An Amateur Radio publication for the Microwave Enthusiast

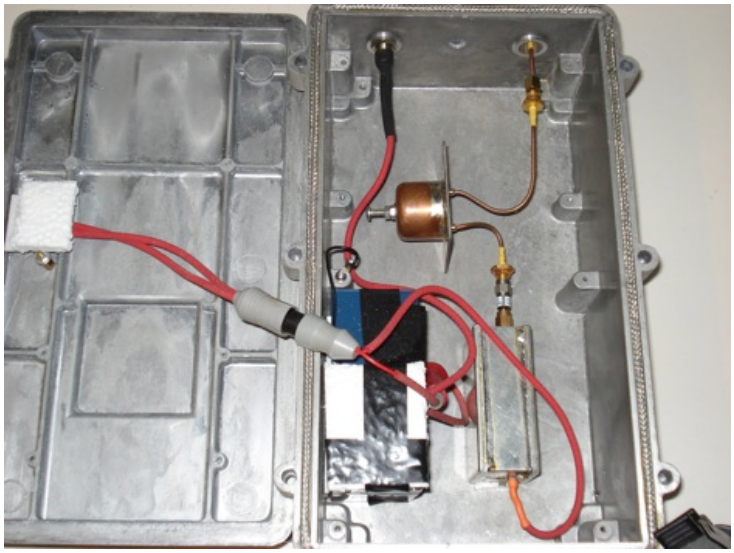
scatterpoint

October 2012

Published by the UK Microwave Group

A weak signal source for 3.4GHz

By Mike Scott G3LYP



The revised list of licence exempt frequency bands (including amateur radio bands) issued by the Swedish P&T came into effect October 1, 2012.

From today, Sweden's 13 cm allocation is officially only 2400–2450 MHz, with a general power limit of 100 mW.

Individuals having high-power permits for 2304 and/or 2320 can, however, continue to operate in those band segments until the permits elapse, which will happen on December 31.

73 Gudmund SM2BYA /SM3BYA

In this Issue

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

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

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

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RSGB Convention 2012

By John Worsnop G4BAO

Photo: G3TXF.com

The 2012 RSGB Convention took place over the weekend of the 13th and 14th of October.

Despite somewhat of a bias towards HF and DX the convention held significant attraction to microwavers and a large group were in attendance at the lectures and chat.

The UKuG "road show" display was in attendance, and thanks to all those who manned the stand over the two days. The stand [1] was a great place to show what we do, sell microwave related parts or just as somewhere for microwavers and non-microwavers alike to come and meet friends and chat.

It was a great shame that at the dinner, in his summary of the last year, the RSGB President did not mention the EME2012 Conference, just adding to the feeling that the event is still the "HF Convention" and not the more generic "RSGB Convention". In fact, not only did he not mention the conference, but no mention was made of anything above 30MHz, and all the presentations at the dinner reflected HF activity rather than VHF and upwards.

That said, the conference programme was very good, with over 20% of the talks being given by active members of the UK Microwave Group. A number of these talks focussed on the technical nature of the activities on the higher bands and reflected well the 'self-training' in technical issues to which the amateur licence refers. The Bolton Wireless Club presentation was a classic example.

Two microwavers received national RSGB awards. UK Microwave Group treasurer, Graham G4FSG was presented with the Fraser Shepherd Award for his 30 years as Microwave beacon co-ordinator, and Jeff G4HIZ with the G3VVB constructional trophy. (See article on the Crawley convention


G4FSG (right) receiving the Fraser Shepherd award from the RSGB President

[1] Should any other UKuG member want to use the stand, which consists of a large screen TV and stand, plus three roll up banners and a display board, it is currently stored in Cambridge and available for collection. Please contact John G4BAO.

elsewhere in this issue for details of Jeff's project)

I suspect that the venue has now become too small for the event. The service at the meals left a lot to be desired and several people missed particular talks because the presentation room was full. The fact that the venue is now not able to handle the number of delegates is though, a positive. I would be far more worried if we were NOT filling the available space!

The group will of course be back next year, so if you wish to contribute to the road show with things such as pictures or presentations for the display start working on them now!

John Worsnop G4BAO

The Fraser Shepherd Award is for research into microwave applications to radio communication.

