



## Using 3 MHz OCXO's with PLL LNB's for 10 GHz narrow band reception

By Bernie Wright G4HJW



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**Editor's  
corner**

Please read the Ofcom Announcements on [page 20](#).

Slight change in Scatterpoint layout this month to enable automatic contents generation.

## Subscription Information

The following subscription rates 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.

### PLEASE QUOTE YOUR CALLSIGN!

Payment can be made by: PayPal to

[ukug@microwavers.org](mailto: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!)

## Articles for Scatterpoint

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

Please send them to

[editor@microwavers.org](mailto: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, rtf, 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 your co-operation.

**Martin G8BHC**

## Reproducing articles from Scatterpoint

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

You may not publish Scatterpoint on a website or other document server.

# UKμG Chip Bank – A free service for members

The catalogue is now on the UKμG web site at [www.microwavers.org/?chipbank.htm](http://www.microwavers.org/?chipbank.htm)

Non members can join the UKμG by following the non-members link on the same page and members will be able to email Mike with requests for components. All will be subject to availability, and a listing of a component on the site will not be a guarantee of availability of that component.

The service is run as a free benefit to all members and the UK Microwave Group will pick up the cost of packaging and postage.

*Minimum quantity of small components supplied is 10.* Some people have ordered a single smd resistor!

The service may be withdrawn at the discretion of the committee if abuse such as reselling of components is suspected.

There is an order form on the website with an address label which will slightly reduce what I have to do in dealing with orders so please could you use it.

Also, as many of the components are from unknown sources, if you have the facility to check the value, particularly unmarked items such as capacitors, do so, and let me know if any items have been miss-labelled. G4HUP's [Inductance/capacitance meter](#) with SM probes is ideal for this (Unsolicited testimonial!!)

Don't forget it is completely free, you don't even have to pay postage!

**Mike G3LYP**

## UKμG Technical support

While many of you will have taken advantage of the “test equipment rooms” that we run at the Round Tables, sometimes that project just cannot wait for the few occasions per year when we hold them. One of the great things about our hobby is the idea that we give our time freely to help and encourage others, and within the UKμG there are a number of people who are prepared to (within sensible limits!) share their knowledge and, more importantly, test equipment. Our friends in America refer to such amateurs as “Elmers” but that term tends to remind me too much of that rather bumbling nemesis of Bugs Bunny, Elmer Fudd, so let's call them Tech Support volunteers.

While this is described as a “service to members” it is not a “right of membership!”

Please understand that you, as a user of this service, must expect to fit in with the timetable and lives of the volunteers. Without a doubt, the best way to make people withdraw the service is to hassle them and complain if they cannot fit in with YOUR timetable!

Please remember that a service like our support people can provide would cost lots of money per hour professionally and it's costing you nothing and will probably include tea and biscuits!

If anyone would like to step forward and volunteer, especially in the regions where we have no representative, please email [john@g4bao.com](mailto:john@g4bao.com)

The current list is available at [www.microwavers.org/tech-support.htm](http://www.microwavers.org/tech-support.htm)

## UKμG Project support

The UK Microwave Group is pleased to encourage and support microwave projects such as Beacons, Synthesiser development, etc. Collectively UKμG has a considerable pool of knowledge and experience available, and now we can financially support worthy projects to a modest degree.

Note that this is essentially a small scale grant scheme, based on 'cash-on-results'. We are unable to provide ongoing financial support for running costs - it is important that such issues are understood at the early stages along with site clearances/licensing etc

The application form has a number of guidance tips on it - or just ask us if in doubt!. In summary:-

- Please apply in advance of your project
- We effectively reimburse costs - cash on results (eg Beacon on air)
- We regret we are unable to support/running costs

Application forms below should be submitted to the UKuG Secretary, after which they are reviewed/agreed by the committee: <http://www.microwavers.org/proj-support.htm>

## RSGB Construction Competition

Dear Sir/Madam,

I would be very grateful if you could remind your club members that there is only one month to go before entries close for the annual RSGB Construction Competition. This year the competition is being sponsored by Martin Lynch and Sons with prizes of £50 of vouchers for each category winner and £100 for the winner of prestigious Pat Hawker G3VA Trophy that will be awarded to the best overall entry.

There are four categories –

- 1) Designer. This is aimed at encouraging original designs, which can be software, hardware or a combination thereof. Entries in this class will be judged on the elegance and innovation used to solve a new problem, or to solve a well-known problem in some better way. The entry will also be judged on the degree to which it advances the state of the art in amateur radio.
- 2) Craftsman. This category is aimed at those constructing projects designed by someone else; entries are likely to be based on a published design. Kits may feature, either as a part or the whole of the project. For kit builders, credit will be given for personal additions, modifications or finishing touches. Entries in this class will be judged on the overall quality of the construction/excellence in craftsmanship.
- 3) Beginner. This category is aimed at those new to amateur radio. The entrant must have been a member of the RSGB for less than a total of three years and must have held an amateur radio licence of any type for less than three years.
- 4) Junior Member. This category is aimed at our young members. The entrant must be a Junior member of the RSGB on the date of submission of the entry.

The competition is designed to encourage home construction, experimentation, design and innovation, and any Member of the RSGB is eligible to enter. The closing date for entries is 30 September and judging will take place at the RSGB Convention.

If your club organises your own construction competition, please encourage the entrants to submit their work to us as well.

Full details are available on the RSGB website

<http://rsgb.org/main/about-us/rsgbconvention/rsgb-annual-construction-competition/>

Many thanks

**Graham Coomber G0NBI General Manager  
Radio Society of Great Britain**

## An Update to the G3VVB Trophy

**Chris Bartram GW4DGU**

For some time, the G3VVB Trophy, although a UKuG-wide award, has been awarded at the Crawley Roundtable for individual microwave 'construction' projects. In the last decade, though, the nature of the projects which people undertake has changed pretty profoundly. This revision of the rules, if indeed that's what it is, as nobody seems to have a copy of the original rules, if they ever existed(!) is to broaden the scope of the Trophy to become a 'Project' Trophy, encompassing all microwave, mm-wave and nanowave related projects, whether they be hardware, software, or operational, or indeed a mixture of all of those.

This Award is not just, or possibly not even, about producing the prettiest work, it's also very much about doing something interesting and passing results and ideas on to others.

Construction from component level has become less common in recent years, as there has been wide utilisation of ready-built modules, and modification of surplus commercial equipment. Also, there are other aspects of equipment development which at the time of the instigation of the Award, barely registered with most people. The most obvious



of these is software, but, as an example, modification of surplus equipment can require a lot more thought than slavishly following a published design, and it's something which should be encouraged and recognised.

