An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

April 2012

Published by the UK Microwave Group

PA3DZL's EME dish in the Bumper and "uplifting" Activity News

In this Issue

Many thanks to all our contributors this month, without whom there would be no Scatterpoint!

Martlesham Microwave Round Table

(including UKµG AGM)

28-29 April 2012

Adastral Park

- Talks
- Dinner
- Trading space
- Testing

Web site for registration

Hotel

Once again the hotel is the Cameo Hotel (Formerly the Hotel Elizabeth, Copdock) Ipswich. A block of rooms has been reserved for the round table, and can be booked by phoning the hotel on 01473 209988 and quoting booking reference BK48672.

Single occupancy rooms are £55.00 bed & breakfast, double/twin rooms are available at £61.00

(the same prices as 2011).

John Quarmby G3XDY

Details pp6,7

UK Microwave Group Contact Information

Chairman: G4BAO Dr. John C. Worsnop Email: chairman @microwavers.org Located: Cambridgeshire JO02CG Address: 20 Lode Avenue Waterbeach Cambs CB25 9PX Home Tel: +44 (0)1223 862480	General Secretary: G8BHC Martin Richmond-Hardy Email: secretary @microwavers.org Located: Suffolk JO02PA Address: 45 Burnt House Lane Kirton Ipswich Suffolk IP10 0PZ Home Tel: +44 (0)1394 448213	Membership Secretary: G8DKK Bryan Harber Email: membership @microwavers.org Located: Hertfordshire IO91VX Address: 45 Brandles Road Letchworth Hertfordshire SG6 2JA Home Tel: n/a	Treasurer: G4FSG Graham Murchie Email: treasurer @microwavers.org Located: Suffolk JO02PC Address: 42 Catherine Road Woodbridge Suffolk IP12 4JP Home Tel: +44 (0)7860 356775
Scatterpoint Editor: G8BHC Martin Richmond-Hardy Email: editor @microwavers.org See above for other contact details NB editor & scatterpoint email addresses go to both John and myself	Scatterpoint Activity News: G4BAO John Worsnop Email: scatterpoint @microwavers.org See above for other contact details	Contest & Awards Manager: G3XDY John Quarmby Email: g3xdy @btinternet.com Located: Suffolk (JO02OB) Address: 12 Chestnut Close Rushmere St. Andrew Ipswich Suffolk IP5 1ED Home Tel: +44 (0)1473 717 830	RSGB Microwave Manager: G6JYB Murray Niman Email: g6jyb @microwavers.org Located: Essex (JO01) Address: 55 Harrow Way Great Baddow Chelmsford Essex CM2 7AU Home Tel: +44 (0)1245 474969

UK Regional Reps

Ray James	Scotland	GM4CXM	gm4cxm@yahoo.co.uk	gm4cxm
Gordon Curry	NI	GI6ATZ	gi6atz@qsl.net	gi6atz
Tony Pugh	Wales	GW8ASD	gw8asd@gw8asd.co.uk	willcroft

Assistants

Kent Britain	USA	WA5VJB/G8EMY	wa5vjb@flash.net	kent.britain
Dave Powis	Trophies	G4HUP	g4hup@btinternet.com	daveg4hup

Editor's corner

The Bodger's Guide is back, with a sequencer for that hairy GaAs PA you have in the To Do projects box.

Also lots of Activity News.

See you at the AGM?

73 de Martin G8BHC

Articles for Scatterpoint

News, views and articles for this newsletter are always welcome.

Please send them to

editor@microwavers.org

The CLOSING date is the FIRST day of the month

if you want your material to be published in the next issue.

Please submit your articles in any of the following formats:–

Text: txt, rtf, rtfd, doc, docx, odt, Pages

Spreadsheets: Excel, OpenOffice, Numbers

Images: tiff, png, jpg

Schematics: sch (Eagle preferred)

I can extract text and pictures from pdf files but tables can be a bit of a problem so please send these as separate files in one of the above formats.

Thank you for you co-operation.

Martin G8BHC

UK MICROWAVE GROUP SUBSCRIPTION INFORMATION

The following subscription rates now apply.

UK £6.00 US $12.00 Europe €10.00

This basic sum is for **UKuG membership.** For this you receive Scatterpoint for **FREE** by electronic means (now internet only) via the Yahoo group.

Please make sure that you pay the stated amounts when you renew your subs next time. If the amount is not correct your subs will be allocated on a pro-rata basis and you could miss out on a newsletter or two!

You will have to make a quick check with the membership secretary if you have forgotten the renewal date. Please try to renew in good time so that continuity of newsletter issues is maintained. Put a **renewal date reminder** somewhere prominent in your shack.

Please also note the payment methods and be meticulous with PayPal and cheque details.

QUOTE YOUR CALLSIGN PLEASE!

Payment can be made by: PayPal to

ukug@microwavers.org

or

* a cheque (drawn on a UK bank) payable to 'UK Microwave Group' and sent to the membership secretary (or, as a last resort, by cash sent to the Treasurer!)

Colour codes

Editorial & Events

Activity & Contests

Technical

Nanowaves (optical)

Commentary

Reproducing articles from Scatterpoint

If you plan to reproduce an article exactly as per Scatterpoint then please contact the Editor – otherwise you need to seek permission from the original source/author.

You may not reproduce articles for profit or other commercial purpose.

UK Microwave Group

Annual General Meeting – Sunday 29 April 2012

Notice is hereby given that the 2012 Annual General Meeting of the UK Microwave Group will be held at 10:00am on Sunday, 29 April 2011 as part of the Martlesham Microwave Round Table event which takes place over that weekend at Adastral Park, Martlesham Heath, IPSWICH.

Sunday morning sees the UKµG AGM at the start of the morning's session. This will include the election of the officers of the committee and the presentation of the Chairman's, Secretary's and Treasurer's Annual Reports.

This year Peter G3PHO, Sam G4DDK and Kevin Avery G3AAF are standing down from the committee so we are interested to hear from anyone who would be willing to join the committee. If any UKuG member is interested then please submit your name (and the name of your seconder) to the UKuG Chairman G4BAO as soon as possible.

On behalf of the UKuG Chairman John Worsnop, G4BAO, the UKuG Committee and the UKuG membership I would like to formally thank Peter, Sam and Kevin for their dedication and efforts during their years on the committee.

If you are interested in joining the committee or have any agenda or AOB items for the AGM, please contact the UKuG Secretary, Martin Richmond-Hardy G8BHC by 29 March 2012 by email to secretary@microwavers.org.

Proposed change to Rule 4.1

Current wording is:

> 4.1 The affairs of the organisation will be run by a committee of up to 10 members. These will be Chairman, Secretary, Treasurer, Editor and up to 6 other members.

Secretary's comments

1. Officers of a committee are generally considered to be Chairman, Secretary & Treasurer.
2. Para 4.1 does not state otherwise.
3. There is no explicit rule about one person holding multiple officer posts.
4. Scatterpoint Editor can be an existing officer, an elected member or a co-opted member.

The Committee propose Para 4.1 be amended to read:

> 4.1 The affairs of the organisation will be run by a committee of up to 10 members. These will be Chairman, Secretary, Treasurer (The Officers) plus Membership Secretary and up to 6 other members.

73 Martin Richmond-Hardy G8BHC

Secretary, UK Microwave Group

Nominations for Awards

By Dave Powis G4HUP

We have one nomination for each Award. Details in next month's issue or at the AGM.

Fraser Shepherd Award:	For research into microwave applications to radio communication. In honour of Fraser Shepherd GM3EGW
G3EEZ Award:	For Contributions to Microwave Communications, in honour of Alan Wakeman G3EEZ
G3BNL Award:	For innovation or technical development of microwave equipment or techniques, in honour of Les Sharrock G3BNL

Details of the trophies are to be found here: www.microwavers.org/trophies.htm

Perhaps you could consider doing something for UKµG in your area at your local rally? (Assuming you don't do so already!)

We have flyers & posters available for download.

Contact any committee member

Silent Key G1SMI

Bob Waters G1SMI IO83pm passed away on the 5th April at the Southport & Ormskirk Hospital.

Bob will be sorely missed on 23cm where it would be difficult to find a month we never had a contact.

RIP.

73 Ray GM4CXM

Programme

Saturday 28th April 2012

10:00	Truck Stop Breakfast
12:00	Gates open at Martlesham
13:00	Welcome & opening G4FSG
13:15	Microwave Antennas by WA5VYB
14:00	Refreshments
14:30	Trophy Presentations TBD
14:45	Stresses in Cables and Towers by G4HUP
15.30	Making a Start in Microwave EME by G4DDK
16:15	An introduction to Radio Astronomy by G4NNS
16:55	Fleamarket closes
17:00	EME 2012 Committee Meeting
17:30	Gates close at Martlesham
19:30	Meet for Dinner at 20:00 at the Cameo Hotel Ipswich

Sunday 29th April 2012

09:00	Gates open at Martlesham
09:50	Welcome & Opening G4FSG
10:00	UKuG AGM
10:30	Refreshments
11:00	76GHz and Up by G8CUB
11:45	Big Dish - Activities at Bochum by G3RUH
12:30	Lunch break
13:30	21st Century Frequency Converters, Transverters and Radios by G4JNT
14:15	Gallium Nitride Power Amplifiers by G3WDG
15:00	UKuG Contest Forum G3XDY
15:45	Fleamarket closes
16:00	Gates close at Martlesham

Security

Although entrance is free, **registration is required** for passes to access the site at Adastral Park.

Registration is via the web at http://mmrt.homedns.org – follow the "Book" link to register.

Refreshments

Sandwiches/Rolls will be available at lunchtime on both days, with tea, coffee, soft drinks and cakes / biscuits at all breaks.

Accommodation

Overnight accommodation is available at the Cameo Hotel and bookings for the informal dinner on Saturday evening are open.