In honour of Fraser Shepherd GM3EGW:-

Fraser and Dunfermline ARC History

1965: First Scottish 432MHz EME Video

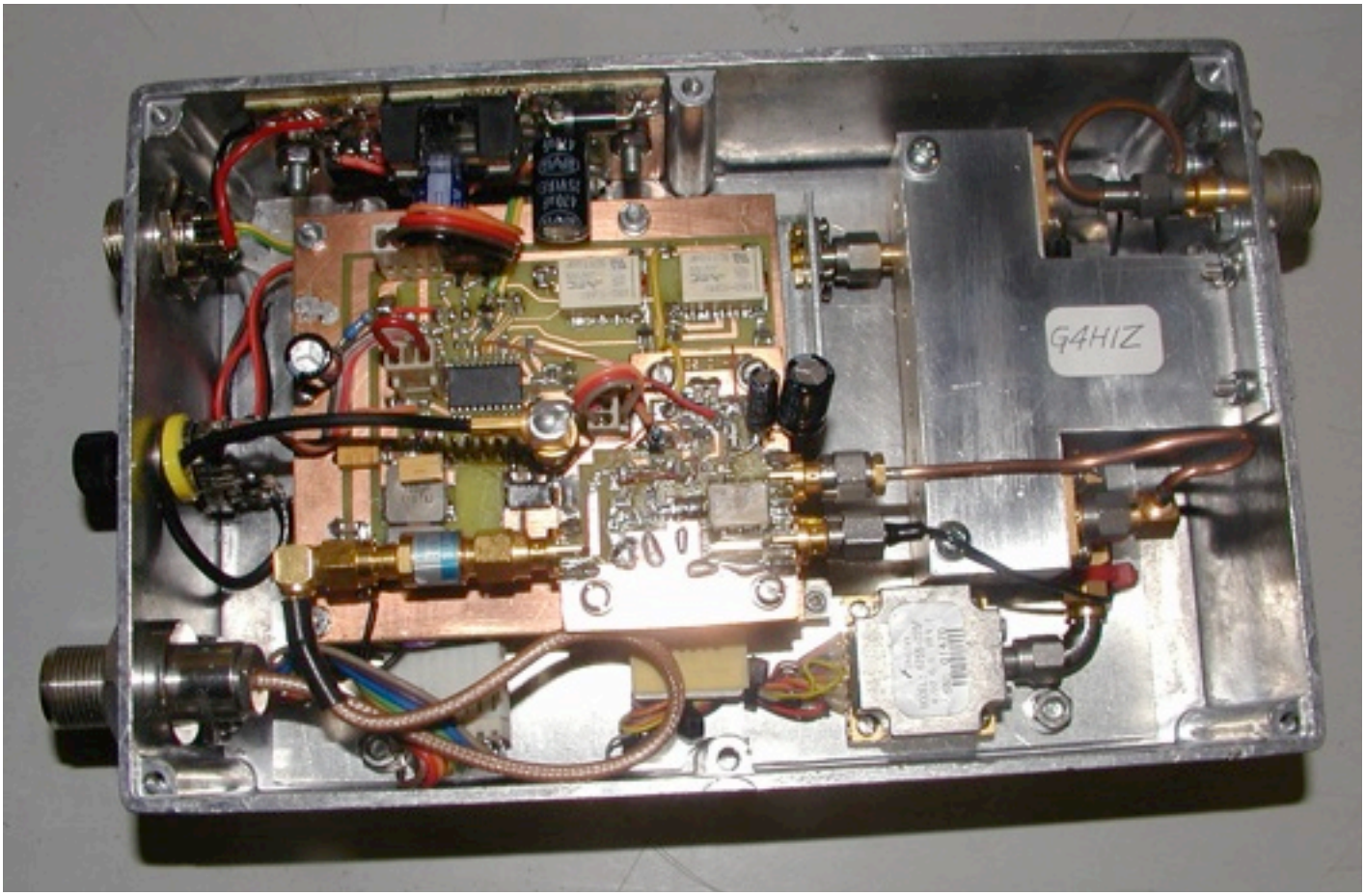
Award Photos by Murray Niman G6JYB

Crawley Round Table

The 2012 Crawley Roundtable took place on Sunday September 23rd. This "small but perfectly formed" was well attended with plenty of microwave chat, "junk" on sale, fine burgers, tea and coffee and a good range of lectures.

As usual the opener was the UK Microwave Group's annual construction contest for the G3VVB trophy judged this year by Alan, G8LSD, Grant, G8UBN and John G4BAO.

Once again the winner was Jeff G4HIZ for this beautifully engineered 5.7GHz transverter.



The lecture program started with a report from Chris G0FDZ about his activities on the millimetre wave bands 24GHz up to 134GHz. This was followed by John G4BAO talking about small station microwave EME and finished with a joint presentation by G4FYY and G3GRO on their recent work on variations of the DL5NEG diode power sensor design.

Despite pouring rain throughout the day on the outside, inside the club hut, everyone had a good day, ragchewed, got some bargains and hopefully went away inspired and informed.

John Worsnop G4BAO

Jeff G4HIZ (left) receiving his trophy from the UKuG Chairman

British Astronomical Association
Radio Astronomy Group

2012 GENERAL MEETING

Saturday 27th October 10:30 – 17:30 National Space Centre, Leicester, LE4 5NS

Prof Andrew Lyne **Jodrell Bank Centre for Astrophysics Pulsar Team**
Using pulsars as cosmic clocks in the study of gravitational theories

Dr Chris North **Cardiff University School of Physics and Astronomy & co-presenter for The Sky at Night**
Astronomy at Mega Megahertz

plus:
Tony Abbey G3OVH *Using the FUNcube Dongle and budget variants for Hydrogen Line reception*
Peter Blair G3LTF *Optimising the performance of parabolic reflector antennas*
Brian Coleman G4NNS *Outreach via Hydrogen Line astronomy*
John Cook G8EDG *SIDs, SFEs and CMEs in 2012*
Matt Earnshaw & Noah Hardwicke *Next generation radio astronomy*
Paul Hyde G4CSD *Practical considerations in observing meteor scatter*
Jeff Lashley 2E0ODF *Data processing and control*
Dr David Morgan *Interferometric detection of an extra-galactic radio source*

RF Design UK and UKRAA will also have stands at this event. Tickets are £15 (£12 for BAA members) including buffet lunch, free admission to the National Space Centre and free parking. See **www.britastro.org/radio** for more information or contact **radiogroup@britastro.org**

Scottish Microwave Round Table Program

Saturday 3rd November 2012

This years Scottish Microwave RT will take place on Saturday 3rd of November with doors open at 10am for a 10.30am start. The venue is the Museum of Communication at Burntisland in Fife, just across the Firth of Forth from Edinburgh.

This will be updated with additional information like the programme and dinner menu when available.

Due to health, safety and "comfort", there is a maximum of 50 attendees the venue can accommodate so please register early to avoid disappointment.

Measurement facilities will be available. Please see the relevant page for advice.

The GMRT2012 evening dinner will again take place in the Burntisland Sands Hotel.