Of course, designers of new kit will be very welcome to enter. We're not asking for pristine prototypes, but if you enter a design, you'll at least be asked to demonstrate that it works!

Outside amateur radio, the electronics hobby has to a large extent become a community of 'hackers' and 'makers'. The use of the word 'hack' in this case is anything but detrimental. 'Hackers' modify equipment often quite dramatically, to 'repurpose' it for their requirements. This can require skills in systems analysis, software, circuit design, and assembly: all those which the modern microwaver requires. The same is true of the 'makers', who use the same range of skills – and more – to produce their projects. A visit to a 'Makerfaire' can be quite eye-opening.

The Trophy will now also include the operational side of microwaving. If you are doing something original, or interesting in your operating, such as exploiting a barely understood propagation mechanism in an organised way, that project could also be considered for the Trophy.

One other new aspect of the Trophy is that it will be open to groups. It's hoped that this will encourage cooperation between people with different skills. Local club projects meeting the criteria set in the Rules could also come within the scope of the award.

## Judging and Rules

Judging will be on the basis of the scope of the project, its originality, and the background of the participant. An original 'state of the art' project submitted by one of UKuG's many professional engineer members working in the RF/microwave field might score less highly than a kit assembled with care by someone completely new to amateur radio. Judging will always be subjective. Any attempt to minimise that subjectivity will inevitably be fraught with complications, so the new Rules don't do that.

Participants should submit their project – either alone, or in conjunction with others - to the Projects competition at a Microwave Roundtable. For a hardware project, this should be the hardware together with any test results. For software, a description, along with code and evidence of functionality, such as a working demonstration. For an operational project, a report including the aim, methodology, and results will be a minimum. It is hoped that participants will write-up their project for 'Scatterpoint'. For those not able to do that for any reason, it may be possible to arrange for a ghost writer!

The decision of UkuG judges will always be final!

## Mechanism

A major problem with the previous G3VVB Award, was that judging took place at what, for many, is a difficult to attend Roundtable. It's felt important that all UkuG members within the UK have the opportunity to enter a project for the Trophy. Fortunately, UkuG, uniquely amongst special interest amateur radio organisations, sponsors a number of regional and national meetings ('Roundtables') at which judging of entries can take place. Each group running a Roundtable will be encouraged to organise a regional/national heat of this competition and to present the results to the UkuG Committee. A sub-committee of the UkuG Committee will then make a decision about the award of the G3VVB Trophy. The Trophy will be awarded at the RSGB Convention Dinner, and as an additional incentive to individuals, it has been proposed that the UkuG will provide a Dinner Ticket to the Winner!

## Rules

1. This Trophy is open to members of the UK Microwave Group either as individuals or as groups.
2. Projects submitted will have strong relevance to the aims of the UK Microwave Group, and may consist of hardware, or of software/firmware, of integrated hardware/software systems, or of other relevant projects, eg. propagation or radio astronomy observations. It is not necessary for projects to be limited to the amateur microwave bands, however projects concerned with frequencies below 1GHz, and software/hardware modifications to equipment for operation outside the terms of the UK amateur radio licence will not be considered.
3. Each project should be submitted with supporting documentation
4. The Trophy will be given to the individual or group entering the project which, given the background of the entrant, in the opinion of the Judges, is most meritorious.
5. Projects will be submitted for the Trophy will be entered initially into projects contests held at UkuG sponsored Roundtables. The documentation of the winner and runner-up of the contest held at each

Roundtable, together with any supporting evidence, such as images made by the time of the local judging, along with e-mail contact information for the entrants, will be submitted to the UkuG Committee member responsible for the contest by the Roundtable organisers within ten days of the Roundtable. The UkuG Committee will consider the submissions and select a national winner in time for that winner to be presented with the Trophy at the RSGB Convention.

6. The final judging will be by an ad hoc group consisting of members of the UkuG Committee. Judging at Roundtable level will be by ad hoc groups appointed by the Roundtable Organiser.
7. The decision of the UkuG Committee will be final. No correspondence will be entered into regarding their decision.

## Using 3 MHz OCXO's with PLL LNB's for 10 GHz narrow band reception

By Bernie Wright G4HJW

### Introduction

Most of the current breed of PLL LNB's seem to fit Chinese PLL chips made by RDA, and these use a 27 MHz crystal as their frequency reference. No provision is included to trim the crystal onto frequency and they are in any case quite rubbery in terms of temperature change. A higher order of stability is preferable for narrowband use.

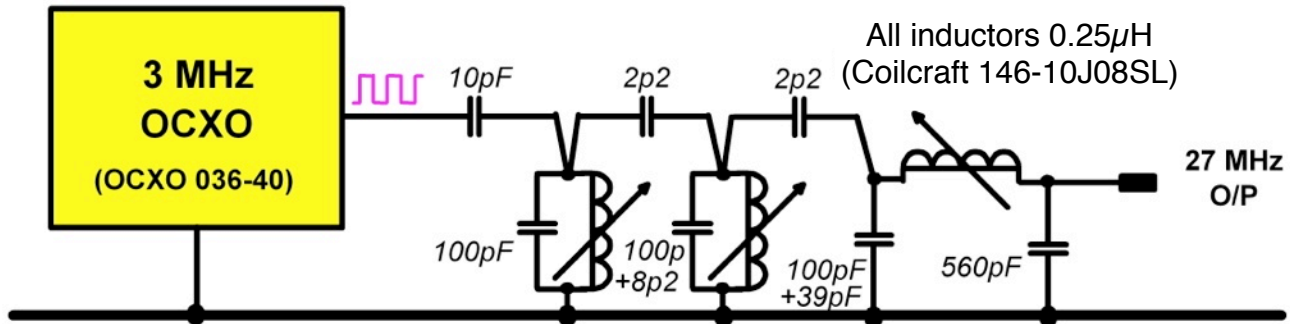
Ebay often has 27 MHz TCXO's for sale and the use of these will much improve performance. An OCXO will be better still and is likely to provide  $\pm 50$  Hz long term 3cm stability, judging by the performance of the GB3CAM 10 GHz beacon, which uses a Racal 5 MHz OCXO (see the GB3CAM website for graphs of frequency drift). Whilst 27 MHz OCXO's seem to be very scarce, there are many 3 MHz units on the surplus market, since Motorola used them in their old analog VHF/UHF Simulcast systems (the equivalent to Pye's Quasi-sync systems using 5 MHz OCXO's). They were also used in their TACs and ETACs equipment – and it takes surprisingly little additional circuitry to obtain a suitable 27 MHz signal from these.