Full details are on the registration web site under the "Meal" tab.

Testing

Test equipment will be available throughout the day, subject to qualified personnel to operate the test and measurement equipment (yes, staff would like to attend the talks too!).

Noise figure testing on many bands.

Travel

The talks and testing will be held at:

BT Adastral Park,
Martlesham Heath,
Suffolk, IP5 3RE.

This is located a few yards off the A12, just east of Ipswich.

CLICK for map.

The evening meal and accommodation will be at:

Cameo Hotel Copdock, London Road,

Ipswich, Suffolk, IP8 3JD, England.

Direct number 01473 209988 (09:00-17:30 on weekdays)

CLICK for details.

There is a shuttle bus between Ipswich and Stansted every two hours at a reasonable price.

MMRT Dinner Menu

Starters:

Butternut Squash Chilli and Tomato Soup
Ham Hock Terrine with Suffolk Mud Mustard
Sun blushed tomato-Goats Cheese Tart

Mains:

Chicken Supreme wrapped with Pancetta
Belly of Pork rolled with Apricots and Ginger
Poached Supreme of Salmon
Pumpkin, red onion and Chick Pea Tagine

Desserts:

Chocolate and Orange Cheesecake
Raspberry and Amaretto Tart with Toffee Syrup
Seasonal Crumble with Custard
Tea and Coffee with mints

Price: £29 per person

For Sale

I am currently sorting through my microwave stocks which have to be reduced.

I have a collection of bagged and new coffin capacitors.2.7, 3.9, 4.7,10, 15, 22, 68p and 1nF. Do people still use them?

Do people still use 10GHz waveguide fittings etc?

I have a collection of microwave power transistors of all types.

I am not a dealer, but I would like to dispose of them and cover some of my past outlay.

Julian Greenberg G4ZOD
g4zod @ btinternet.com

EME 2012 News

Cambridge 17–18 August 2012

The 15th International EME Conference will be held at Churchill College, Cambridge, from 16 to 18 August 2012. This will be the first time this premier event has been held here and the UK Microwave Group are pleased to be its hosts.

Every two years radio amateurs from around the world meet to discuss their latest ideas and findings and present the newest technology at this Conference. It is probably true to say that most of the leading ideas in long distance, weak signal, VHF, UHF and microwave amateur radio were initially developed by the EME community. You are invited to join the fun at Cambridge, to learn, contribute and to maybe start your own journey to the moon and back.

More than 20 high quality papers, together with poster sessions and demonstrations, will be presented at the two day Conference. In addition, a number of tours have been arranged so that families or partners will also be entertained whilst the 'OM' attends the Conference. Of course partners are also welcome to attend the Conference, if they would prefer!

The Conference Dinner will be held in the halls at Churchill College on the Saturday evening. We are proud to have pioneering radio astronomer and Nobel Laureate, Professor Antony Hewish FRS, for our end-of-conference dinner speaker. We will also have another well-known speaker, on Friday evening, when Howard Long, G6LVB, talks about the development of the FUNcube Dongle, the low cost VHF/UHF receiver that has taken the market by storm.

With five months still to go, over 100 radio amateurs from more than 20 countries have already registered to attend the 15th International EME Conference. We would like you to join us as well.

By registering before the 1st June you can benefit from the discounted registration fee.
All attendees will receive a copy of the printed proceedings and a supplementary DVD containing even more information about EME.

By arranging to use their excellent accommodation and dining facilities and putting together a number of package deals with the college, we have been able to keep the costs down whilst providing a once in a lifetime opportunity to attend the International EME Conference during its visit to the UK. In these difficult economic times we would like to make EME 2012 as accessible as possible. Until now we have only offered En-Suite rooms with their own toilet and bath or shower. To help keep delegates' costs down we are now offering a limited number of single, standard rooms. These have a wash basin, but with shared toilet and shower facilities located nearby. For 2-night Package C the saving is £40. The total cost for a delegate taking the two day Package C in a standard room will be:– £15 for registration, £215 for accommodation including refreshments and lunch on both days, and Friday dinner. The Gala dinner on Saturday is £45 extra – so a total of £275 gives you the whole conference experience, with only your bar bill to add !

We hope this new option will help more delegates attend the conference – but please book before 1st June when we will have to increase prices. You can secure your booking with a 25% deposit and pay the balance by 1st July.

Details of the conference programme, booking forms and travel details can be found at eme2012.com

See you in Cambridge?

microwaveUpdate 2012

Santa Clara 18 – 21 October 2012

Hosted by: The 50MHz and Up Group of Northern California.

Chairman: Jim Moss (N9JIM) Honorary Chairman: Will Jensby (W0EOM)

Email contact: mud2012@pacbell.net

Registration not yet available. (to be announced) www.microwaveupdate.org

Accommodations:

Biltmore Hotel & Suites www.HotelBiltmore.com

2151 Laurelwood Road, Santa Clara, California 95054 +1-800-255-9925 +1-408-988-8411

microwaveUpdate rates: (until Oct 1, 2012)

Garden Rooms: M,T,W $129/night Garden Rooms: Th,F,Sa $79/night

Tower Suites: Th,F,Sa $99/night

Biltmore Hotel shuttle to/from San JoseInternationalAirport available

High speed wireless internet

Full Hot American Breakfast each morning

Additional information:

ARRL National Convention & Pacificon is the weekend before (12–14 Oct 2012)

at the Marriott in Santa Clara.

Nearby attractions:

Silicon Valley, NASA, Intel, Texas Instruments, ComputerHistoryMuseum, Stanford, San Francisco, Fisherman's Wharf, Pier 39, Alcatraz, museums, Monterey 17 mile drive, Monterey Bay Aquarium, Cannery Row

Speakers: We are currently inviting all to submit abstracts and papers

Preliminary Schedule of Events

* Thursday
* Surplus Tour
* Sites Touring
* Hospitality Suite
* Friday
* Registration
* Introduction
* Presentations
* YL / Family Program
* Auctions
* Lunch (included)
* Demonstrations
* Test Lab
* Indoor Swap
* Dinner on your own
* Hospitality Suite
* Saturday
* Registration
* Introduction
* Presentations
* Test Lab
* Auctions
* Demonstrations
* Vendor Displays
* Evening Banquet (included)
* Keynote speaker
* Door Prizes
* Socializing
* Outdoor Flea Market

RAL 10 June 2012

Rutherford Appleton Labs, Didcot, Oxfordshire

By Mike Willis G0MJW

Harwell Amateur Radio Society are organising this years RAL Microwave Round Table. The date is the **10 June** at the RAL Recreational Society (the same place as last year). See the web site for directions.

Registration

There is a registration email rt@g3pia.org.uk – please indicate if attending to this address. We would like the names and callsigns for those attending so we can make up badges and plan the catering. If you want to do any testing it is a good idea to let us know beforehand so we can bring the right equipment.

Event Info

The event is to be held in the RAL Recreational Society building. This building has great facilities and it avoids the need to come onto site which has simplified the event organisation considerably.

Test Facilities

The test facilities are one of the main reasons for holding the RT at RAL. As usual what we can measure will depend on what equipment is actually available on the day.

Power Measurement, Spectrum Analysis and Signal generation to 24GHz

***** Remember to bring all the power supplies, leads and tools you need! *****

Refreshments and Lunch

There is a full licensed bar in the building. Refreshments in the form of tea, coffee, sandwiches and cake will also be available

The RAL Round Table - Sunday 10 June 2012	
1000	Doors open
1000-1200	Informal socialising/testing/surplus swap tables
1200-1245	Lunch:
1245-1330	Lecture 1: Mike Stevens, G8CUL – Low-cost processor evaluation boards for aerial elevation measurement and control
1330-1415	Lecture 2: Roscoe Harrison, M0BTZ – A beginner's experiences on constructing loop yagi antennas for the 23cm, 13cm and 9cm bands
1415-1430	Tea Break
1430-1515	Lecture 3: Doug Friend. VK4OE – Catching the Inspiration - Amateur Microwaves in VK
1515-1600	Lecture 4: Chris Bartram, G4DGU – Latest designs for the Microwave Bands
1615	Event closes.

Mull DxPedition 2012

on air from Saturday 28th April until Friday 4th May

From the web site of the Camb-Hams

Four years after the first DX'pedition, we're back to Mull!

Continuing the Camb-Hams traditional Scottish Island activations, beginning with Mull in 2008, Harris in 2009 and 2010, and Arran in 2011, we've decided to return to the Isle of Mull in the Scottish Inner Hebrides (IOTA EU-008). But where the first year was part-time operation of a single station, in a cottage at the base of some cliffs blocking the path to North America, this year we're going for something bigger…

* All HF bands from 160m to 10m covered with five stations on air simultaneously, all capable of running the legal power limit from five linear amplifiers
* 6m, 4m and 2m with a great take-off to the UK and Europe, again all at legal limit
* **10GHz** (3cm) for a first-time activation of IO66 square

The main station **GS3PYE/P** will be located in IO66vh, on the south coast of the island:

There will also be a 24 hour activation from Lunga, IOTA EU-108 using the callsign **GS6PYE/P**. This will most likely take place from Sunday 29th until Monday 30th April and be on HF and possibly 2m.

G4BAO testing the 10GHz system

Bodger's Guide #7
A simple PSU, control and sequencer for a large GaAs PA

By John Worsnop G4BAO

Introduction

I was given the task of putting together the 10GHz transverter system for use during the Camb-Hams DXpedition to Mull in 2012. It uses a DB6NT transverter and a Mikom 10 Watt SSPA. Now this PA is a "bit of an animal" requiring a drain supply of 11Volts at nearly 10 Amps to produce 10 Watts of RF at 10GHz. It also requires a negative 9 volt supply at a few mA and a TTL logic "low" to enable it.

