame waveforms of the two video sources on a double beam oscilloscope and also carry out a phase comparison from a pair of G4NJU frequency standards, one fed from digital source and the other fed from the analogue source. Even though my observations would suggest that the signals from the two sources are neither synchronised nor even phase locked, the time for one image to drift from one side of the screen to the other was 10 seconds or more, meaning that in practice any error is likely to be insignificant for all but the most demanding of applications.

Furthermore I have noticed a significant delay on sound radio channels broadcast on Freeview and those transmitted on terrestrial VHF/FM so maybe satellite links are used somewhere in the chain and that in itself might then introduce propagation-related artefacts into my observations.

Keyboarding with no re-morse

From: Bruce Fleming, KI7VR, ex-G3NDG

The article 'Non-PC Morse' by Dave Lawley, G4BUO (*RadCom*, May 2005, p57) was interesting - it seems right to avoid relying on a computer for receiving Morse; I haven't yet found a software program that can copy CW like a good op. But I would add one more item to Dave's recommendations: after a couple of years of operating, you should make a recording of one of your QSOs, or have a friend do it. Listen to it. Are you happy with your sending? Can you at least send your own callsign elegantly? If not, then consider using a keyboard.

It's tough to be objective about your own sending, but a tape recording will show you immediately if you are sending Morse that's easy to copy. The errors will glare!

Four major errors crop up all the time: spacing, weighting, mis-keying and over-dotting. Spacing errors are the worst and most common - many people don't realise how important a space is in Morse. It tells when a character is over and the next is about to start. Poor spacing makes for poor copy, eg "DT" or "NA" become "X" if the space is omitted or shortened. Adding spaces is equally bad - how many times have you heard a station calling "NNQ" instead of CQ? Would you answer him?

Now, don't get me wrong - I have the greatest sympathy for people who cannot send good CW with a key - you see, I am one of them! In my bug key days, I sent awful CW and didn't realise it; it took a PC to show me just how bad I was. I have great admiration for folks who can key perfect CW at 30WPM with one hand while doing logging chores or fondling a coffee cup with the other. I am not such a person, and I suspect 50% of the ham population is like me. But for us lesser mortals, there is a solution - bring back the PC you discarded, not to receive with, but to send with. I have been keyboarding ever since I realised in 1982 that my little VIC 20 could send so *much* better CW than I could! With a keyboard, I can send CW that is readable at the other end and, more important, it satisfies me. Previously, my keying errors were a constant source of annoyance to me. Oh yes, I sometimes make errors with my keyboard (because I am not a good typist either!) but at least the spacing, weighting and over-dotting problems have disappeared.

If your CW sending is frustrating you - get a keyboard. You and the stations you work will be much happier.

Appreciation for welcome and warmth

From: Peter Holmes, soon to be 2E0???

I attend the Morley Green Radio Club based near Wilmslow, Cheshire. Within the last six months the club made my wife and me feel at home and we soon became part of the team.

Having passed the Foundation course and the Intermediate course, the teaching of David Brooks and Keith Dunstan could not be faulted. I would like to pass on my deep appreciation to both of them through your magazine. This is a small club that meets on a Sunday evening. Anyone is welcome, if you need a licence, our instructors will be on hand to answer any questions you may have. I myself am 67 years young and found the warmth of this club with its mixed ages very satisfying.

dit di-di-dit dit...

From: David Reynolds, G3ZPF

I meant to comment after the original letter in *RadCom*, but forgot. I think you'll find that rhythm and the "dit dit" response transcends our hobby. I saw a report recently where researchers had experimented by clapping, saying, or knocking that rhythm to a number of cultures and races (including tribesmen) and they always received the "dit dit" response. It seems as though the rhythm and response are embedded within the human psyche.

"This man walks into a pub..."

From: Ken Duggan, MM0RZZ

With reference to 'PHOTA?' page 11, *RadCom* June, what a splendid idea with opportunities for many new interest groups. One obvious one that springs to mind is to match the 'tipple' to the band. For example, those who enjoy low alcohol beverages would be at home on 1.8 - 2.0 (%), whilst real ale groups could chase WAB (Worked All Breweries) on 3.5 - 3.8. Hock and liebfraumilch fans could work DL to their heart's content on 7, whilst new world red drinkers chase VK on 14 for a new 'Shiraz Award'. Sherry, port and other fortified groups would find a match on 21, and Madeira on 28. VHF, UHF and microwave operators of a courageous disposition could find matches by the well known technique of using multiplier stages. Hence a trippled rusty nail takes one on to 144MHz, and by careful use of 'fundamental mixtures', and application of several stages of, for example Woods 100, any band may be achieved. Such mixtures also have the benefit of offering some comfort to operators on some of the less well used bands.

Whatever, this could boost the interest in QSO *parties* and bring a further dimension to *homebrew*.

73, Ken, MM0RZZ, Tongue, cheek & Gewurztraminer Group. (PS: Good luck to all special interest groups - I am a member of some myself!)

[Although rather late for the April issue, the 'PHOTA' item was indeed a joke. Its originators, Bruce Sutherland, M0CVP, and Dave Ollerhead, G4JMF, say "If anyone really wants to put Public Houses On The Air please assure them that we won't consider that they've stolen our thunder and that they should go right ahead!" - Ed.]

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