### Surplus, ex-Motorola 3 MHz OCXO's

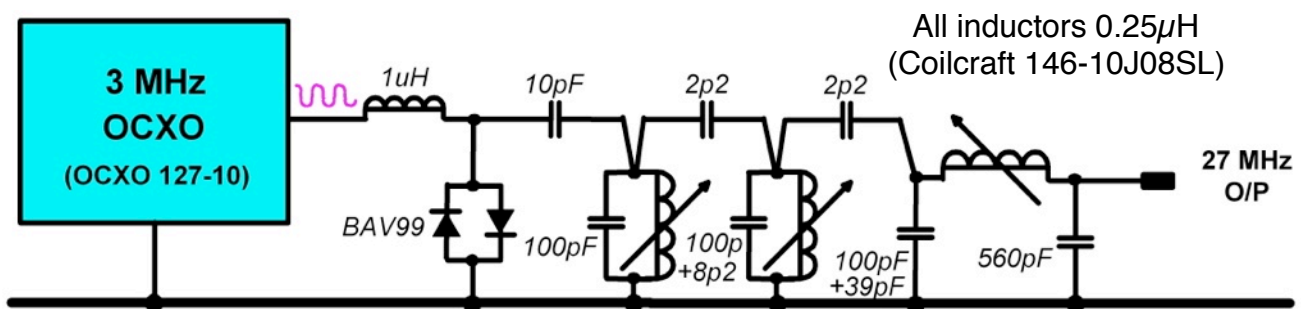


There were two types of OCXO that were used by Motorola that I have come across, both made by Isotemp. The earlier equipments used the octal based OCXO036-40 unit. This has a 5v logic square wave output. Could the 9th harmonic be extracted from the 3 MHz square wave output at a useful, clean level simply by using passive selectivity?. It certainly could!

Three tuned circuits using 7mm Coilcraft inductors will provide -26 dBm output, with all spurious components at least -55 dB down on the 27 MHz signal level.

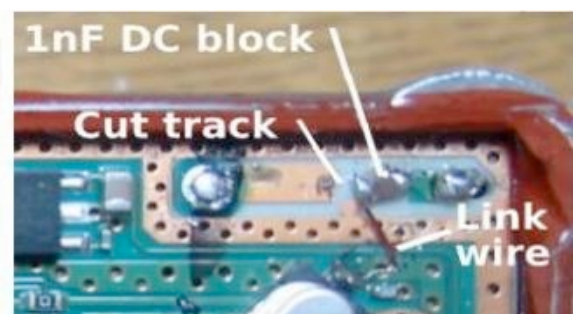
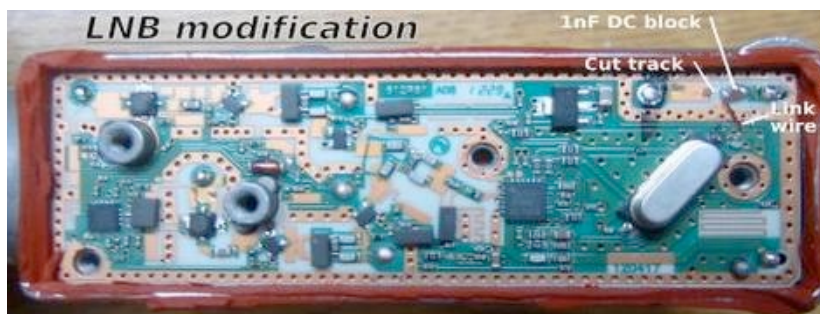


The second type of OCXO was the pcb mount model type OCXO127-10. On the face of it, this is not of immediate use in the circuit above because of its sine wave output. However, the data sheet specifies an output level of 4 volts pk-pk, and by adding a pair of back to back diodes across the OCXO output, enough harmonics are generated for the selectivity block to again produce useful output at 27 MHz. A 10 dB increase in output (to -30 dBm) can be obtained by feeding the back to back diodes through a series inductor as shown below.



## PLL LNB modification

The easiest route is to obtain a dual output PLL LNB, since one of the F connector outputs can be re-used as an input for the external high stability reference signal. At the time of writing, these are available for a total cost of £17 via Ebay (search for 'Octagon optima PLL twin'). The modification is very simple. Track to the F connector is cut about 5mm from the centre pin and a dc blocking capacitor soldered to that side. The free end of the capacitor is taken to one side of the on-board 27 MHz crystal via an insulated link wire, as shown in the picture.



Remember to make a notch in the lid/screen divider wall to allow the link wire to pass across the two screened sections.

There is no need to disconnect the 27 MHz crystal – it will be sufficiently damped to stop oscillation as soon as connection is made to the F connector. With no connection, the internal oscillator will again operate, though at a slightly lower frequency than before modification.



The RDA chip (RDA 3565) reference input is very sensitive, and only requires about -40 dBm of external 27 MHz signal to operate (-44 dBm on the measured sample), and is tolerant to at least 10 dBm at the other extreme.

### Coilcraft inductor availability

Thanks to Kevin G3AAF's generosity, the Coilcraft 146-10J08SL inductor is now available free-issue via Mike's 'Members chip bank' facility. For non-members, I should be able to supply a few – contact details as per qrz.com.

### Conclusions

Originally, an MMIC was used after the filter, but as the results show, it certainly isn't needed from a signal level point of view. As a buffer, it may still be worthwhile – it would save having to re-tweak the filter every time it was used on a different length of feed-line.

A number of receivers have been produced using this arrangement, including the WebSDR rx near Retford, which should become publicly accessible shortly. No 'oddies' have been noticed on any of them. In all cases, the 3 MHz OCXO output also feeds a PLL at 600 MHz to supply the second mixer LO.

For predictable operation, I suppose one ought to terminate the feed at the LNB end into 50 ohms, though I have not done so on any of my installations, other than for these tests.

My thanks to Vince G8CZP for donating the first Isotemp OCXO samples some years ago, and Kevin again, I think, for the pcb mount version.

**Bernie G4HJW**

## Crawley Microwave Round Table Program

**Sunday 21st September 2014**

This year, following some rules changes, we will be holding a heat for the UK Microwave Group annual Project contest for the G3VVB trophy. Please do bring along your constructed equipment or project and enter. Entries do not necessarily need to have been finished during the last year.

This year the contest will also accept software entries as well as hardware. The winner of this round will go on to be considered, together with entries from all the other round tables over the past year after this event.