I suspect that like all depletion mode GaAsFETs if the negative supply is removed from the Amplifier while the drain supply is switched on, the amplifier will rapidly become a very nice doorstop! In depletion mode FETS the channel is active, even with zero volts on the gate, and a negative supply turns the device off.

So the main requirements were a Supply that runs from a 13.8V PSU, with failsafe protection against the removal of the negative supply.

To complete the control board requirements I needed a TX-RX sequencer that can fire a 12V latching coaxial antenna changeover relay and enable the PA. For this I incorporated a variant of my reliable "PICwencer" circuit and code (Ref 1)

While designed for a specific application, the circuitry and PIC code are easily adaptable for a number of PA and relay applications.

Block Diagram

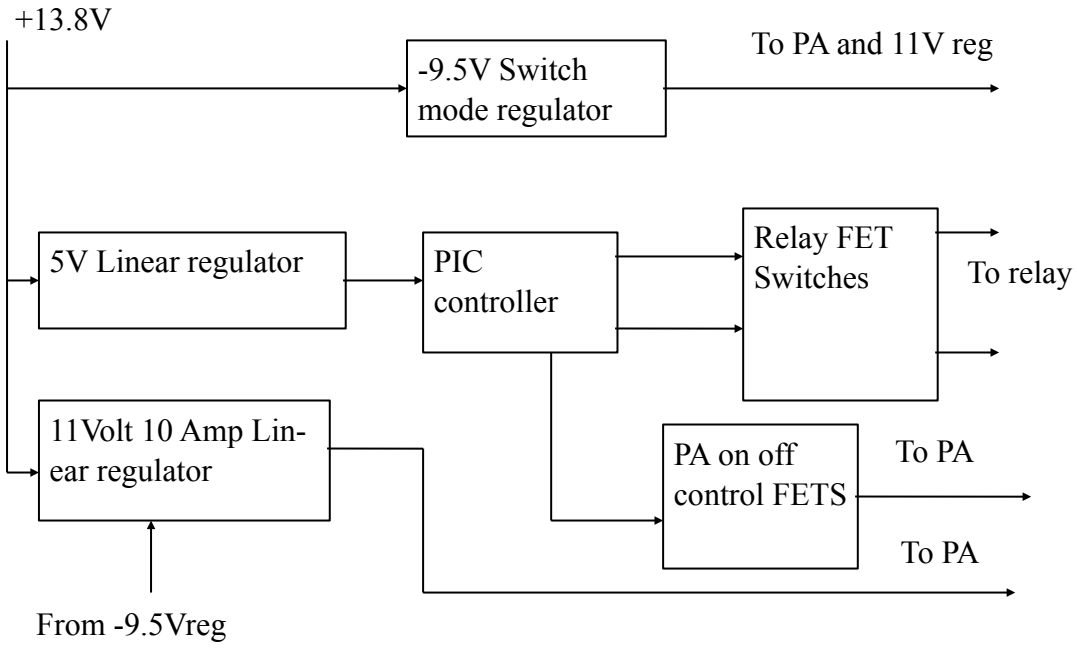


Figure 1 Controller Block Diagram

Circuit description

Please refer to Figure 1 and Figure 2.

A transient suppression and protection Zener D5 protects the negative voltage regulator and electrolytics from an accidental supply above 16Volts.

The Negative Supply U$3 uses a MAX764 switch mode power supply IC, Resistors R14, 18 and 16 determine the output voltage.

The 12F629 8 pin DIL PIC IC3 uses its own internal clock and is powered from a 5V linear regulator U$4. The switching outputs GP0and GP1 of the PIC feed the TX and RX relays; the PIC generating a short pulse to trigger the relay via inverters Q1 and Q2 and source follower twin Power FETS U$2. The PTT input from the transverter is applied to GP3, resistive divider R1 and R2 allowing it to be fed direct from the 12 Volt level DB6NT transverter PTT out. GP4 feeds the TTL level signal direct to the PA, Low = enabled, and the dual FET U$1 provides 12V buffered outputs from the PIC, but are not used in this application and need not be fitted.

The high current 11Volt linear regulator uses parallel LM1084 low-dropout 5 Amp regulators with balancing resistors R15 and R17 in the outputs to facilitate current sharing. Q3 in the “adj” legs ensures that the 11V supply is only enabled when the negative supply is present via D1. The PCB provides the facility to run a separate negative voltage sense wire right up to the PA connector, to protect against a broken -9.5 volt wire if you wish, or they can just be linked at the PCB.

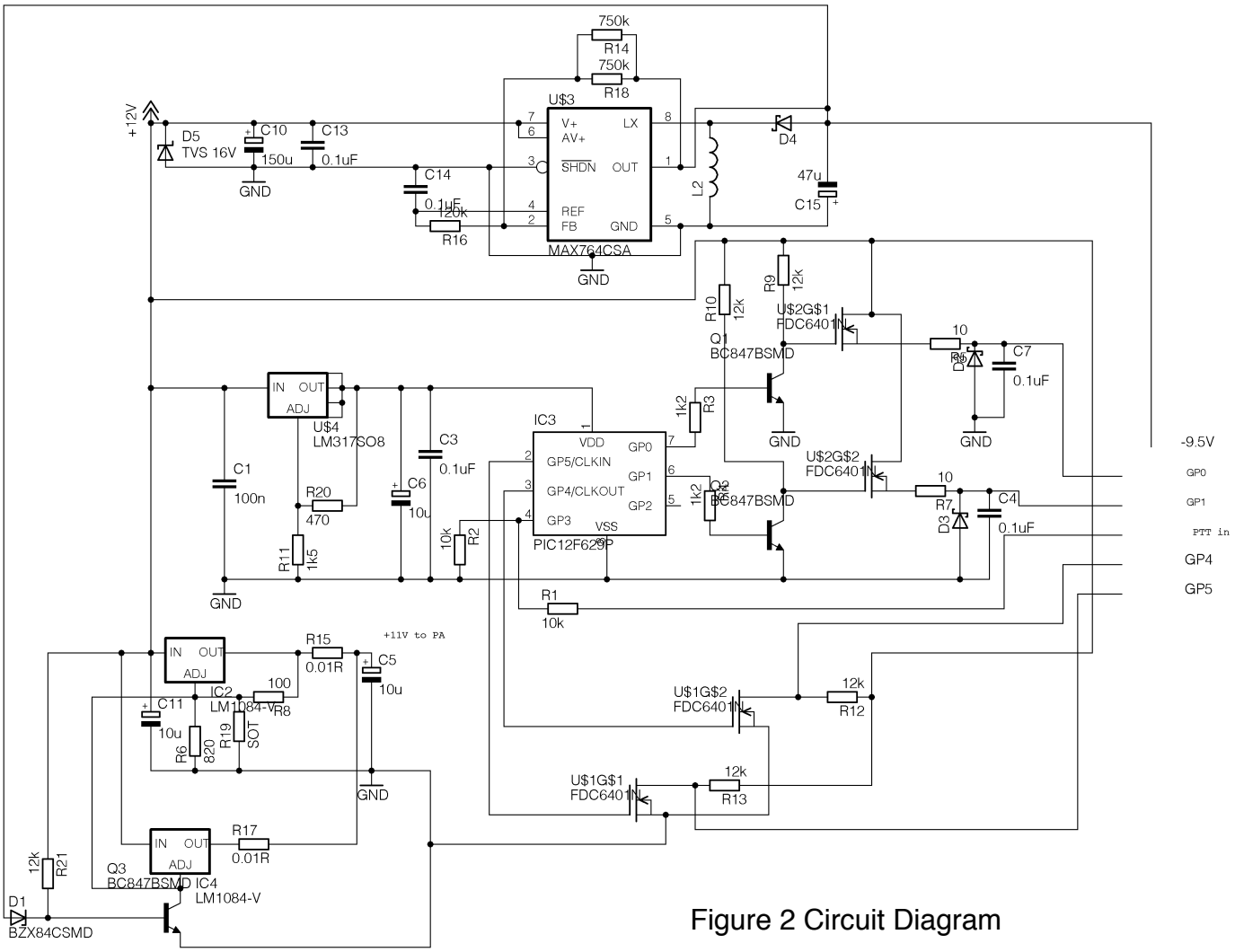


Figure 2 Circuit Diagram

PCB layout

I used surface mount technology allowing the PCB to fit inside a standard Schuberth tinplate box of dimensions 55.5 x 74 x 30mm. (see Reference 3) Layout is mainly surface mount apart from the PIC which is a standard 8-pin DIL package in a socket to allow easy program changes. The PIC is fitted on the opposite side of the board to the SMD components. The linear regulators are best mounted off the PCB and must be on a suitable heatsink such as that used by the PA itself.

If surface mount scares you, there is no reason why the circuit could not be adapted to use through-board components, and built on Veroboard or your own PCB, as all the devices should have leaded equivalents. The relay FETSs just need to be able to handle the current pulse drawn by the coax relay you use.