Ray GM4CXM

HEELWEG MICROWAVE MEETING 2013

SATURDAY JANUARY 19th 2013

LOCATION:

CAFÉ/ZAAL "DE VOS"
HALSEWEG 2
7054 BH WESTENDORP

INFO@PAMICROWAVES.NL

PE1FOT/PA7JB/PA3CEG/PA0BAT

Proposal for SDR-based microwave beacon monitoring and reverse beacons

Noel Matthews G8GTZ

Introduction

For some time has been discussion amongst members and committee of the UK Microwave Group about setting up a remote beacon monitoring and reverse beacon network in the UK. This paper is as a result of discussion at the group's AGM in April and is a proposal to design and build such a system using group funds to seed the project.

It is envisaged the network would be based around SDR technologies, using a cost effective and reproducible remote monitoring station deployable at a number of sites around the country with minimal technical expertise. These stations are capable of operating on a number of bands, depending on the filters and antennas used, and would be connected via low cost 3G dongles or the APRS network, to a central server, where users can access real time propagation information and data in map and graphical form.

Functionality

The system would enable 2 primary functions and we are looking for input from members of the group for further ideas and possible uses of the system.

Firstly, the SDR receivers at the monitoring stations could be provided with a web based front end similar to those found at www.websdr.org/ . These receivers would offer a reverse beacon facility where you would tune and hear your own signal via the website or even tune to hear other stations / beacons. As a future phase we may be able to implement a CW decode and reporting system similar to that found at www.reversebeacon.net

The second function would be beacon monitoring using either JT decodes or s/n measurements, depending on what mode the monitored beacon runs, to give information on the state of that particular path. The decoded data would then be transferred to a central server where it would be presented in various forms on web pages, including maps showing the monitored paths and their real time condition, and graphical presentation of the data over time.

Project implementation

In order to reduce complexity and to give a clear focus to the initial deployments, it is proposed to initially concentrate on 23cms and 3cms implementations. However, the proposal is to build a design using wide band SDR dongles. The frequency of operation would depend on the antennas, filters and converters in front of the SDR receiver.

Whilst this proposal is aimed specifically at the bands above 1 GHz, if successful others may initiate projects on other bands using the same basic building blocks. The hardware would not be restricted to just microwave operation and indeed the team already see potential in using reception of GB3VHF on 2m as a project test bed!

There would be 2 main parts to the project:

Monitoring station

The idea is to standardise on a hardware and software design which is relatively low cost, reliable and resilient, and reproducible to enable the units to be deployed at a significant number of sites.

It is envisaged many of these sites will be unmanned and not accessible on a regular basis – typical locations could include beacon / repeater sites and any amateur radio sites where microwave operation does not take place.

Depending of the frequency and coverage required, cost effective aerials, pre-amps, filters and potentially down converters would be chosen on a site by site basis. It is envisaged the majority of sites will need omni-directional antennae capabilities in order to provide the reverse beacon capabilities and clearly this will limit the gain of the aerials in use. If the project is to be successful we need to maximise the RF performance of the receive systems without incurring prohibitive costs and we are already looking to use the "Bernie" LNB based down converters for 3cms - this is one area where we would welcome ideas and input from fellow members of the UK microwave group.

It is envisaged the receiver would be based around the readily available USB SDR sticks such as the RTL2832U DVB-T wideband units (as described by G4JNT in August 2012 Radcom), Funcube or Softrock type units. Work is currently underway by Philip M0DNY to determine the best approach.

It is likely that Linux will be the chosen OS for the remote stations, running on Netbox (netbook without a screen) type hardware – the team is already investigating the potentially of using Raspberry Pi to give really low cost hardware. The software building blocks at the remote station would include the SDR radio, digital decode and communications. The intention is not to "re-invent the wheel" and work is underway looking at possible re-use of various open source modules and to determine the minimum hardware requirements to run a robust "headless" SDR system.

Clearly each site will require connectivity, although at relatively low data rates. The cost of 3G connectivity has dropped and it is now possible to get 500Mb per month for £5, however we realise 3G coverage is not ubiquitous and we are looking at the potential of using the amateur APRS data network. APRS has the advantage of no ongoing costs and we can help to provide coverage at the sites where we need it, however it is unlikely it would reliably support full SDR monitoring functionality.

The aim is to achieve a minimum configuration which is a waterproof masthead box with most RF components fed via a single co-ax cable plus a small enclosure on the ground which could be put in a water proof cabinet and fed with power.

Central server

At the server, it is envisaged the propagation monitoring interface will be similar principle to the PSK reporter website pskreporter.info/pskmap.html and the collected data would be made available for download and could be used for long term propagation studies on the microwave bands.

Whilst each remote monitor station would be potentially capable of monitoring a number on beacons on the same band, it is likely we would have separate web pages to display data for each band.

As mentioned above the reverse beacon system would be similar in concept to radios presented at www.websdr.org/.

Project costs and timescales

As already mentioned, the proposal is to try and design a cost effective remote monitoring receiver which the UK Microwave Group could, where necessary, fund deployment at multiple sites around the country.

Setting up the central server may involve some hardware costs but would also incur ongoing charges for hosting and bandwidth. Any station which uses 3G communication would also incur ongoing charges but several providers are offering data only packages from £5 per month.

The initial research work has already started and once we agree the specification for phase 1 of the project, work can start on building the first 2 or 3 monitoring stations with an aim of getting some functionality up and running before the end of 2012.

How can you help?

Primarily we are looking for support / ideas and input to the specifications of the project. In particular we are looking for low cost RF solutions for all bands and possible sites to locate the first couple of monitoring stations.

If you are interested in commenting and providing input to the project, please join the new **google group** which has been set up for those interested.

https://groups.google.com/forum/?hl=en&fromgroups#!forum/ukug-sdr

VK-land Microwave Activity

A couple of excellent and interesting You Tube videos that give an insight into Australian Microwave activity are here:

http://www.vklogger.com/forum/viewtopic.php?f=31&t=10884

They may also have some educational value as they show an east coast test and tune-up day in Redcliffe just outside Brisbane. Very professionally made videos.