The morning will feature the usual 'bring and buy' sale, so if you have something to sell then please bring it along.

Additionally, Roger G8CUB will be bringing his noise figure meter for anyone who wishes to have their own equipments RF performance measured.

Mike G3LYP will also be bringing the UKuW group chip bank so have your list ready for that project that you are building!

The program this year offers the microwaver something different – come along and have a good chat, support the construction contest heat and hear the talks.

Below is the provisional timetable:

10:00	Venue opens
12:00	UKuW Group Project contest round judging commences
13:00	Lunch (rolls, sandwiches etc and tea/coffee available)
14:00	Opening address by Derek G3GRO and the results of the Project contest heat
14:15	Talk 1 – “Tools for microwave metalworking” by Mike G3LYP”
15:00	Talk 2 - “Microwave Transverters using Min-YIG local oscillators” by Jeff G4HIZ”
15:45	Break (tea and coffee available)
16:00	Talk 3 “Using surplus synthesisers” by Roger G8CUB”
16:30	End of meeting

The venue is the Crawley Amateur Radio Club's hut and directions can be found at:

[http://www.carc.org.uk/find\\_us/directions.shtml](http://www.carc.org.uk/find_us/directions.shtml)

# HEELWEG MICROWAVE MEETING 2015



**SATURDAY  
JANUARY 17<sup>th</sup> 2015**

## LOCATION:



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



**INFO@PAMICROWAVES.NL**

PE1FOT/PA7JB/PA3CEG/PA0BAT



## Activity News : July + August

By Bob Price G8DTF

***Please send your activity news to:***

[scatterpoint@microwavers.org](mailto:scatterpoint@microwavers.org)

### Introduction

A bumper issue this time with reports from both July and August. There are a good variety of reports coving the usual contest activity, EME and beacons.

Sadly, still not much microwave activity at G8DTF as there is a major rebuild of the 13cm transverter going on and the 3cm transverter still has not been fixed.

### July Activity

#### EME

**From Dave G4IDR IO93**

I have now expanded my 1.7m dish to a 2.4m dish and increased output from 40w (old 2C39) to now 300w from a YD1336.

I am working a lot more EME stations and I can work (just) similar sized stations on JT65C (LU9ENE , 2.3m and 120w ) . I have even managed my first CW EME 23cms QSO with OK1KIR so I am very please with the improvements.

#### 14th July 23cm UKAC

**From Bob G8DTF IO83**

I had a go at the 23cm UKAC this month. The result was pretty good given my 2W output power.

G4BRK	IO91	221km
G8HXE/P	IO83	11km
G0MJW	IO91	228km
G8ONK	IO83	41km
M1DDD/P	IO93	50km
GW4EVX/P	IO83	60km
GM4CXM	IO75	296km
G3UVR	IO83	50km
M0LEX/P	IO83	18km
G8OHM	IO92	130km
G4NBS	JO02	221km
G8XVJ/P	IO93	54km
G3VKV	IO81	183km
GM4JR	IO85	186km
G4NTY	IO83	6km
M0UFC/P	IO83	28km
GW8ASD	IO83	65km

G4JLG	IO83	6km
2E0NNX	IO83	5km
G3TCU/P	IO91	287km
G4BVE/P	IO82	105km
GD8EXI	IO74	162km
M0GHZ	IO81	233km
G3PYE/P	JO02	233km
M0COP/P	IO82	111km
G4KIY	IO92	189km
M0LNE	JO01	319km

Best DX was with M0LNE

## July SHF UKAC

No reports received for this contest, but there were a number of logs entered on the various bands.

20 logs entered for July and 18 logs in August for 2.3GHz.

7 logs entered for July and 8 logs in August for 3.4GHz.

7 logs entered for July and 4 in August for 5.7GHz.

18 logs entered for July and 19 in August for 10GHz.

## July 5.7/10/24GHz Cumulative

### From John GM8OTI IO85

On 27 July John Cooke GM8OTI was pleased to work a new station on 10GHz in GM using his home brew system with RX based on a satellite low noise block, and 1W TX PA into a 40cm dish antenna. Gordon McCallum GM3UCI and Robert West GM4GUF were operating a portable system using a short horn (and no PA as yet) from Gordon's QTH. The new station is based on modules from now available from Chris Bartram GW4DGU. Excellent signal reports were exchanged over the 25km path.

### From Jim GM3UAG IO86

On Sunday 27th July at 1230Z, during the high band microwave UKAC, I had a phone call from Alan, GM0USI/P, just south of Glasgow, to say it was heavy rain with him and could I come on 3cm to see if a rain scatter QSO might be possible.

I did and we worked no bother at 56/59 SSB with the characteristic rasp. 231km over some of Britain's highest hills.

Maybe that's the way to go for remote locations like mine.

### From John G8ACE IO81

The attached photos are of G8KQW and G8ACE on Cleeve Common files for the 24-248 GHz activity last Sunday.

The pictures with dishes, Ian K8KQW has three bands on one heavy duty tripod 60cm 24GHz at the top. 47GHz below and 76GHz lowest of all. Eliminates alignment problems by starting with 24GHz and working up through the bands.

I (John G8ACE) use a separate tripod for each of the three bands, 60cm for 24GHz. 47GHz is the drum kit looking dish antenna.

2 x 30cm dishes for 76GHz TX and RX.

There seemed to be little activity on 24G. Where have all the PHO and other imported 24GHz PAs gone. They cannot all have been blown up surely?

Three 24GHz sessions in a month may just be too off putting?





**G8KQW and G8ACE on Cleeve Common**



**Ian G8KQW has three bands on one heavy duty tripod**



## A few observations on /P operation (from someone who hasn't done it for yonks)

From Andy Talbot G4JNT



It is approaching two decades since I used to do any serious /portable microwave operating, but today went along with John G8ACE to Cheesefoot Head, for the 5.7/10/24GHz microwave group contest. Just a few observations on what I noticed today, in no particular order...

When people send tuning signals, many send a series of dots. This is not terribly helpful when trying to peak a weak signal. Either a 100% duty cycle plain carrier, or if you really feel the need to identify the signal, long dashes with short gaps would be better than dots.

One or two stations, one in particular, gabbed his information both on the talkback and on 10GHz as if he were operating in CQWW, trying to say everything in a few nanoseconds with HF contesting speed. It really doesn't help, and it's not as if every second counts.