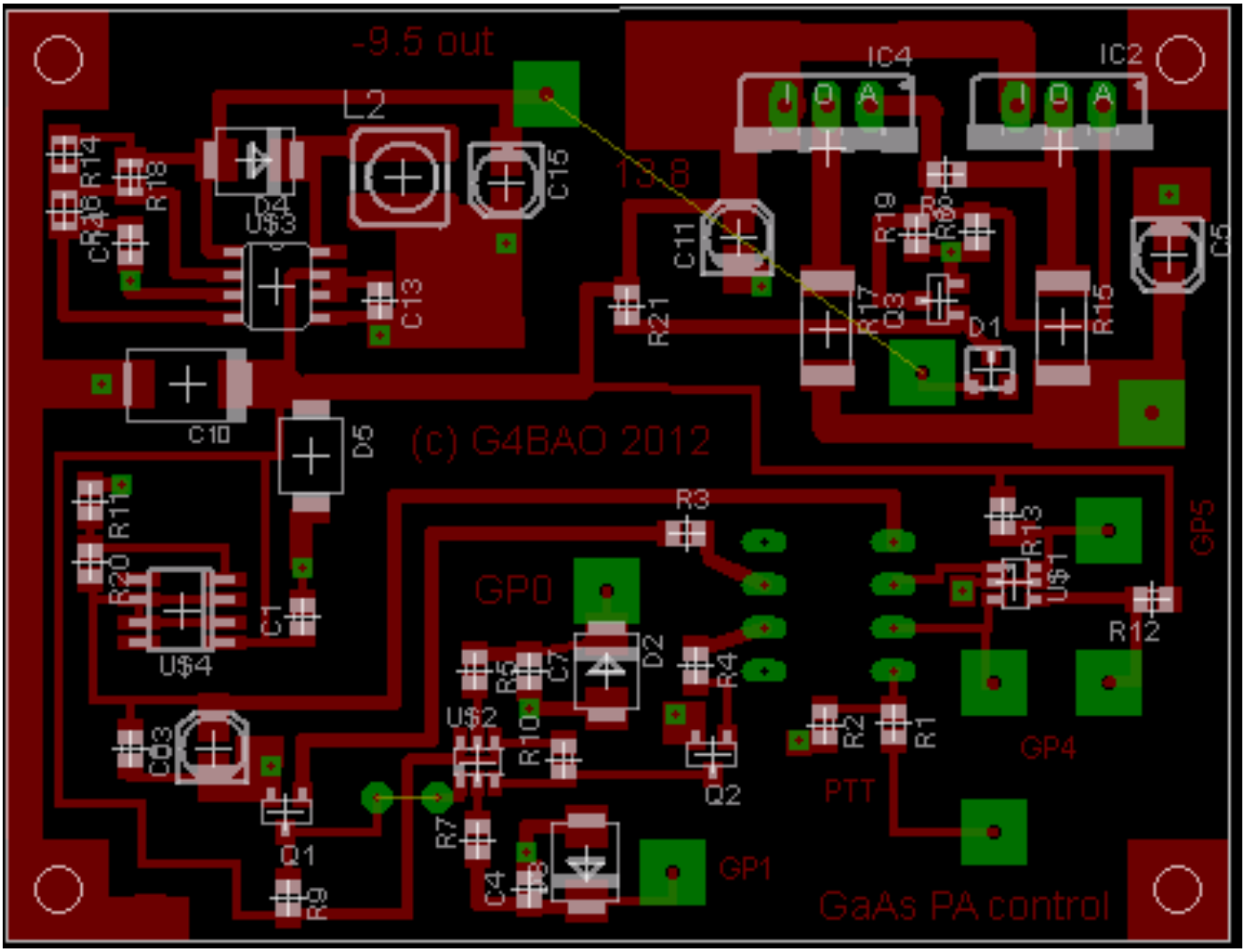


Figure 3 Component layout

The “Eagle” schematic and my PCB layouts are downloadable from my website (see reference 2), The circuit and PCB layout are © Bravo Alpha Oscar 2012 not to be resold or used for any commercial purposes whatsoever without written permission from the author .

PCB Mask

The PCB mask below should be scaled to 72 x 55mm. The board is double sided FR4, and Copper is shown as white. There are a number of vias (shown as small green squares in Figure 3) that need to be linked to the bottom side ground plane.

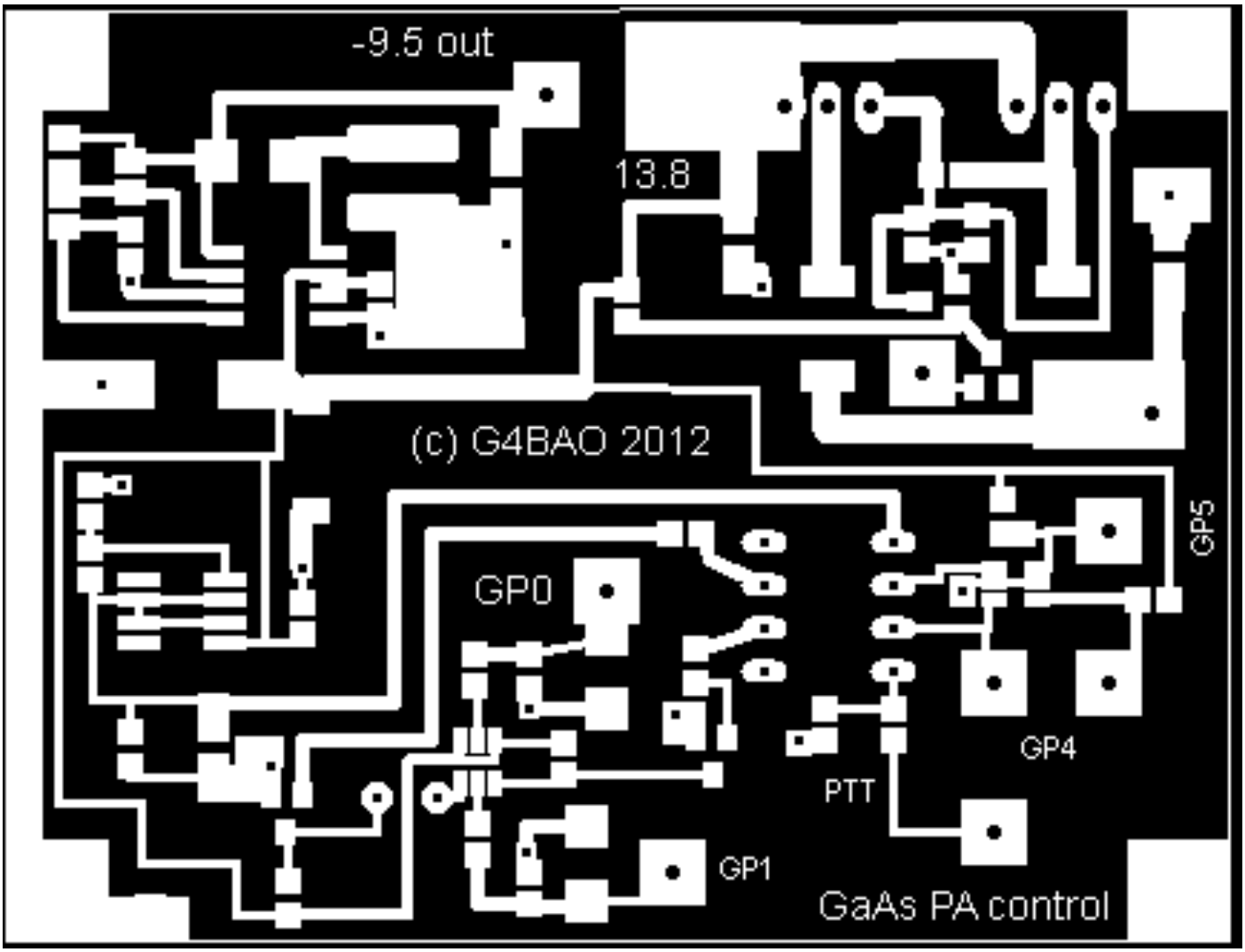


Figure 4 PCB mask

Firmware

The PIC firmware source code can be downloaded from my website. See reference 2.

Like the PCB layout is © Bravo Alpha Oscar 2012 not to be resold or used for any commercial purposes whatsoever without written permission from the author. Should you make improvements or modify it, in the spirit of sharing, please send me a copy of your updated code.

In simple terms here is what it does:–

```
;    Power up, set relay to RX (pulse GP0 high)
;    and ensure +5 to PA PTT line.(GP4 high) PA is disabled
;        wait for PTT to go low (GP3)
;        at PTT low, immediately set relays to TX (pulse GP1 low)
;        wait for relay to settle
;            put GP4 low to apply 0V to PA PTT line
;            wait for PTT to go high.
;        at PTT high, wait 25ms to allow drive to drop
;            apply +5V to PA PTT (GP4 low)
;            set antenna relay to RX again (pulse GP0 low)
;        wait for PTT to go low (GP3)
```

Parts list

Part	Value	Package
C1 C3 C4 C7 C14 C13	0.1uF	C0805
C5 C6 C11	10uF	SANYO-OSCON_SMD_A5
C10	150uF	SMC_D
C15	47uF	SANYO-OSCON_SMD_A5
D1 D2 D3 D4	BZX84CSMD	TO236
D5	TVS 16V	SMBG
IC2	LM1084-V	317TS
IC3	PIC12F629P	DIL8
IC4	LM1084-V	317TS
L2	47uH	POWER-CHOKE_WE-TPC
Q1 Q2 Q3	BC847BSMD	SOT23
R1 R2	10k	R0805
R3 R4	1k2	R0805
R5 R7	10	R0805
R6	820	R0805
R8	100	R0805
R9 R10 R12 R13 R21	12k	R0805
R11	1k5	R0805
R14 R18	750k	R0805
R15 R17	0.01R	R2512
R16	120k	R0805
R19	SOT	R0805
R20	470	R0805
U$1 U$2	FDC6401N	SOT23-6L
U$3	MAX764CSA	SO08
U$4	LM317SO8	SO-08

References

1. Worsnop J. C The PICwencer" A processor-based relay sequencer for Amateur Radio antenna changeo-ver control - Scatterpoint October 2005
2. www.g4bao.com
3. Tinplate boxes via Alan Melia G3NYK alan.melia@btinternet.com

John Worsnop G4BAO

10 GHz JT65 is the way to go for contest DX

By John Jaminet, W3HMS

The recent experiences of Rex, VK7MO and colleagues VK3HZ and VK7JG show that JT65 is usable at 10 and 24 Ghz. For me, it is funny how ideas come together. I saw Mike, N1JEZ's fine MUD 2011 presentation on the FT-817 and FUNUBE Dongle + PC and waterfall for seeing DX on millimeter band QSOs. I have certainly been mindful of my own JT65C experiences on 23 cm EME (over 280 QSOs) and my 10 Ghz Roving experience in SSB/CW. Then one day, the light really came on….I have all the gear in hand now to work JT65C on 10 Ghz and realize the 10-15 db advantage offered over CW.