John G4EAT

An Amazing QSO

By Alan GM0USI/P

Introduction

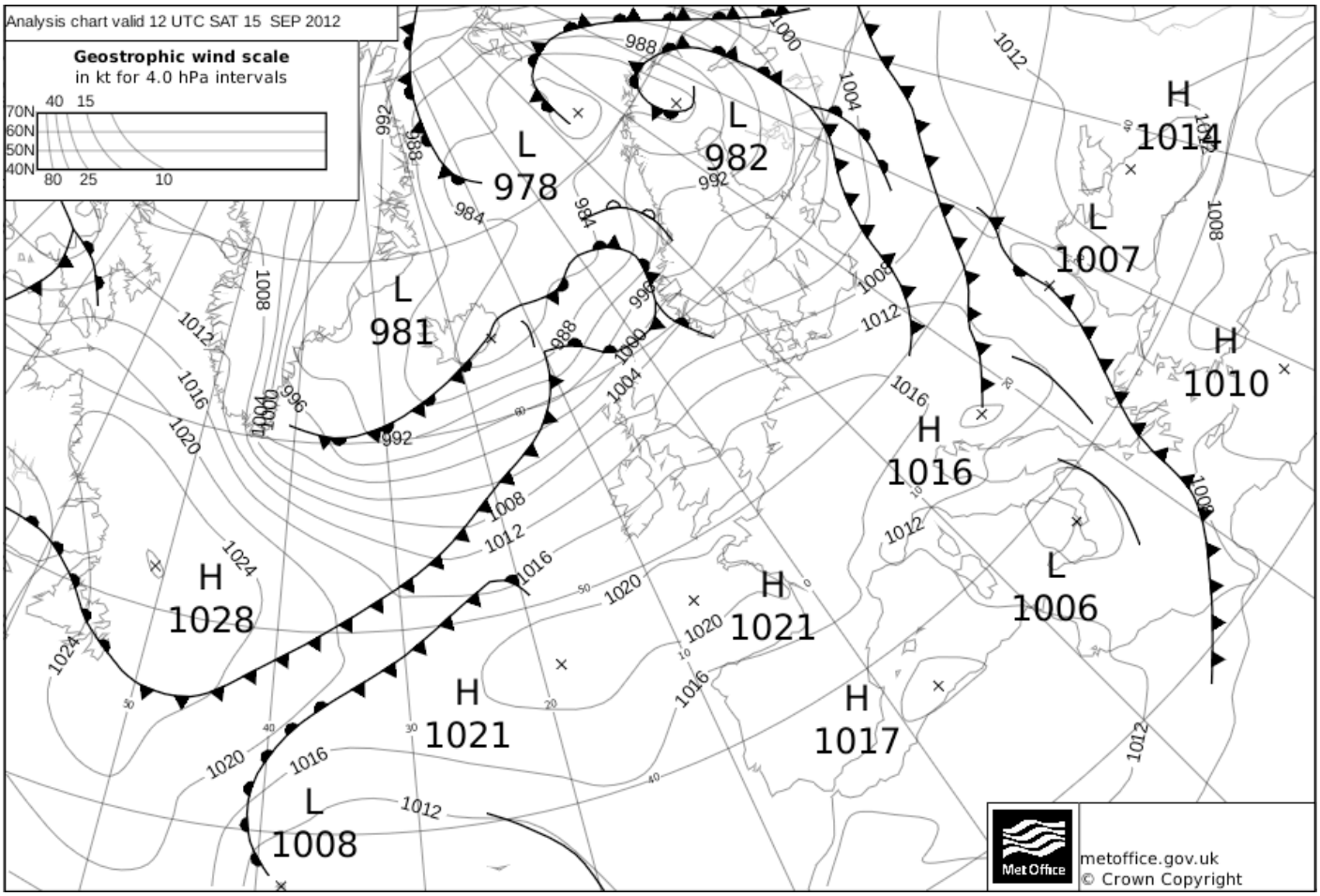
I thought I should give you an idea of the amazing tropo conditions yesterday. I had an email from Ralph G4ALY saying how he expected condx to be good this weekend as I looked out the window to the same high winds we have had all week thinking sometimes I wish I lived a bit further south – little did I know what was to come.

It had been a busy week workwise and hadn't checked any tropo forecast because of the wild wx we were having. I had been out all morning but received a phone message from Nix G4KUX saying he had just worked over 1200km to the Pyrenees! Nick is 200k to the SE of me in a super location but I felt I should make the effort as we get so few tropo openings up here.

I arrived at the usual /P site at IO76xa 330m asl around 1400 local finding it still very gusty but thankfully dry. The rain I thought was on the hills was actually fine mist. I did have to use guys and my usual 40lb weight[not 6lb!] Could only manage the 78cm dish but after getting ready Tony G4CBW kindly stayed around to give me an exact calibration to the dish - his signals were very variable but generally much weaker than normal – I think I was weak with him – normally 56ish, this happened a week or two ago when condx when good further south.

At this stage I was sure I was probably just on the very edge of any propagation if any. KST was working fine with my new dongle but I had not charged the netbook battery – had 30min left! I hadn't expected to be out.

I heard Guy F2CT/P within seconds of his CQ loop coming on –- couldn't quite believe it – right on 171deg, never had to touch the dish. His signal had long slow QSB more like lower bands but peaking to 539 with an average of 529. Managed some quick phone recordings and we quickly exchanged 529 each way and then



realised the QRB was – I make it 1428km!. I was then told this was a new UK record which I didn't realise.

I tried with a Maurice F6DKW and Marc F6DWG/P near Paris but nil heard. A test with John G4EAT failed also.

So, quite an amazing and unexpected end to the day. A very big thanks to Nick to alerting me and to Tony as always helping me to calibrate the dish with such accuracy.

I was running about 9W to a 78cm dish DB6NT transverter gps locked with a DK6JL LNA and PA. Guy was atop Mount Baigura just under 1000m asl with 30W to an 80cm dish.