The FT290 (and my FT817 I realise) commonly used as transverter lfs, have no way of staying on transmit without holding the PTT down. John uses a cable tie over the PTT (as suggested by G8KQW). Both these rigs have an accessory socket on the back, a toggle switch tied into that should make a convenient tune up switch. Back two decades ago, the IC202 could be left in TX using the CW switch position and shorting the key socket.

144.175 talk-back seems to work adequately, as we don't have KST, but having passively monitored it at home, it looks chaotic. Messages flashing up the screen at breakneck speed. While on site, I tried to visualise using it in that environment, even assuming there was no sunlight on the screen. Moving the short distance between the talk-back and the microwave rigs was bad enough; trying to read a fast scrolling screen as well as trying to peak a weak signal just doesn't look feasible. How do those who do use KST make it work? A mobile phone as talk-back would work supremely well; in my opinion the best solution of the lot.

A laptop running SiteCalcWin[1] certainly beat looking up a preprinted list; a laptop stored site database wasn't easy back in the old days. A preprinted list of beacons with their frequencies would have been useful.

[1] <http://www.g4jnt.com/SiteDatabase.htm> or <http://www.g4jnt.com/hdbase.htm>

## Other July Activity

### From Ralph G4ALY IO70

Tropo events here in IO70 have been conspicuous by their absence unfortunately.

Though I experienced a good RS event on the 18th July 2014

Following beacons received on RS on 3cm.

F5ZBB/B	57s	539 km
F5ZTR/B	57s	491 km
LX1DB/B	57s	750 km first time heard.

### 6cm

F5ZBE/B 59S 539 km

### 3 cm

F9OE	599	SSB
F6DKW	59S	SSB
F6DZK	59s	SSB
F6DWG/P	59s +	CW
F5DQK	59s	ET encore 56s
F6APE	52S cw avec QTF	085 degree ( SP JO00)
ON4IY	59S	626 km
ON4IY	56s	6 cm 1st contact (took 15 years to get hi)
Heard EA2TZ/B	539	23cm, 824 km, faded out after 1130. (only tropo)

19 July F6APE F6DKW F9OE on RS

## August Activity

### Beacons

#### From John G0API IO80

Yesterday, 12/08/2014 , did not seem to be an exceptional day for 10GHz ....

Having spent the weekend setting up and manning the usual SCRBG fund raising stand at FRARS Hamfest , Monday was an R&R day and with the occasional passing shower I was in the shack after lunch .

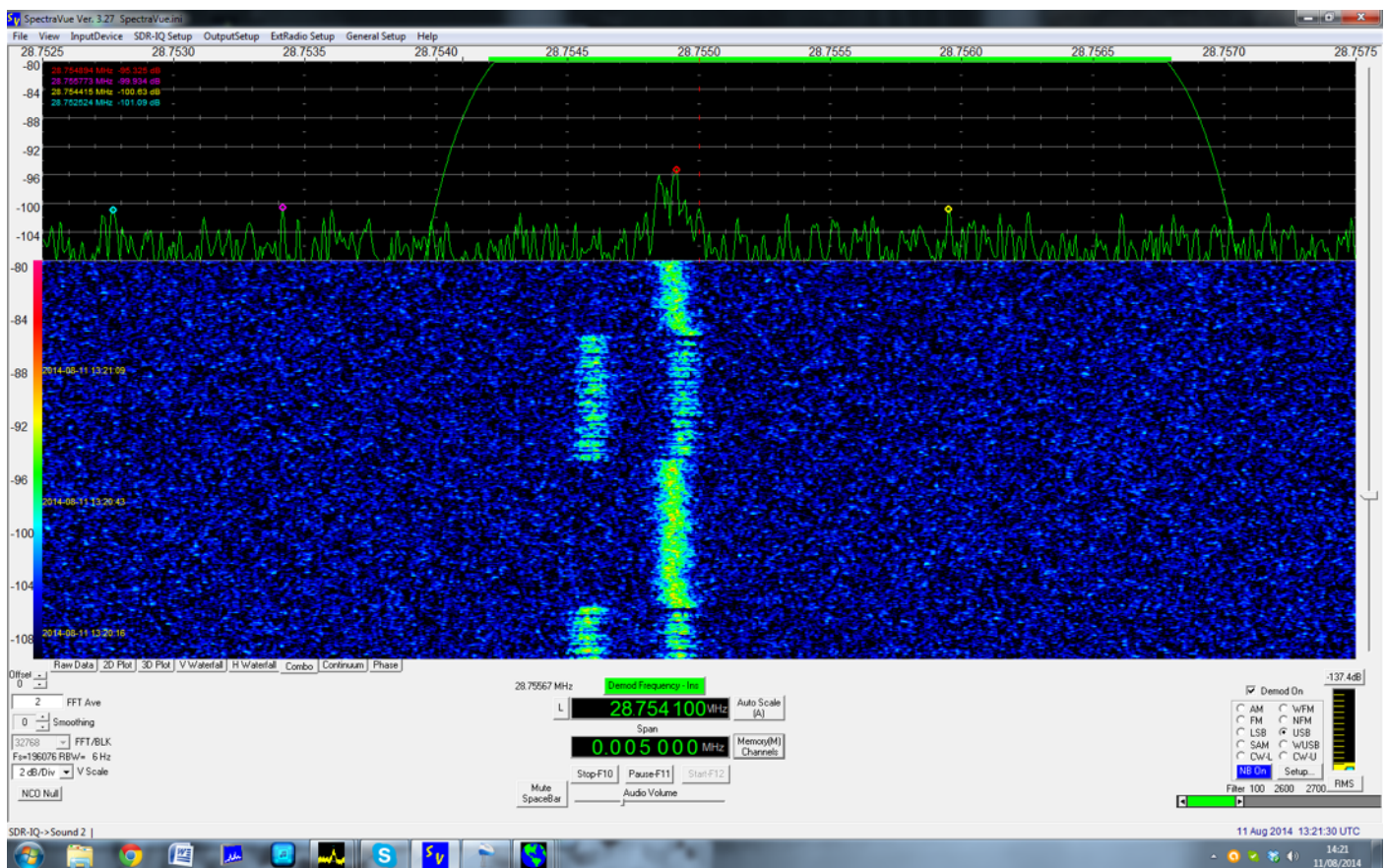
I looked at Will it Rain Today and saw the makings of some interesting rain traversing West to East so checked out my local Beacons GB3KBQ and GB3SCX - both heavily bulked out with RS components . I had logged GB3MCB the previous Friday via RS and that's relatively rare due to Dartmoor along the direct 202km path, so I centred the SDR on its last seen frequency , using the peak scatterpoint for the local sources and there at 12.55 was GB3MCB .