Thinking of the tough QSOs made with our New England colleagues on 10 GHz, I realized that I had made several QSOs in 23 cm EME where I had not even heard the other station, I just saw his line on the waterfall and the decoded signals. The JT65C protocol already offers what we need for a QSO, i.e. both calls, signal report, and a 4 digit grid square…..but….I know sending a 6 digit grid square is easily doable in free form as I do it most every QSO. The equipment needed is the usual 10 GHz set up with an IF rig offering a data port for connection to an interface device, in my case a Signalink USB and my laptop PC. In adding this, I am not reducing my ability to do CW or SSB one bit just adding digital.

For precise timing, my hand held GPS, car GPS or cell phone will give me the exact time if a change is even needed. I use Dimension 4 on my PC and it seldom needs changing. For frequency precision, the VK tests have shown stock equipment works OK so we need not have precise dials just be able to set them to specific frequencies. I see using the 23 cm EME approach in using 10368.065 USB as a key frequency with 5 KHz slots above and below that but any agreed frequency is doable.

The use scenario I envision is to set-up the QSO attempt as we do now on 2m or cell…stations beacon to fix frequency and pointing then switch to JT65C for the QSO. The question of who call first can be resolved by agreeing on the liaison channel before hand or using a protocol I have heard of but not used: western station calls 2nd..or is it the reverse?? At any rate, that can be agreed before hand by all or just the 2 stations at QSO time. Oh, the Doppler, yes, set to 0 Hz, HI!! For power budgets, assume more is needed as JT65C is 100% duty cycle and the XMT cycle is 47 seconds followed by one minute and 13 seconds in receive until you XMT again.

For stations in a mutual service area that desire to try this approach, please contact me by EMAIL and we can arrange the test for a few days later as is mutually convenient.

73, John, W3HMS

March 2012 Lowband Contest Results

By John Quarmby G3XDY

After last year's record entry, activity conditions and entries fell back for this event.

Stations were there to work across the country on 1.3GHz but the higher bands proved more challenging under flat conditions.

On 1.3GHz Ray GM4CXM again led the field from his Glasgow location, with the best DX in the contest in his log, a contact with PA0EZ. Ray also had the largest number of contacts.

On 2.3GHZ Neil G4BRK makes the top spot, with a substantial lead. His log included two continental contacts.

Entries on 3.4GHz were at the same level as last year, with Neil G4BRK also winning this band but by a smaller margin.

The overall winner was Neil Whiting G4BRK, who was runner-up on 1.3GHz and winner on the higher two bands. Overall runner-up is Ray James GM4CXM, who won 1.3GHz and was runner-up on 2.3GHz. The leading portable station was G3ZME/P operated by Mike Jones G4NKC, who was runner-up on 3.4GHz..

Certificates go to the overall Winner G4BRK and Runner-up GM4CXM and to the following band leaders and runners up and leading portable station:

1.3GHz	**GM4CXM, G4BRK, G3ZME/P**
2.3GHz	**G4BRK, GM4CXM**
3.4GHz	**G4BRK, G3ZME/P**

Keith Winnard GW3TKH was the only station that entered the Radio Talkback only section and will also receive a certificate.

John G3XDY, UKuG Contest Manager

Microwave Field Day

Sunday 5th August

Please give publicity for a recently introduced contest aimed at clubs and portable groups which provides a good opportunity to introduce club members to the microwave end of the spectrum. Microwave Field Day was introduced by the UK Microwave Group last year; for 2012 we are looking to get a wider range of clubs involved.

Microwave Field Day takes place this year on Sunday 5th August 2012, from 0900 – 1700z (1000 – 1800 BST), on the 1.3GHz and 10GHz bands (23 and 3cm). There are open and restricted sections, the restricted section has power limits of 10W for 1.3GHz and 1W on 10GHz. Single band entries will be very welcome. Only portable stations can enter the event, but fixed stations are encouraged to come on and give points away and submit check logs.

The RSGB runs its 144 and 432MHz Low Power Contests on the same weekend, so a group can enter several events over one weekend for a small incremental effort.

The UK Microwave Group is keen to see more stations getting active on the microwaves and we think this event is a great way to get club members interested. Active microwavers are being encouraged to loan their stations to local clubs to get them started.

Complete rules can be found at:

http://www.microwavers.org/files/2012-mwrules.pdf

John Quarmby G3XDY

March 2012 Low Band Contest Results

Overall

Pos	Callsign	1.3GHz	2.3GHz	3.4GHz	Total
1	G4BRK	625	1000	1000	2625
2	GM4CXM	1000	524		1524
3	G3ZME/P	155		844	999
4	GW8ASD	532			532
5	G3ZME		443		443
6	G8DTF		72	235	307
7	GW3TKH	7		294	301
8	GM8IEM	40			40

1.3GHz

Pos	Callsign	Locator	QSOs	Best DX	Points	
1	GM4CXM	IO75TW	20	PA0EZ 748km	6547	1000
2	G4BRK	IO91HP	14	DF0MU 597km	4095	625
3	GW8ASD	IO83LB	16	PA6NL 500km	3485	532
4	G3ZME/P	IO82SM	7	GM4CXM 400km	1014	155
5	GM8IEM	IO78HF	1	GM4CXM 262km	262	40
6	GW3TKH	IO81JM	1	G3FYX 47km	47	7

2.3GHz

Pos	Callsign	Locator	QSOs	Best DX	Points	
1	G4BRK	IO91HP	8	GM4CXM 517km	1977	1000
2	GM4CXM	IO75TW	3	G4BRK 517km	1035	524
3	G3ZME	IO82RR	6	GM4CXM 377km	876	443
4	G8DTF	IO83SM	2	G3ZME 89km	142	72

3.4GHz

Pos	Callsign	Locator	QSOs	Best DX	Points	
1	G4BRK	IO91HP	3	G4ALY 237km	463	1000
2	G3ZME/P	IO82SM	4	G3LRP 141km	391	844
3	GW3TKH	IO81JM	1	G4ALY 136km	136	294
4	G8DTF	IO83SM	2	G3ZME/P 112km	109	235

SHF Guernsey June 22-27

The Telford and District Amateur Society will again be visiting the Island of Guernsey and will be operating on.

HF 160 Meters to 10 Meters.

VHF 50MHz 70MHz 144MHz UHF 1.3GHz

SHF 2.3GHz 3.4GHz 5.7GHz 10GHz 24GHz.

We had great fun last year. More details on qrz.com under gp3zme.

You may follow the DX Expedition on twitter. 2W0ZJA will be tweeting updates, frequencies, etc. **twitter.com/#!/@2W0ZJA**

VHF talk back and ON4KST chat will also be used.

Locator Square of the camping site is IN89qk but members of the group may well move around the island looking for the best paths to UK EU etc.

Paul M0PNN

Activity News

By John Worsnop G4BAO

Please send your activity news to:

scatterpoint@microwavers.org

Notable Tropo openings

Late March produced some of the best tropo openings for some time. Mike G0MJW the UKuG's resident propagation expert comments that March the 14th produced some quite unusual conditions. He wrote:

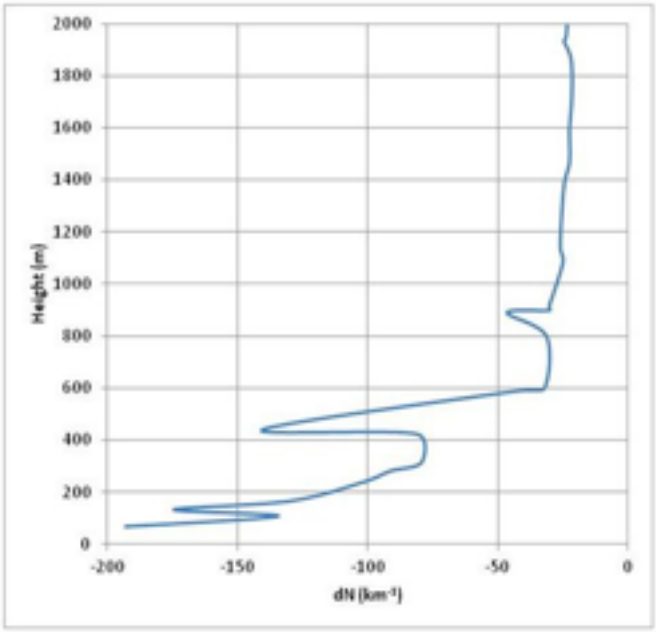
"Assuming I have the calculations correct there was a strong duct at 100m and possibly another at 500m" To explain, when the refractivity gradient exceeds -157 N units per km there is ducting. The links below show the state of the troposphere at midnight on the 14th:

Refractivity gradient [1]