73 Alan GM0USI/P

A Weak Signal Source for 3.4GHz

By Mike Scott G3LYP

Where no weak signals are available off air, it is necessary to resort to other methods to assess receiver performance. While the cold sky/hot ground and sun noise methods are alternatives, the availability of a narrow band signal source of known frequency gives confidence that all is well.

The problem with local signal sources is that they are usually quite strong and give little indication of receiver sensitivity.

The goal of this project was to construct a signal source which, when terminated with a good quality load, would be virtually undetectable by a receiver on the same bench. Then, with the aid of suitable attenuators, at least comparative measurements would be possible.

This has largely been achieved.

The basis of the unit is a signal source designed by David Bowman, G0MRF, and sold by AMSAT as a signal source for aligning receivers for S band satellites. It consists of a crystal oscillator driving a diode multiplier to produce a comb of frequencies at multiples of the crystal frequency. The original crystal was replaced with a 94.4444MHz crystal, the 36th harmonic being at 3400 MHz (actually about 3400.01).

The unit was mounted in a tinplate box which was totally sealed with solder. The DC supply was through a feedthrough filter and the internal DC connection was made with screened cable fitted with ferrite beads at each end. RF was taken through an SMA connector well soldered to the box. The RF was fed through a 10dB attenuator to a pipecap filter and ultimately through another bulkhead SMA connector fitted to the side of the diecast box housing the entire unit.

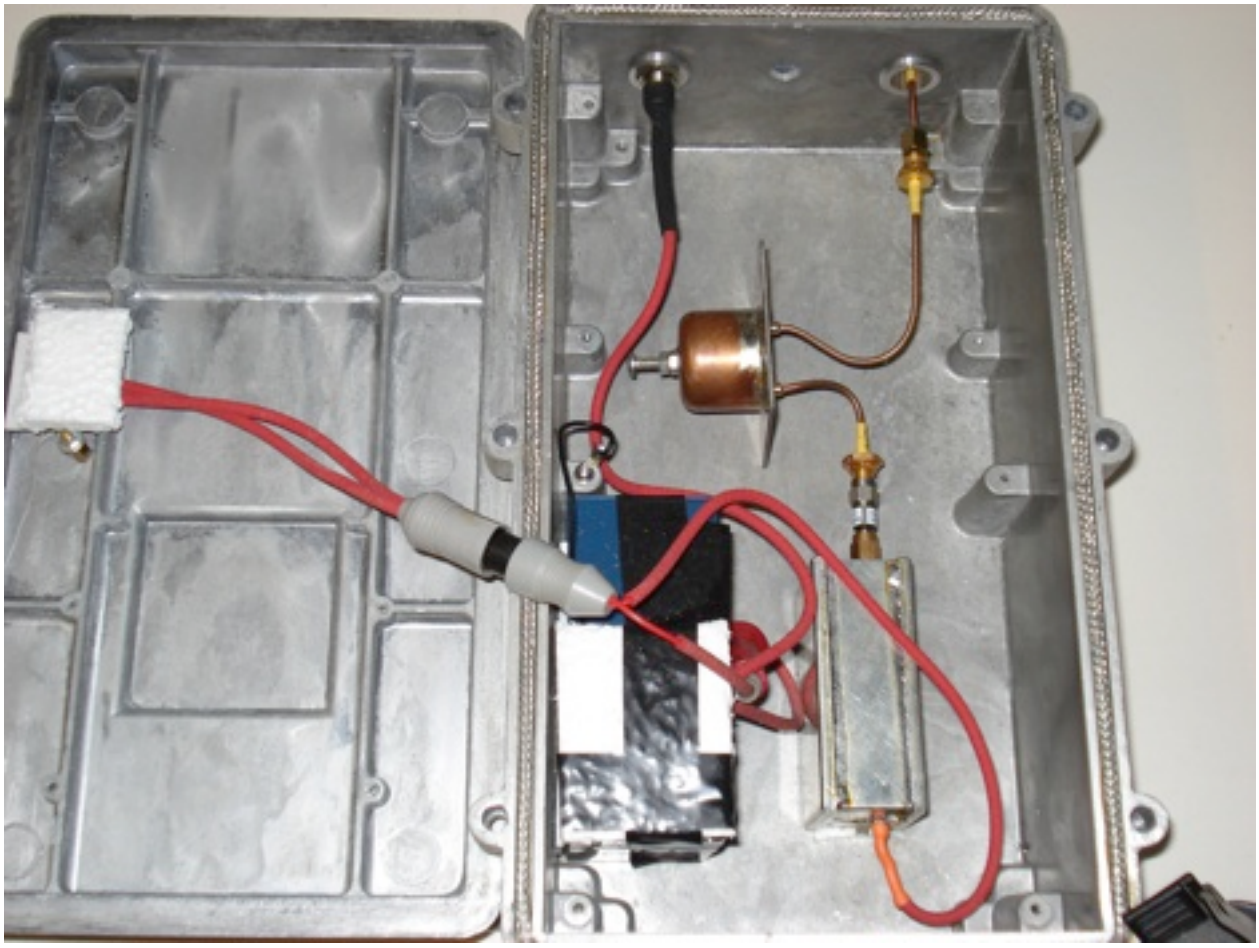
To eliminate radiation from the DC supply, a small 1.2AH SLA battery was included in the diecast box. To avoid an external switch, a reed relay was fitted inside the box and operated by an external magnet. The battery charging connector was housed in a specially made gland to avoid any radiation from this source.

The diecast box originally housed some telecoms equipment and was fitted with two waterproof plastic glands which were removed and replaced with two threaded aluminium plugs. These plugs were adapted to take the SMA output and charging connectors.