I monitored the band using full 190kHz span for the next 30 mins , looking for new peaks and at 13.16, by then pointing my 60cm offset dish at 100 degrees, had -12db decodes from GB3SEE.

The rain started to get serious after that and at 13.21 GB3CAM put in an appearance - the plot below was sent to the reflector as a warning and shows I used some elevation to peak (I can adjust between minus 5 to plus 35 degrees from the shack).

I have an Ash tree directly to my North in my neighbours garden within 8m of my dish (my planing permission does not allow me to fully raise my mast during weekdays ! ) , so that path is poor in the Summer months. However with 10 degrees of EL I found a good scatterer over the tree and logged GB3CCX @ 14.10 for the first time in many months .





Well that just left GB3PKT, which is turning up on a regular rain enhanced basis, so it was good to JT4G decode it @14.22 at -11dB .

The lightning discharges and an indicated 37mm/Hr rainfall peak only lasted for 15mins during the monitoring period, so this was not that exceptional, but hearing SEVEN UK 10GHz beacons is probably a record for me.

My dish was at 6m AGL, using an unmodified Octogon PLL LNB, locked with the G4JNT synthesizer based 144MHz down-converter system, vintage Datong DC144/28 downconverter into an SDR-IQ @28MHz. Band locking was by local 10368.000000MHz GPS locked source in shack , using a USB dongle RX Teed of the 14MHz IF.

## August 23cm UKAC

### From Eddie G0EHV

Usual portable activity in July and August UKACs. Similar QSO numbers - 49 in July in fair conditions, 41 in August with poor conditions.

Best DX in both months was M0LNE at 424km.

IO84 square still popular!

### From Bob G8DTF IO83

Conditions from IO83 did not seem particularly good. I spent lots of time calling some stations including Ray GM4CXM without success.

I worked 8 stations in IO83 and there were quite a few loud locals, which made hunting for DX quite difficult. 3 stations in IO82, 4 in IO93, 3 in IO91, and one each in IO85, IO81 and JO02. Best DX was G3TCU/P in IO91 at 287km.



## August SHF UKAC

From Eddie G0EHV IO84

### 13cms

Welcome return to early start for August UKAC but a very poor night out /P. I went to my IO94 site for this one, the intermittent KST access at IO84 not being worth the risk.

I managed to transpose the two cables to the masthead preamp/relay at setup and successfully killed the preamp! Patching out the preamp gave me a reduced receive capability, but I managed 10 QSOs in poor band conditions.

Best DX was G4BRK at 352 Km. Sadly I did not complete with at least 2 stations due to my poor receive, sorry for the "senior moment"!

From Pete GM4BYF IO87

### 3cm Contacts Cross the Grampian Mountains

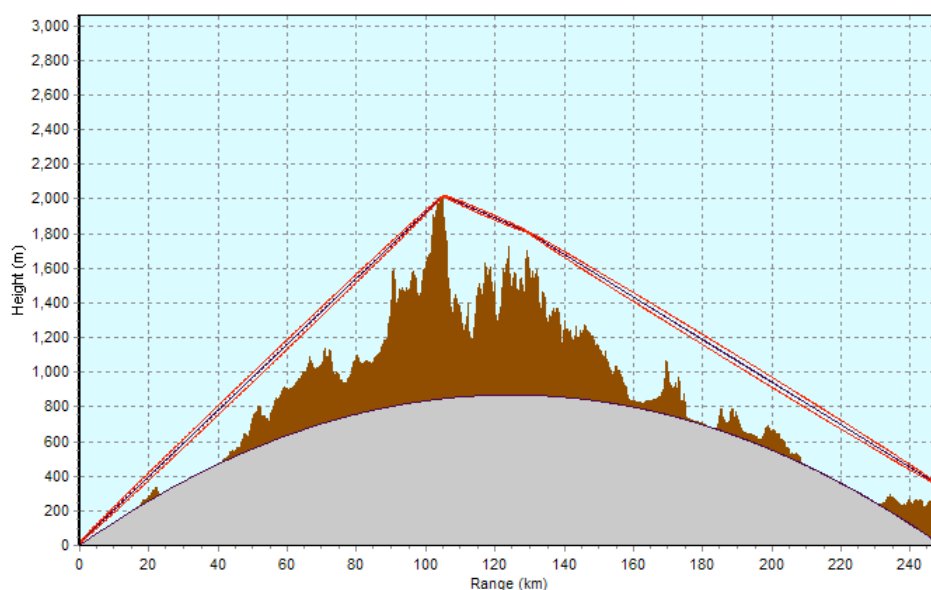
Inspired by the continuous reception in Edinburgh of the 1 Watt beacon built by GM8BJF and located at the QTH of GM3WOJ, I took my 3cm gear with me when visiting family in Golspie (IO87AX) and arranged QSO's with people located in Southern Scotland during the 5.7GHz/10GHz/24GHz Contest on July 27th. I explained to my hosts that I needed a site nearby which had a clear view to the south and was offered access to a flat roof on the sea front. I had limited time, due to other family activities, but was able to operate on the Sunday Morning.

Contacts were made with Mark GM4ISM (IO85AR), Brian GM8BJF/P (IO85NT) and Alan GM0USI/P (IO75UR).

The contact with Mark was difficult at my end because of a deaf receive side, but we made it in the end. (He gave me 57 and I sent 219) Brian gave me 59 over the phone – his 1W carrier was S3, but he had a modulation problem so a 2 way was not possible. The contact with Alan was easy – I heard him at 52 and he gave me 57.

These contacts show what is possible over mountainous terrain with moderate power – I was running 15W to an 80cm offset dish. The path profiles below give an idea of the terrain being crossed. The path to GM8BJF/P has just one diffraction point – identified as being Beinn A' Bhuidr -1179m (3832ft) asl.

There are many mountains of similar height nearby and well within the beamwidth of the dish and they almost certainly contributed to the scattering/diffraction.



*Path Profile IO87AX - IO85NT*

The contact with Mark GM4ISM was a much more tortuous path with three scattering/diffraction points. The take off from Golspie is very good as the photo shows – a sea path for the first 20 km.



The equipment at GM4BYF is an FT817 to a GW4DGU transverter system feeding a 15W solid state linear.

An old 80cm offset satellite dish is the antenna. The message is “don't let terrain deter you – go out and try those “impossible” paths”

*Setting up a contact via cell phone*



*O2 reception is a bit like that round here, too. Ed.*

## August 5.7/10/24GHz Cumulative

From Eddie G0EHV IO95

### 3cms

Out /P in IO95 with the rebuilt system for the UK microwave contest on 31st August was a day of learning points!