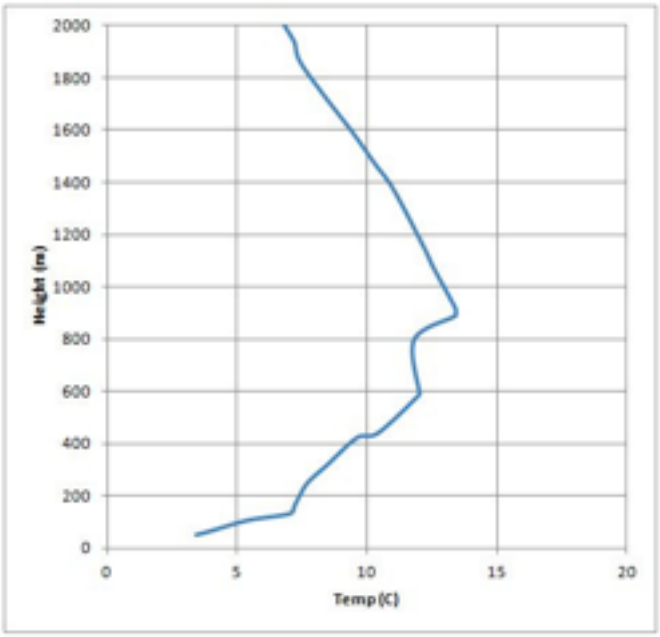
Temperature inversion [2]

and atmospheric water content [3]

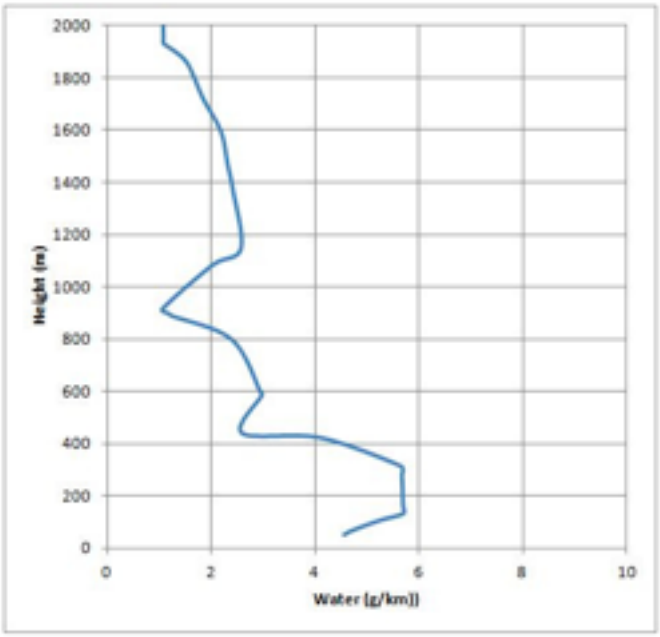
All fascinating stuff that led to some welcomed DX.



Refractivity Gradient Midnight 14 March 2012



Temperature inversion - Midnight 14th March 2012



Water content Midnight - 14th March 2012

Then, on the 24th and 25th the bands opened again, favouring the South East. Here on the Fen Edge, I worked a stack of continental stations, on both 3.4 and 10GHz and the DB0GHZ beacon (Heligoland Island) on 10368.814MHz was in for nearly 48hrs. You can see how strong it was here. [4] I found the 24th and 25th opening the better of the two, the highlights for me were on the 24th, when I worked ***SM7ECM (JO65nq)*** at 924km on 3.4GHz, for a new country on that band, and on the 25th, ***OZ2LD (JO54tu)*** at 805km on 10 GHz CW. On the 25th ***DC6UW (JO44vj)*** at 678km was 59+ on 10GHz, I listened for him on 24GHz but nothing was heard.

Tony G4CBW (IO83ub) reports that this was the best opening for him since his return to microwaves resulting in many successful two-way QSOs throughout the period. Most notable DX was:

On the 13th 1.3GHz, Tony worked ***DK7QX (JO42kh)*** at 756 km, but no success with Eckhard on 10GHz, but he did manage ***F9OE (IN78qg)*** at 557km on SSB, signals so good they could chat a little.

On the 14th, on 1.3GHz, he worked ***OK1DFC (JN79jw)*** at 1212 km, and on 10GHz, ***F6DKW (JN18cs)*** at 571 km at 59 both ways. Maurice later peaked at 59 + 30dB. Then Tony got 3-banders on 1.3, 2.3 & 10GHz with ***F1PYR/P*** 537 km and ***F5DQK (JN18gr)*** 589 km. Then 3-banders, 1.3, 2.3 & 3.4GHz with ***DB6NT (JO50vj)*** at 1003km ***DF9IC (JN48iw)*** at 894 km and ***DL7QY (JN59bd)*** at 968 km, and, to complete the "full house" with Germany, worked Claus on 10GHz as well!!

He repeated many of the 1.3GHz QSOs on the 15th working DL7QY and OK1DFC, again, and ***ON4IY (JO20ht)*** at 536 km.

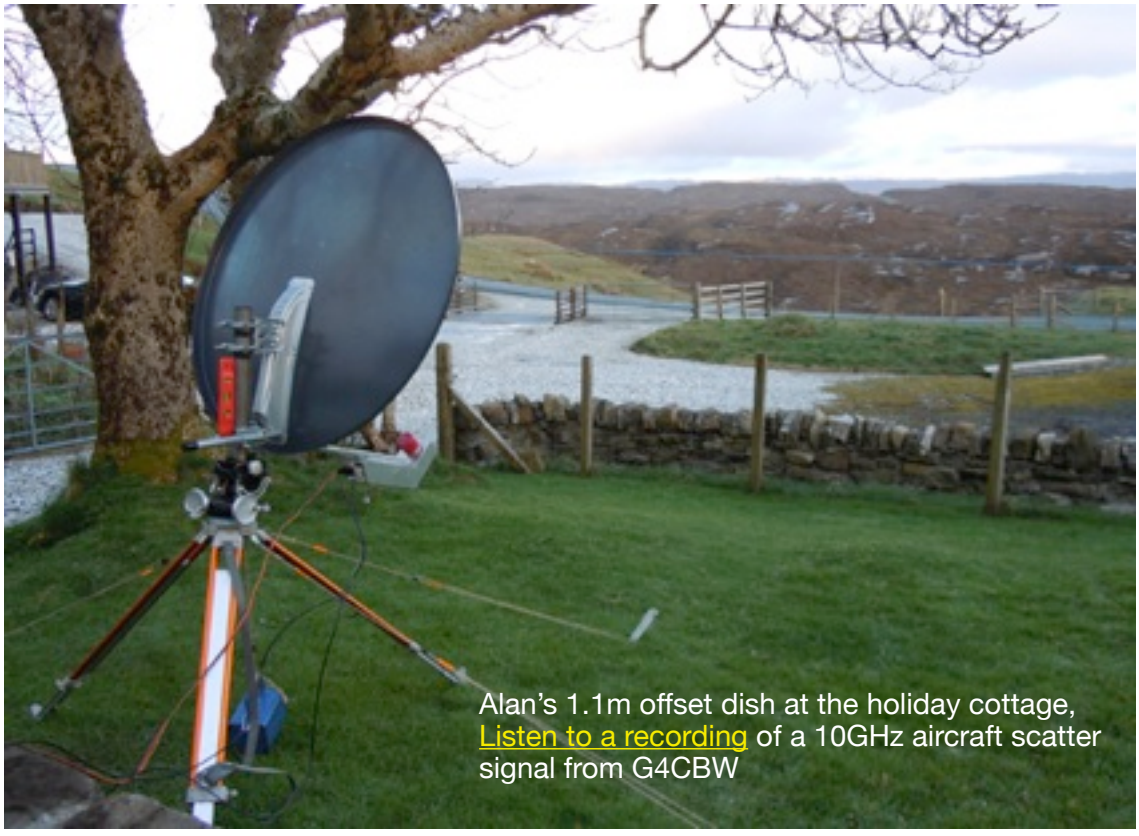
Finally, to round off the month, during the 27th, Tony managed a new DXCC on 10GHz, working ***OZ1FF (JO45bo)*** at 732 km.

Russ G4PBP (IO82wo) reports some nice QSOs on the microwave bands, highlights were on the 14th of March, when he worked ***DB6NT*** at 986km on 3, 6 and 1.3GHz, and on the 25th, ***DC6UW*** at 814km on 10GHz. Russ reports most but not all signals were strong and ducted and it was all a very pleasant surprise after months of 'white noise', but, he asks, "where have all the G-stations gone?"

From our Correspondents

Tony G4NBS(JO02af) reports that he is now operational on 2.3GHz with 80Watts in the shack and a 44ele. He plans to be regularly active in the UKAC events on this band and 1.3GHz.

Alan GM0USI has been on holiday to the ***Isle of Skye, (IO67wd)***, taking 1.3 & 10GHz equipment.



Alan's 1.1m offset dish at the holiday cottage, Listen to a recording of a 10GHz aircraft scatter signal from G4CBW

Skeds were arranged with ***G4CBW*** throughout the week on 10GHz which, unfortunately, only resulted in one-way exchanges over the 516km path. Alan would regularly copy weak tropo from G4CBW, interspaced with AS at signal strengths up to 579 but unfortunately nil the other way. After a week of one-way exchanges, ***Mark GM4ISM (IO85ar)*** managed to reinstate his 10GHz gear after recent storm damage to test with Alan, which also resulted in another one-way exchange. The 10GHz path between Alan at Skye and Mark normally produces a two-way QSO at 57/53. Alan will be checking his 10GHz TX on return from holiday. The picture shows Alan's 1.1m offset dish at the holiday cottage, and you can listen to a recording of a 10GHz aircraft scatter signal from G4CBW, here [5].

On 25th April ***GM0USI/P from IO76xa*** tested on 3.4GHz with G4CBW. Alan was using his new DB6NT G3 transverter (no PA) to a 1.2 metre dish which resulted in a two-way qso at 419/579. It later transpired that Alan was running just 32mW, around 20mW at the dish. In a following debrief email Alan commented "I like to test you", he sure did. Apparently, the TX level pot on the transverter had been set to minimum. Amazing what can be worked with QRP; 348km on 20mW.