The rubber waterproofing seal was removed and replaced with an RF seal made by stripping the outer plastic sleeve from lengths of RG58 coax which were held in the groove left by the rubber with a little superglue.

As a final step to reduce RF leakage, after all the exposed DC connections were carefully insulated, the box was filled with wire wool.

Mike Scott G3LYP



Nanowaves

Recent progress on the Ultra Violet band

Stuart Wisher, G8CYW

The UKNanowaves Yahoo group that all good Nanowavers subscribe to has the following description on the home page: “This group is dedicated to amateur experimentation and communication using nanowaves, e.g. visible light, infra-red and ultra-violet radiation.” Since we are all exploring the possibilities for communication on 630nm approx, red light, and the NE Optical Communications group have in addition branched out into the 850nm and 940nm Infra Red bands, we looked at the description which mentions UV and decided in addition to explore the possibilities for communication at around 400nm, just in the Ultra Violet band.

Things did not look good for these wavelengths, scatter is about ten times more evident at UV than for red light, the extinction coefficient for UV although unknown, is likely to be greater than for red light. The SFH203 photo diodes are at the limit of their published response of 1100nm to 400nm, and we decided to use the type of UV LEDs that were available from Maplin, only giving some 10mW of UV output which must rate as QRP. There are more powerful UV LEDs available, but we all value our eyesight! Another blow was that the construction of the UV LED makes them unsuitable to use in my LED transceiver design, the response was at least 20dB down on the SFH203 “proper” photodiode, so we went back to operating separate receive and transmit heads, using the A4 page magnifier Fresnel lenses that seem to transmit UV well. The first test other than across the test bench was a convenient 6.6km path across the Tyne valley from my QTH. We decided to continue our use of the optical transverter to enable sub-carrier communications on 13kHz- 20kHz using FM and SSB.

Signals over this path were exchanged on SSB on 13kHz sub carrier at strength 9 to 9+ both ways, and were fully quieting on FM (end-stopping the S meter) on the same sub-carrier frequency. It was quite a shock having to go back to aligning separate RX and TX again after successfully running LED transceivers on visible red and infra-red!

It seems strange to make such a good contact when again nothing was visible to the naked eye. We resolved to go out again soon and try this over a greater distance as even with the QRP there is such a margin over the noise.

At around this time, Barry, G8AGN and Gordon, G0EWN, our friends in Sheffield, decided to join in the UV fun, using mostly their excellent baseband rigs and the same UV LED. They initially reported a 10km two-way QSO using a mix of baseband AM and sub-carrier gear and exchanged signal strength reports of 8 and 9 each way. A couple of days later they extended this with a one way contact over 22.7km at strength 3 to 4.

A couple of weeks later at around 8 - 8.30pm Stuart G8CYW located near IO94BW94 made a successful two-way contact with Brian, G8KPD and Peter, G8POG located close to IO95DC27 some 21.5km away using sub-carrier LSB on 18kHz using the 10mW UV LEDs and SFH203 photodiodes. We had to wait until it got dark before the contact was possible, but when properly aligned and focussed, reports were an indicated strength 8 on the FT-817s in use with the transverters at both ends and we were in conversation mode as a result. There was quite a wind blowing and this resulted in enough scintillation at both ends that chopped up FM which was also tried, again we found that SSB was better under these conditions. It was a good job that our gear is solidly built or it would have been blown away or at least pushed around by the wind! I used a good telescope but could not see any sign of the slight visible violet radiation that the LEDs produce coming from the other end and once again we were operating at a good signal strength with nothing to see and nothing other than the S meters to line up with. At RS 5/8 both ways, there is obviously a little more left in this distance wise.

Once again we resolved to make another trial at a greater distance. Since signals were now on the "linear" part of the FT-817 S meter (See Clint Turner's KA7OEI, web pages on the FT-817), another signal measurement would inform us about propagation and enable a simple mathematical model to be created which would possibly tell us just how far these QRP signals might go.

On the 20th September the NE Optical Communications Group held another activity evening, with Stuart G8CYW and Eddie G0EHV located at Currock Hill, and Brian G8KPD with Gordon G8PNN to the south of Rothbury at a distance of 32.5km. Stuart made a successful one-way UV contact to Brian, again using sub-carrier LSB on 18kHz using the 10mW LEDs and SFH203 photodiodes. We again had to wait until it got dark before the contact was possible, but when properly aligned and focussed, my 18kHz carrier reached an indicated strength 7 (peaked 8 once or twice) on the FT-817, but I could not hold the best signal due to wind and scintillation. I tried to receive a signal from Brian some time later (see below for the reason for the delay), but eventually I had to admit defeat, maybe there was some mist between us that had developed that would allow the stronger red light through but scattered the UV. This theory may hold water because when I went back on UV transmit, Brian could no longer receive me, and by then we had the alignment spot on, helped by radiating unmodulated red light at both ends. I learnt later that the rigs at the Rothbury end had suffered from condensation due to the rain earlier and the drop in temperature. This would have completely destroyed the optical side of the set-up. We will go out again to complete a two-way QSO over this distance before moving to our next convenient path, some 46km, once again we ask how far will this go? (my model tells me to expect a maximum strength 6 signal, we'll see.

Several one and two way tests were made between all stations involved as everyone brought gear for at least one "band" (colour?) and rigs were optimised over this short but non-trivial distance. All stations having contacts. Both ends of the path were at around 250m asl with the path having less clearance over intervening high spots. Conditions were windy at the start, dropping later, with rain at the north end delaying the commencement of trials.

The delay in trying to complete the two-way contact was that Brian and Stuart also both took along our newly not quite completed Phlatlight rigs, these drive CBT54 LEDs to the max using our favourite class B mode, It is a very simple circuit indeed which I could make known if there is any interest, it is easily adjusted to class A for baseband by the turn of a pot. On one notable test, I simply stood the bare LED and its driver on my tripod, NOT in the lens box and Brian could not only get a signal without me bothering to focus the light, but he reported it as strength 9 on his FT-817! Who needs a Fresnel lens!