Looking to test the new setup, 8W amplifier should help things a lot.

Low QSO numbers – 4 completed but lots of attempts that wouldn't go.

Big issue was coverage of my O2 phone, multiple cell sites, but data only supported very intermittently for KST.

An on site visitor, G8KPD loaned me his Vodafone. Things vastly improved, my attempt rate shot up, but so did my failure rate!

Weather was kind, and the site was good, although conditions were poor – not even a beacon heard. I'll be back with a Vodafone SIM!

### ...and finally

I want to encourage you get on the air as often as possible and report your activity to clearly document use of the amateur microwave bands. This means not just DX and EME, but also local activity with ATV, low power or WB equipment.

Please send your reports to [Scatterpoint@ukmicrowavers.org](mailto:Scatterpoint@ukmicrowavers.org), remember the deadline is the 1st of the month.



# Important Ofcom Announcements

1. Ofcom have advised that there are expected to be LTE test transmissions over the next few months in the 13 cms/2.3 GHz band. The tests will be in the central London area and will be upto 38dBW erp. If licensed Radio Amateurs should become aware of unusual transmissions, they are asked to bear this in mind.
2. Ofcom has today [published a consultation](#) setting out proposals for updating the terms and conditions of the amateur radio licence.

These proposals include changes which would provide amateurs with access to some frequency bands previously available only through the variation of individual licences.

The consultation follows changes announced in our [April statement](#) on Public Sector Spectrum Release, where we set out our decision to remove access for amateur radio operators to certain frequencies in the 2300 MHz and 3400 MHz ranges in order to support the release of these bands by the Ministry of Defence.

This consultation, which is likely to be of interest to those in the amateur radio community, closes on **20 October 2014**.

The Ofcom Licence Review - [rsgb.org/licencereview](http://rsgb.org/licencereview)

***Please read the full pdf very carefully!***

## Cornish Beacon needs your help

The logo for the Mid Cornwall Beacon and Repeater Group (mcbarg) is displayed in a large, bold, red, lowercase sans-serif font.

The [Mid Cornwall Beacon and Repeater Group](#) provide radio facilities for the use of radio amateurs and shortwave listeners across the county.

The group is run by volunteers and is funded from donations received from users of the facilities provided.

UKuG are planning to make a 1 off donation of £100 to support the Cornish 23cm beacon at IO70oj on 1296.860MHz

The beacons are under serious threat of being closed-down due to lack of financial support. Also, the 1.3GHz beacon is not the only microwave beacon run by the the Group: GB3MCB on 10GHz is also a potent and useful signal.

Perhaps UKuG members might think it a good idea to make an [individual donation](#)?

The Mid Cornwall Beacon and Repeater Group provide radio facilities for the use of radio amateurs and shortwave listeners across the county.

The group is run by volunteers and is funded from donations received from users of the facilities provided.



# Contests

**John G3XDY, UKuG Contest Manager**

Contest results are also published online - please follow the link from the UKuG Contests Page at:

[www.microwavers.org/?contesting.htm](http://www.microwavers.org/?contesting.htm)

## July 5.7GHz Contest 2014

Despite the leading station making more contacts than in June, entry levels dropped for this event. Congratulations go to Ian G8KQW/P as winner, with the Telford & DARS (G3ZME/P) as runner up. Leading fixed station was Neil G4LDR.

Contest July 2014						
Pos	Callsign	QSOs	Score	ODX Call	ODX km	Power
1	G8KQW/P	11	1640	G3XDY	264	6
2	G3ZME/P	10	1466	G3XDY	265	15
3	G4LDR	8	1165	G3LRP	279	15
4	G8ACE/P	6	623	G4ALY	221	5
5	G3VKV	2	208	G4CBW	131	5

## July 10GHz Contest 2014

The high entry level noted last month was maintained in July. Propagation was mostly average, but there was some rainscatter in evidence with several stations working F6DKW in Paris.

Congratulations go to Nick G4KUX as the overall leader for the third month in a row, followed by leading portable station GW3TKH/P, and Stewart G0LGS/P as leading restricted section entrant. G4KUX now has an unassailable lead in the Open section of the Championship table, with G0LGS/P leading the Restricted section.

10GHz Contest July 2014							
Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX km	Power
1	G4KUX	IO94BP	13	3902	F6DKW	712	8
2	GW3TKH/P	IO81LS	20	3327	F6DKW	501	10
3	G4LDR	IO91EC	15	2454	F6DKW	378	25
4	G3ZME/P	IO82QL	17	2377	G3XDY	265	4
5	G4BAO	JO02CG	15	2307	F6DKW	415	7
6	G0LGS/P	IO81XW	19	2182	G4KUX	302	1
7	G8KQW/P	IO82QJ	17	2069	G3XDY	264	20
8	G8ACE/P	IO91JB	9	1078	G4ALY	221	5
9	GM0USI/P	IO75UR	5	918	G4CBW	324	9
10	G0PEB/P	IO90JO	7	827	G3XDY	234	0.2
11	G3VKV	IO81XV	9	646	G3LRP	196	8
12	G3YKI	IO92BD	9	622	G3LRP	166	0.25
13	G8AIM	IO92FH	5	478	G4KUX	261	6
14	GM4BYF/P	IO87AX	1	251	GM4ISM	251	15
15	GW4NOS/P	IO81FP	2	250	G4ALY	138	1
16	GM8OTI/P	IO85EW	2	56	GM3UCI	28	1
Checklog gratefully acknowledged from G4ODA							

## July 24GHz Contest 2014

Activity was limited for this event, with the winner GW3TKH/P having only two contacts, and the runner up Telford & DARS G3ZME/P just one.