Kjeld OZ1FF (JO45bo) has sent me an impressive list of the stations worked during the big Tropo lifts, and on microwave EME but space means I can't list them all! His ODX on 10GHz terrestrial being G4CBW at 731km. Kjeld worked another 10GHz EME "first" on April 1st working ***UR7D (KN18jt)*** exchanging OOO reports on CW for a first UR – OZ on EME. Also two more "initials on 24GHz, but he still has not managed to complete a QSO with W5LUA but I'm sure it's only a matter of time and more power!

UKAC reports

1.3GHz UKAC

GM4CXM (IO75tw), running 150w and 4x44 + LNA managed to crack the 40 QSO barrier for the first time, finishing with 42 and a good number of G's finished with over 50. Commenting upon the increase in activity, he writes…

"I expect Ian at G8OHM to surpass 60, maybe even 70, and these are incredible figures considering it wasn't that many years ago when single figure totals were the norm and reflect the ever increasing migration of stations looking for a new challenge in the hobby. Though high ERP certainly makes life a wee bit easier, many stations run 10w or less and getting consistently good results and in particular if using CW."

Examples this month for me include Keith ***G4ODA IO92*** (10W), Tim ***M0AFJ IO92*** (9W), Mike ***G0CDA IO83*** (10W SSB) and Richard ***G4HGI IO83*** (3W).

ODX this month was ***OZ1FF*** with a very quick exchange made by aircraft reflection. David ***M0GHZ (IO81vk)*** presented the most impressive contact by this method with a booming s9 contact done and dusted at typical "HF" speed in a matter of seconds!

Ray's 13.GHz QSO Map [4] can be viewed here [6]

SHF UKAC

Kjeld, OZ1FF reports that shortly after the start of Nordic Activity Contest, conditions were building up across the North Sea and made a lot of nice contacts possible. On 2.3GHz, 22 QSO's: including G3XDY, G8OHM, GM3UAG, GM4LBV, G8PNN, GM4CXM, GM4TJT, G4CBW, G4NBS and G4BRK. Huge signals from the North West UK coastal stations even on the side of my dish. On 10GHz, 14 QSO's: including G3XDY and G4CBW (732 km), and on 24GHz 2 QSO's, ODX 172 km

Ray GM4CXM reports that in SHF UKAC, there is more interest across all bands and a lot of south east activity; a very welcome sign and hopefully not just a result of the improved conditions that many experienced.

"The tropo enjoyed by many across into the continent did not reach my location with the exception of a very weak signal from OZ1FF who was obviously a massive signal on the east coast of GM/G. The conditions also felt like they presented a barrier with nothing heard of Jon ***GM4JTJ (IO86)*** or Jim ***GM3UAG (IO87)***. John ***GM4LBV*** was worked but I think both of us would agree it was a real struggle and the worst reports we've ever exchanged! Alan ***GM0USI*** was a good signal using a PCB antenna on his kitchen table! It was great to work Gordon ***G8PNN (IO95)*** for the first time. The distance isn't far but there is a lot of high terrain in the Scottish borders and Cheviots between us. This is were I am finding the re-location of the 2.3GHz antenna last month really paying off with much less loss now than in the past. It was a similar story working Mike ***G0MJW*** who reported my signal as weak but ever present in IO91 during our contact and not the product of aircraft reflection.. The closest "gotaway" was

Mike ***G8CUL (IO91)*** whose 20w/44el was certainly audible but just not strong enough to read unfortunately and not a reflection on his CW which is great". Ray's 2.3GHz QSO map can be viewed here [7]

Neil G4BRK agrees that activity was certainly better than the first two sessions, though not a lot of portable activity this time of year (not surprising given the chilly nights).

"A very slow start for me on 2.3GHz with no QSOs in the first half hour. After that it got quite busy at times. Not much sign of the tropo here either –- stations were normal strength with me apart from ***OZ1FF****, who was very weak but consistently audible right at the end of his contest, probably tropo with slight AS enhancements. First time I've worked Kjeld from this QTH on 2.3. No other GM's heard, East Anglia maybe slightly above normal. Didn't see any of the South-East activity either - nobody worked from here in an arc of 180 deg to the South, apart from* ***M0GHZ*** *and my very locals. Used to be the the South East was the empty quarter - now it looks like an empty half! Not sure why activity in this area has dwindled so much – I know Ralph* ***G4ALY*** *has antenna problems but a bit more activity from others would be much appreciated. On the other hand it's good to see activity to the North increasing.*

The millimetre wave bands

Chris G0FDZ reports continued 76GHz activity.

Chris, along with Roger ***G8CUB*** and John ***G4EAT*** have been pushing the boundaries on 76GHz.

Following on from Roger G8CUB's report last month of 76GHz activity, a further test was arranged for the 10th of March, with Roger being located in the Wrotham area (JO01DH) and myself at the Shorne site (JO01FJ).

The weather was hazy and although I could hear John G4EAT's beacon at around 5and 4-5, no

Chris G0FDZ's transverter on the left, and Roger G8CUB operating his beacon/transverter on the right.

signals could be exchanged using the transverters over the 36 km path. Roger could not hear John's 10mW beacon at all. A test with John reducing the beacon's power, showed that we only had around 13db in hand over the 36km path which was not enough, as the transverters had around 250uW (-6dBm) of power. Since the tests at Hanningfield, I had managed to optimise the transmit power, but the result would be that we would need to wait for a day when the additional atmospheric losses were much lower.

On the 4th of April when much of the north of the country was covered in snow, the south east remained fair and dry, although cold. Roger and I were located at a site south of Stansted in Kent (J001DH) for a test over the 48.1 km path to John (JO01HR).

Immediately John's beacon was heard at a good strength and I then worked John on CW giving a 559 report and receiving 529, followed by Roger who also worked him on CW with a 569 report received and 589 sent. Visibility was much better and John estimated that this time there was only an additional 0.3dB/km atmospheric loss.

Roger and Chris soon hope to run some tests on 134GHz across the Thames over a path of about 5kms,I look forward to an update on this groundbreaking mm wave activity next month. (Ed.)

EME

Things are really buzzing in the Netherlands on microwave eme, with two stations in particular setting the pace. I also met with ***Hans, PH0V*** last weekend and he reports good progress on the build of his 1.3GHz EME system.

Jac, PA3DZL reports three more initials on 5.7GHz. See his dish on the facing page.

G3LTF for #5 on sked; signals from Peter were not very strong but good copy

and ***K5GW*** for #6 on random. Gerald was strong enough to move his S-meter, the strongest signals heard on 5.7GHz up to now. On March 28th he worked ***OK1KIR*** on 10GHz.

Jac is very pleased with the results, having just started 5.7GHz activity on the 25th of March. He needs to work on his tracking and power, nice projects for this summer.

John PA7JB reports that "Mr Murphy has finally left his shack" and John then went on 10GHz to work the following in the March 31st contest weekend: ***DL7YC, F2TU, OK1KIR*** and an initial, ***LX1DB***, all on random. He also heard and called ***OH2DG, R3YA, SP6JSG, DL0EF*** and ***HB9SV*** but his station is still too small to be heard by them.

The DL1YMK crew are doing their "mystery activation" again this year.

Michael writes on moon-net:

"The M&M-team are preparing the next EME-DXpedition, taking place in May 2012. We will set out for our destination after returning from the Swedish EME Meeting on the weekend 12/13th of May in Örebro. We hope to reach our destination in time and to get QRV on Thursday, 17th of May (bank holiday in Europe) on 1.3GHz, followed by 432MHz on the 18th of May.

On Saturday, 19th May we will be on 2.3GHz and on Sunday again on 1.3GHz. 2.3GHz will be run with a significant increase in power and full 2424 MHz coverage. For the first time during an EME-DXpedition, we intend to get also operational on 5.7GHz with our old, but proven stressed dish and a new superb feed made by our friend Tommy, WD5AGO. 5.7GHz will have an experimental character despite some 100 W out, as we couldn't test if the under-illuminated dish will work up that high in frequency, so keep your fingers crossed!! Our plan is to give it a try on Monday, 21st May. Also, we intend to get active on 10GHz with a separate solid dish, which of course is a lot smaller. Last weekend we made the first test with LX1DB, having installed the dish in our garden. The tests were not yet satisfying, so Willi is trying to help us out.

During the DUBUS contest 26./27th of May, we will of course be active on 1.3GHz. Our last day of operation will be Thursday, 31st of May. A detailed schedule for the days from 21st May onwards will depend upon the progress with 10GHz. Further details to be published soon!! This year's DXpedition will be the 9th EME-DXpedition in a sequence for us. The DXpedition will again be a CW random event, although JT mode is technically possible on request. We have no idea yet to what extent (if at all) internet access will be available.

Beacon news

Martyn G3UKV reports on progress with the Telford GB3ZME 24GHz beacon. Last autumn the crystal in the 24GHz beacon GB3ZME which had drifted LF very slowly long-term finally stopped oscillating. A new crystal and new TCXO have now been installed and after a couple of weeks have settled down to 24048.915 MHz, 5kHz HF of its nominal frequency. The location is Little Wenlock in Shropshire, IO82RP78.

Reports via beaconspot.eu (or direct) will be very welcome.

Martyn has been monitoring the beacon for several days, especially during the fine weather at the end of March. The path is only about 9km, but severely obstructed with a local hill, rising hundreds of feet above his Shropshire Plain QTH (IO82rr57). Most of the time, GB3ZME is inaudible here, but each day during the recent warm spell it has come out of the noise from about midday onwards, to a solid S5-7 signal for hours on end, and wonders if anyone else is monitoring a 24 GHz beacon on a regular basis, and has noted a similar propagation mode. He would be interested to hear about the physics autumn the crystal in the 24GHz beacon GB3ZME which had drifted LF very slowly. He would be interested to hear about the physics of such ducting if anyone can explain it in plain English.

David G6GXK reports GB3XGH Back on.