Stuart, G8CYW

Nanowave Record – 384THz

Laser

101km 2.10.2012 (near infra-red 384THz)

DL8TP TX JN49IR25DD 20mW

DF6IY RX JN48EU52KP

See:-www.hb9afo.ch/

Thanks to Robin Lucas G8APZ for this news.

Activity News

By John Worsnop G4BAO

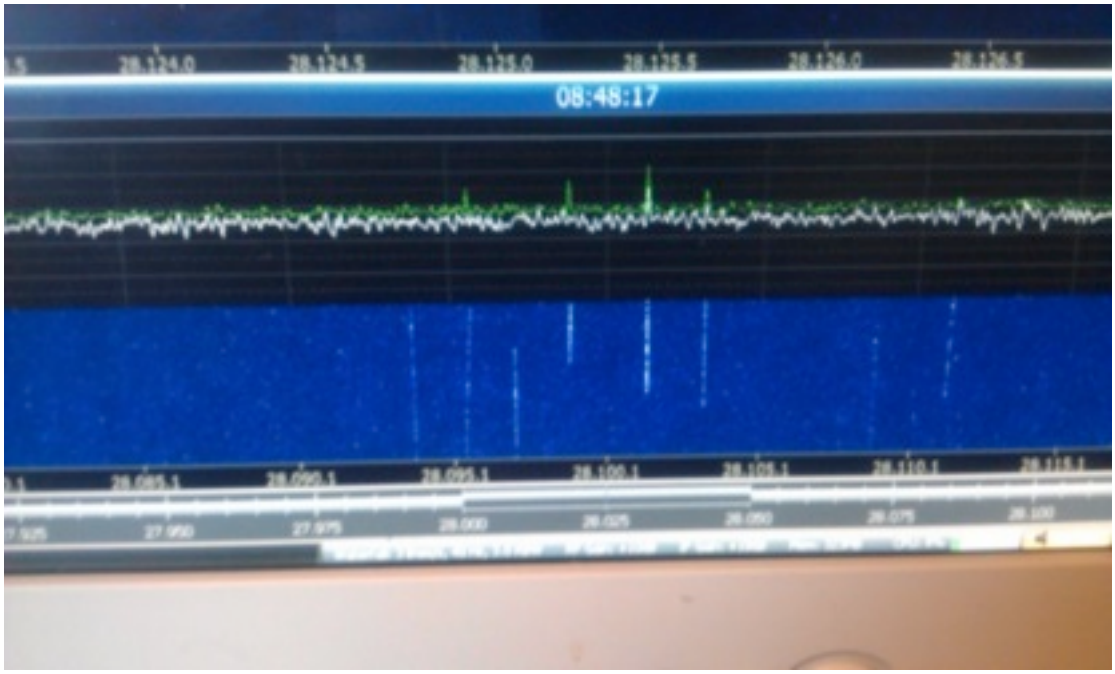
Please send your activity news to:

scatterpoint@microwavers.org

Autumn has arrived on the Fen Edge. It's cold and damp again, and the days are getting shorter. Hopefully we'll all be spending the long nights in our workshops improving our systems over the coming months. I certainly will be, as all my terrestrial microwave gear is down for maintenance at the moment but I'm waiting in for the courier to deliver my new 24GHz transverter this morning!

I've just come back from the RSGB convention where I was pleased to note that almost 20 percent of the speakers were paid-up members of the UK Microwave Group. Microwavers continue to lead Amateur Radio technology. Give yourselves a pat on the back folks, you know who you are!

I did have a few EME contacts on 13cm over the weekend of the ARRL 2.3GHz and up contest. The picture shows the band on Sunday with at least 8 stations visible on my small 1.9m dish.



On the 7th I worked the big dish station at HB9Q (JN47cg) on CW, exchanging 529/429 reports, then Jan, PA3FXB (JO33kc) on JT65C -24/-26. And the following day, worked Jac PA3DZL (JO21hm) O/O on JT65. Peter G3LTF has a more comprehensive report from this contest later in the column.

Activity reports from our correspondents and the web

After the record breaking Tropo condition reported last month the DX of note is very thin. That said, in the absence of any reports direct to me, there are some interesting contacts to be pulled from the www.dx-maps.com database. The best on 1296MHz being a 1327km contact on the 15th of September between Gordon GI6ATZ (IO74aj) and F1ICN (JN03bf), clearly the tail end of the big September tropo opening. On the same day Ralph, G4ALY (IO70) worked F1ICN and F1BKM/P. (JN14sp) and much further North, Nick, G4KUX (IO94bp) reported hearing the HB9EME beacon JN37kb at 1041km. On October 5th G3CKR (IO93ad) worked DL0GTH JO52 at 874km.

On the higher bands, no UK QSOs over 600km were spotted, but 10GHz record breaker, Guy, F2CT/P (JN03aa) was out again and worked F6DWG (JN09uk) and F6DKW (JN18cs) both at over 650 km. 10 GHz activity in France continues to be high.

Erstwhile Practical Wireless VHF columnist, Tim, G4VXE is gearing up for 1296MHz in the not too distant future. He has a DB6NT transverter and matching 35 Watt PA. I know this, because I sold him the transverter and PA! Look forward to seeing some Microwave reports in PW soon, Tim! (and of course your membership fee for the UKuG!) (Ed)

Millimetre band activity

John, G8ACE posted this report on the UK microwaves reflector.