24GHz Contest July 2014						
Pos	Callsign	QSOs	Score	ODX Call	ODX km	Power
1	GW3TKH/P	2	160	G3ZME/P	84	0.5
2	G3ZME/P	1	84	GW3TKH/P	84	0.5
3	G8KQW/P	1	76	GW3TKH/P	76	3
4	G8CUB/P	1	20	G4EAT	20	1
5	G4BAO	1	11	G4BEL	11	2

## 5.7/10/24GHz Championship Tables

Positions after three events, the best three count to overall total

5.7GHz					
Pos	Callsign	5/25/14	6/29/14	7/27/14	TOTAL
1	G8KQW/P	0	1000	1000	2000
2	G8CUB/P	1000	879	0	1879
3	G(T)3ZME/P	0	977	894	1871
4	G8ACE/P	0	803	380	1183
5	G4LDR	0	309	710	1019
6	G4BRK	0	805	0	805
7	GW4HQX/P	0	562	0	562
8	G3VKV	0	272	127	399
10GHz Open					
Pos	Callsign	5/25/14	6/29/14	7/27/14	TOTAL
1	G4KUX	1000	1000	1000	3000
2	G(T)3ZME/P	552	393	609	1554
3	G8KQW/P	0	826	530	1356
4	G4BAO	611	0	591	1202
5	GW3TKH/P	0	199	853	1052
6	G4EML/P	250	129	629	1008
7	G8ACE/P	0	587	276	863
8	G8CUB/P	789	0	0	789
9	G4BRK	0	459	0	459
10	G4LDR	0	420	0	420
11	G6ZAC/P	250	108	0	358
12	G3VKV	0	172	166	338
13	GM0USI/P	0	0	235	235
14	G3PHO	0	177	0	177
15	G8AIM	0	0	123	123
16	GM4BYF/P	0	0	64	64
17	M0DTS/P	0	0	0	0

<b>10GHz Restricted</b>					
Pos	Callsign	5/25/14	6/29/14	7/27/14	TOTAL
1	G0LGS/P	1000	554	1000	2554
2	G4WLC/P	883	1000	0	1883
3	M0HNA/P	0	938	0	938
4	G0PEB/P	0	351	379	730
5	GW4HQX/P	288	344	0	632
6	G4RGK	0	448	0	448
7	G1MPW/P	0	386	0	386
8	G3YKI			285	285
9	G4GSB/P	0	159	0	159
10	GM8OTI/P	0	129	26	155
11	GW4NOS/P			115	115
<b>24GHz</b>					
Pos	Callsign	5/25/14	6/29/14	7/27/14	TOTAL
1	GW3TKH/P	0	847	1000	1847
2	G3ZME/P	1000	0	525	1525
3	G8KQW/P	0	1000	475	1475
4	G3PHO/P	1000	0	0	1000
5	G8ACE/P	0	424	0	424
6	G4BAO	93	0	69	162
7	G8CUB/P	0	0	125	125
8	G4LDR	0	0	0	0

## Microwave Field Day 2014 Results

Activity and entry levels remain critically low for this event, suggestions to reinvigorate it are welcome. Would a date change help, for example?

### 1.3GHz

Three entries does represent an improvement over 2013 but still not at a viable level.

### 10GHz

Just one entry makes this a non-event on this band.

### Overall

The overall winner of the Restricted section was the Cheltenham ARA operating as G5BK/P, who won both bands.

There were no entries in the Open section.

In the Fixed station section G4KIY was the winner, with M5MUF as runner-up.

Congratulations to the winners and runner-up.

# UKuG Microwave Contest Calendar 2014

Dates	Time UTC	Contest name	Low Band#	Certificates
3 -Aug	0900 - 1700	Microwave Field Day		F, P,L
31 -Aug	0600 - 1800	4th 5.7GHz Contest		F, P,L,R
31 -Aug	0600 - 1800	4th 10GHz Contest		F, P,L,R
31 -Aug	0600 - 1800	4th 24GHz Contest		F, P,R
28 -Sep	0600 - 1800	5th 5.7GHz Contest		F, P,L,R
28 -Sep	0600 - 1800	5th 10GHz Contest		F, P,L,R
28 -Sep	0600 - 1800	5th 24GHz Contest		F, P,R
23 -Nov	1000 - 1400	Low band 1.3/2.3/3.4GHz	5	F, P,L,R

Key:

F	Fixed / home station
P	Portable
L	Low-power (<10W on 1.3-3.4GHz, <1W on 5.7/10GHz)
R	Radio Talkback only

## Journées d'Activité

Here are the dates for 2014 provided by Jean-Paul F5AYE (JN36dh).

All are Sat/Sun weekends apart from the scatter tests via Mont Blanc.

### 1296 GHz and up

27/28 September 25/26 October

73 Robin, G8APZ

## Events calendar

### 2014

Sept 6–7	European Conference on Amateur RA, Bad Münstereifel- Eschweiler, Germany	
Sept 12–14	59.UKW Tagung, Weinheim [ <i>note date correction</i> ]	<a href="http://www.ukw-tagung.de/">www.ukw-tagung.de/</a>
Sept 21	Crawley Round Table	<a href="http://www.microwavers.org/cra-prog.htm">www.microwavers.org/cra-prog.htm</a>
Sept 26–27	National Hamfest	<a href="http://www.nationalhamfest.org.uk/">www.nationalhamfest.org.uk/</a>
Oct 6-9	European Microwave Week, Rome	<a href="http://www.eumweek.com/">www.eumweek.com/</a>
Oct 10-12	RSGB Convention	<a href="http://www.rsgb.org/rsgbconvention/">www.rsgb.org/rsgbconvention/</a>
Oct 18-19	Microwave Update, Rochester, New York	<a href="http://www.microwaveupdate.org/">www.microwaveupdate.org/</a>
Nov 1	Scottish Round Table	<a href="http://www.gmroundtable.org.uk/">www.gmroundtable.org.uk/</a>

### 2015

Jan 17	Heelweg Microwave, Westendorp Netherlands	<a href="http://www.pamicrowaves.nl/website/">www.pamicrowaves.nl/website/</a>
Apr 11	CJ-2015, Seigy	<a href="http://cj.ref-union.org/">cj.ref-union.org/</a>
April 25 – 26	Martlesham Round Table	<a href="http://mmrt.homedns.org/">mmrt.homedns.org/</a>
May 15 – 17	Hamvention, Dayton	<a href="http://www.hamvention.org/">www.hamvention.org/</a>
June 26 – 28	Ham Radio, Friedrichshafen	<a href="http://www.hamradio-friedrichshafen.de/">www.hamradio-friedrichshafen.de/</a>
Sep 28 – Oct 2	European Microwave Week, Paris	<a href="http://www.eumweek.com/">www.eumweek.com/</a>

### 2016

May 20 – 22	Hamvention, Dayton	<a href="http://www.hamvention.org/">http://www.hamvention.org/</a>
Jun 24 – 26	Ham Radio, Friedrichshafen	<a href="http://www.hamradio-friedrichshafen.de/">www.hamradio-friedrichshafen.de/</a>
Oct 4 – 7	European Microwave Week, London	<a href="http://www.eumweek.com/">http://www.eumweek.com/</a>