The 10GHz and 24GHz beacons have been taken down, totally checked, three faults repaired and they were replaced last sunday by G4TWJ and G6GXK.

There was however still a problem, which was found to be due to a power supply fault - too much ripple - which upset the locking of the ZAZ freq std. As an interim solution we reverted to the standby GPS - not quite as good a tone. There is a new power supply ready to be installed tomorrow and we should be back to normal again.

Keith GW3TKH Reports the beacons heard in IO81JM.

144 and 432MHz beacons started to appear on 13th March, a prelude for the higher frequencies!

Between 0100-0900 on the 14th the following were heard:

1.3GHz	F1ZBC	+37 dB/N	JN06JG	654km
	F1ZTF	+30 dB/N	IN95VO	694km
	F5ZBM	+22 dB/N	JN18JS	527km
	HB9EME	+22 dB/N	JN37KB	884km
2.3GHz	F5ZMF	+28 dB/N	JN06JG	654km
	F1ZQU	+15 dB/N	IN95VO	694km
	F5ZEN	+18 dB/N	IN94QT	771km
	F1ZUM	+16 dB/N	JN07WV	545km
5.7GHz	F1ZAO	+17 dB/N	JN88HL	339km

F5ZEN and F1ZAO I had not heard before. On 12th at 1630 the GB3SC* beacons were very strong here at home, so I took my 24GHz portable kit onto my local hill. GB3SCK was +65dB/N at 99km just 3dB weaker than GB3AMU at 4km away!

In all March has been a bumper month for microwave activity with some very welcome Tropo openings to work instead of listening to local beacons! Let's hope this bodes well for the rest of 2012

I look forward to working some of you on 10GHz from Mull during the 1st week of May. Details of the Camb-Hams Mull DXpedition are on page 11 in this month's Scatterpoint!

73 John G4BAO

References

1. Refractivity gradient http://www.flickr.com/photos/ad6xy/6838152030/in/photostream
2. Temperature inversion http://www.flickr.com/photos/ad6xy/6984292693/in/photostream/
3. Atmospheric water content http://www.flickr.com/photos/ad6xy/6984303203/in/photostream/
4. The DB0GHZ beacon (Heligoland Island) on 10368.814MHz http://www.youtube.com/watch?v=FBsHRLI7k-Y&context=C487246cADvjVQa1PpcFMoPdeHSI8idua2WccDfuXLBm2w6L8GTv0=
5. Listen to a recording of a 10GHz aircraft scatter signal from G4CBW http://bit.ly/Hp2j4b
6. Ray's 1.3GHz QSO Map http://maps.google.com/maps?q=http://www.rsgbcc.org/vhf/kml_files/2012/uTvqSSCqi7feUDXovLY7eHFhCh4rMaQ
7. Ray's 2.3GHz QSO map http://maps.google.com/maps?q=http://www.rsgbcc.org/vhf/kml_files/2012/rp2xQmXLW\bgW3usiXsURWRnsQkblSBp

ATV Activity

ATV or more specifically, DATV is active here on the South coast. We have many stations active on Digital ATV on 23cm in the Solent and the Poole Bournemouth area, using the DigiLight RF service code adding and QPSK modulator units.

A recent addition is the 10GHz FM ATV link from GB3IV into the Bournemouth area , this enables a Solent station to input to the repeater on 23cm or 70cm FM or Digital and then back out on 10GHz along the coast to the West. The 10GHz TX and other facilities can be enabled by DTMF codes.

It is planned to make the 10GHz output be Digital 4 MS/s or analogue this year.

During the cross channel opening on 25/26th of March I exchanged Digital ATV with two French stations on the Cherbourg peninsular with David F4BNF IN99bt and later with Rolf F9ZG IO99kc on 437MHz for two consecutive evenings. The French stations were running 1024MS/s and my own TX was 2MS/s,. We needed a minimum of 9 to 10db C/Noise for the QPSK transmissions, F4BNF peaked 15db C/N but Rolf F6ZG peaked 20+ with no QSB on the second evening from a higher

UKuG Microwave Contest Calendar 2012

Dates, 2012	Time UTC	Contest name	Note	Certificates
22-Apr	1000 - 1600	Low band 1.3/2.3/3.4GHz	2	F, P,U,R,L
27-May	1000 - 1600	1st 5.7GHz Cumulative		F, P,U,R,L
27-May	1000 - 1600	1st 10GHz Cumulative		F, P,U,R,L
27-May	1000 - 1600	1st 24GHz Cumulative		F, P,U,R
3-Jun	1000 - 1600	Low band 1.3/2.3/3.4GHz	3	F, P,U,R,L
24-Jun	1000 - 1600	2nd 5.7GHz Cumulative		F, P,U,R,L
24-Jun	1000 - 1600	2nd 10GHz Cumulative		F, P,U,R,L
24-Jun	1000 - 1600	2nd 24GHz Cumulative		F, P,U,R
22 -Jul	0900 - 1700	24GHz Trophy / 47 / 76/100-1000 GHz		
22 -Jul	1800 - 2400	>1THz (Lightwave)		
29 -Jul	1000 - 1600	3rd 5.7GHz Cumulative		F, P,U,R,L
29 -Jul	1000 - 1600	3rd 10GHz Cumulative		F, P,U,R,L
29 -Jul	1000 - 1600	3rd 24GHz Cumulative		F, P,U,R
5 -Aug	0900 - 1700	Microwave Field Day		P,L
26 -Aug	1000 - 1600	4th 5.7GHz Cumulative		F, P,U,R,L
26 -Aug	1000 - 1600	4th 10GHz Cumulative		F, P,U,R,L
26 -Aug	1000 - 1600	4th 24GHz Cumulative		F, P,U,R
30 -Sep	1000 - 1600	5th 5.7GHz Cumulative		F, P,U,R,L
30 -Sep	1000 - 1600	5th 10GHz Cumulative		F, P,U,R,L
30 -Sep	1000 - 1600	5th 24GHz Cumulative		F, P,U,R
25 -Nov	1000 - 1400	Low band 1.3/2.3/3.4GHz	4	F, P,U,R,L
Key:	F	Fixed / home station		
	P	Portable		
	L	Low-power (<10W on 1.3-3.4GHz, <1W on 5.7/10GHz)		
	R	Radio talkback		
	U	Unlimited talkback		

73 John G3XDY, UKUG Contest Adjudicator

UKµG Contest Portal: http://microwave.rsgbcc.org/cgi-bin/vhfenter.pl

location IN98jw 213Km , as is to be expected the image and sound quality were excellent with only minimal pixellation using FEC of ¾.

Colin G4KLB Bournemouth also achieved a one way to both F stations.

Rolf and David told me they frequently see the GB3IV output on 1316MHz despite the fact that the repeater antennas point north.

The GB3IV repeater input will automatically sense the incoming FM or DATV on 23cm 1249MHz FEC is auto, but you need to send a 4MS/s

QPSK for the DATV receiver. PID's are also automatic.

Our 437MHz is DATV only and needs 2MS/s FEC and PIDs are automatic, but the horizontal 8 element yagi points to London, hopefully this will be steerable at some point this year. Several stations have accessed the 437 input in the south and up to London.

The BATC streamer was put to good use during the contact, with my Digital receiver connected to my members stream allowing David to see his incoming picture. See www.batc.tv for streamer information.

Regards Peter Blakeborough G3PYB

Events calendar 2012

April 21	RSGB AGM	
April 28-29	Martlesham Microwave Round Table and UKμG AGM	mmrt.homedns.org/
May 18-20	Hamvention, Dayton	www.hamvention.org/
Jun-10	RAL Roundtable	www.ntay.com/hars/RAL2012.html
Jun 22-24	Ham Radio, Friedrichshafen	www.hamradio-friedrichshafen.de/
Jul 14–15	Finningley Roundtable	
Jul 27 – Aug 12	Olympics Games, London, UK	
Aug 16-19	15th International EME Conference, Cambridge, UK	eme2012.com
Aug 29 – Sep 9	Paralympics, London, UK	
Sep 14–16	Amsat-UK Colloquium, Holiday Inn, Guildford, Surrey	www.uk.amsat.org/Colloquium/
Sep 14–16	57.UKW Tagung, Weinheim	www.ukw-tagung.de/
Sept 23 ?	Crawley Roundtable	
Sept 28–29	National Hamfest, Newark	www.nationalhamfest.org.uk/
Oct 6–7	British Amateur TV club convention and BiAGM, Basingstoke	www.batc.org.uk/club_stuff/convention/
Oct 12–14	RSGB Convention, Horwood House, Milton Keynes	www.rsgb.org/rsgbconvention/
Oct 18–21	MUD 2012, Santa Clara CA	www.microwaveupdate.org/ mud2012@pacbell.net
Oct 28 - Nov 2	European Microwave Week, Amsterdam RAI NB European Microwave Conference 2012 is 29th Oct - 1st Nov	www.eumweek.com/
Nov 3	Scottish Roundtable	www.rayjames.biz/microwavert

Contests & Activity Dates 2012

See page 27 for UkµG Contest calendar

April 17	2000–2230 1.3GHz Activity Contest RSGB VHFCC
May 5	10GHz Trophy contest
May 5–6	432MHz–248GHz contest
May 15	2000–2230 1.3GHz Activity Contest RSGB VHFCC
June 19	2000–2230 1.3GHz Activity Contest RSGB VHFCC

EME Activity weekends

2012 REF/DUBUS EME Contest:

April 28/ 29	00–24 UTC 2.3 GHz : CW/SSB
May 26 / 27	00–24 UTC 1.2 GHz : CW/SSB
June 23 / 24	00–24 UTC 5.7 GHz : CW/SSB

Don't forget that

Every Monday evening is
Microwave Activity Evening

The RSGB 2012 VHF+ Contest Calendar is available at www.rsgbcc.org