On Sunday 14th, three of us were due to do tests on 24/47/76GHz Two at one end for equipment comparisons and the third op at the remote end. In the event we ended up with two of us, G8KQW and me, both at one end of the path. So we did 47GHz comparisons of our kit instead of QSOs using the Bell Hill Beacon some 75km distant from our Cheesefoot Head location SE of Winchester. The beacon is one I built nearly ten years ago with an ERP of around 1 watt and beaming towards the east from a 20db horn, it operates using the call G8BKE for close down reasons. I recorded a video the results of equipment performance comparisons along with some antenna results. Of interest to anyone thinking of 47GHz is the signal from a 24G antenna with hand held butt joint between different 24 and 47GHz waveguide sizes.

Further 47GHz Beacon information is at: http://www.microwaves.dsl.pipex.com/47ghz/beacon.htm

EME Report

Peter G3LTF sent me a report on the major EME event of the year.

The ARRL 2.3GHz and up contest with all the microwave bands on one weekend is a real challenge. I made 6 feed changes in all between 13, 9 and 6cm. The focus has a “standardised” plug and socket system and a common mechanical interface (wing-nuts!) but each band uses a different PSU and they sit in a box at the foot of the dish. On 13cm the PA is in there too but on 6 and 9cm the whole transverter and PA is at the feed point. Feed access is by a set of warehouse steps on wheels. One sad thing about this weekend is that it is the last time the SMs will be there on 13cm. 5 were active and I worked 4 of them.

The picture shows the 3 feeds for 6, 9 (transverters and PAs attached) and 13cm (PA at the back) plus the PSUs for the 6 and 9cm systems. The big 75A Farnell is not shown! These are what is involved in a band change!

Peter’s log shows:

*= crossband CWNR= called with no reply

Worked on 13cm, 6th October, JA4BLC*, PA3FXB, S59DCD, SM4IVE, Y02BCT, OH2DG, OH1LRY, ON5TA, R3YA, SP6OPN, SV1BTR,

LZ1DX, SD3F, OK1KIR, DF3RU, OZ4MM, SM3BYA, IK3COJ, K5GW, DL9NEA,# NA4N*, K1JT*, WD5AGO*, PA3DZL, HB9Q, DL1YMK, WA6PY*, ES5PC, VE6TA.

Worked on 7th October CT1DMK, PA7JB, G4RGK, 9A5AA, SM2CEW. + G4BAO incomplete QSO CWNR OK1CA, SM6CKU, WB5AFY*, WA8RJF*, Heard on 2304 only so couldn't call them, PA0BAT, SV3AAF, F5JWF.

Worked on 9cm 6th October K5GW and on 7th October PY1KK, G4CCH

Worked on 6cm 6th October SV1BTR, OK1KIR, ES5PC, OK1CA, SQ6OPG, and on the 7th October OH2DG, K1JT #, DL7YC,VK3NX. CWNR JA1WQF,JA8ERE heard SG6W. Always a thrill to work VK on 6cm random!

Nanowaves

With the earlier times for darkness as we move into autumn, Nanowave activity has picked up.

Photo of Gordon's portable red light equipment in its operating position on the North York Moors

On the 8th of September 2012, G8AGN/P (IO93fh13) and G0EWN/P at (IO94mj96) extended the red light DX record to 129.1 km using AM mode. Despite less than ideal conditions with a very hazy atmosphere, low visibility the path was between the North York Moors to Totley Moor SW of Sheffield. Gordon was 53 with Barry, who was, in turn given a 53 report.

Barry and Gordon have also done some testing on UV at a nominal 400nm wavelength with two way contacts over 4kms, 10kms and a one way over 22kms. They hope to extend their daylight ODX of 54kms when they have some more time.

Finally I have a brief report of a DATV Laser QSO of 101km on the 2nd of October (near infra-red 384THz) between DL8TP (JN49IR25) using 20mW and DF6IY (JN48EU52)

See http://www.hb9afo.ch/records/recordse.htm for further details

My new 24GHz transverter (to replace my blown-up Thales module) has just arrived by courier so I'm off to play with my new toy!

73 and Good DXing on the microwave bands.

John G4BAO www.g4bao.com Twitter@g4bao

Contests & Activity Dates 2012

Source: http://www.microwavers.org/?contesting.htm

October

1.3 & 2.3GHz Trophies	Arranged by VHFCC	6–Oct	1400 - 2200	RSGB Contest
432MHz & up	Arranged by VHFCC	6–7 Oct	1400 - 1400	IARU/RSGB Contest
ARRL EME 2.3GHz & Up	Arranged by ARRL	6–7 Oct		
1.3GHz Activity Contest	Arranged by VHFCC	16 Oct	1900 - 2130	RSGB Contest
2.3GHz+ Activity Contest	Arranged by VHFCC	23 Oct	1900 - 2130	RSGB Contest

November

ARRL EME 50-1296MHz	Arranged by ARRL	3–4 Nov		
1.3GHz Activity Contest	Arranged by VHFCC	20 Nov	2000 - 2230	RSGB Contest
Low band 1.3/2.3/3.4GHz 4	F, P,U,R,L	25 Nov	1000 - 1400	
2.3GHz+ Activity Contest	Arranged by VHFCC	27 Nov	2000 - 2230	

December

ARRL EME 50-1296MHz	Arranged by ARRL	1–2 Dec		
1.3GHz Activity Contest	Arranged by VHFCC	18 Dec	2000 - 2230	RSGB Contest
2.3GHz+ Activity Contest	Arranged by VHFCC	25 Dec	2000 - 2230	RSGB Contest

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:
microwave.rsgbcc.org/cgi-bin/vhfenter.pl

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

Events calendar 2012

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

2013

April 6	CJ-2013, Seigy	cj.ref-union.org/
April 27-28	Provisional date for Martlesham Microwave Round Table and UKμG AGM	
May 17-19	Hamvention, Dayton	www.hamvention.org/
Oct 8-10	European Microwave Week, Nuremberg	www.eumweek.com/

2014

August	EME2014, Pleumeur-Bodou near Lannion

Don't forget that

Every Monday evening is Microwave Activity Evening