



An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

June 2022

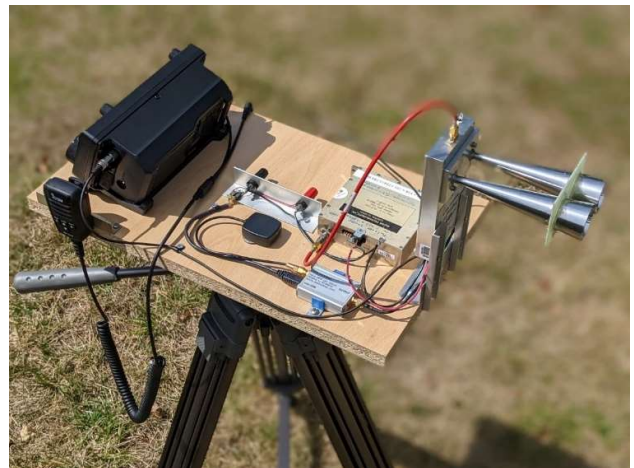
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3.4GHz Antenna test system by Ross G6GVI



Dave G1EHF's 47GHz transverter in operation

Subscription Information

The following subscription rates apply.

UK £600 US \$1200 Europe €10 00

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

<https://groups.io/g/Scatterpoint> and/or

DropboxAlso, **free access to the Chip Bank**

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

payukug@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

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)

Please send pictures and tables separately, as they can be a bit of a problem.

Thank you for you co-operation

Roger G8CUB

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UKμG Project support

The UK Microwave Group is pleased to encourage and support microwave projects such as Beacons, Synthesiser development, etc. Collectively UKuG 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 (e.g. 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

www.microwavers.org/proj-support.htm

UKμG Technical support

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 UKuG there are a number of people who are prepared to (within sensible limits!) share their knowledge and, what is more important, 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 contact the committee.

The current list is available at

www.microwavers.org/tech-support.htm

UKμG Chip Bank – A free service for members

By Mike Scott, G3LYP

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 components on the site will not be a guarantee of availability of that component.

The service is run as a free benefit to all members of the UK Microwave Group. The service may be withdrawn at the discretion of the committee if abused. Such as reselling of components.

There is an order form on the website with an address label which will make processing the orders slightly easier.

Minimum quantity of small components is 10.

These will be sent out in a small jiffy back using a second class large letter stamp. The group is currently covering this cost.

As many components are from unknown sources. It is suggested values are checked before they are used in construction. The UKμG can have no responsibility in this respect.

The catalogue is on the UKμG web site at www.microwavers.org/chipbank.htm

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Loan Equipment

Don't forget, UKuG has loan kit in the form of portable transceivers available to members for use on the following bands: **Contact Neil G4DBN for more information**

5.7GHz 10GHz 24GHz 47GHz(g8cub) 76GHz 122GHz(soon)

Protecting a Dish against Wind Damage while Portable.

Dave G4GLT

You don't have to be portable for long before you realise the possibility of damage to a dish due to the wind gusting. My tripod was blown over a few years ago and I ended up with a bent dish that I planished back into shape. I didn't want to be in this situation again. The larger the dish the greater the risk of this happening. Also, if you are hill-topping, you soon realise that there is very often wind up there much of the time to varying degrees.

When the moment created by horizontal forces of wind against the dish is higher than the moment created by gravity around that same point, the downwind leg will overturn. Opening the legs as wide as practicable, which can be up to a metre with large tripods, can help with stability. I have approached this problem with two measures. Firstly, each leg should be adequately fixed to the ground with a peg that is long enough, in order to prevent horizontal movement of the leg. Secondly, I have arranged for sufficient weight to be added to all three legs to prevent vertical movement. I reasoned that even with a heavy weight a strong gust could still drag the weight, so a strong ground fixing seemed essential.

My partner was a scenic artist at many theatres around the UK and when I mentioned to her this problem, she suggested theatre weights. The simplest solution is to attach a 12.5kg theatre weight to each leg using nylon rope. The 21cm pegs fixing the legs are about 18cm into the ground and as it has an eye included the rope is attached ready for use. A 23cm peg is put through the hole in the weight to stop horizontal movement.







Although the above solution works perfectly well, I was looking for a more elegant solution that used the Doughty stage braces that are attached to these weights in the theatre. This makes a much stronger tripod. The weights rest on the interlocking end of the stage brace.

Another modification was the adding of a 3mm steel plate behind the central movable section of the tripod leg in order to prevent it dislodging from its groove under extreme force. The weight of a modified tripod is 43kg. Adding three Doughty 12.5 kg weights to the braces brings the total weight of the system to about 80kg. If a very large dish were used then it is possible to stack the weights to provide even more counterweight. The weights have interlocking lugs.

On the braces the inner steel tube is 20x20mm and this is adjustable in height to allow for different depths of the point of the leg in the ground. The outer square section was shortened to 575mm fit the tripod and the inner section was shortened too. Two knurled M8 knobs 250 mm apart are used to attach the brace to the central section of the tripod leg separated by an M8 self-locking nut.

The external 3mm aluminium plate (350 x 100mm) is attached to the brace with three M5 bolts. The tripod can still be extended normally as all the fixing is to the central section of the tripod leg. I removed half of the footrest as I was concerned about the weight fitting in. This may not be necessary for only one weight. Only one peg is used per leg in the photograph below but another can be added as previously if required. Do contact me with any queries. Enjoy being portable in all weathers!

Dave G4GLT June 2022.

(Please note that if you do go down this path not all stage weights are the same and a Doughty stage brace will need a Doughty stage weight such as the T61100 used here. The stage brace by Doughty that I used was the 2 metre DOUT60000).



Dish heading setting using GPS (non RTK approach)

Dish heading setting using GPS (non RTK approach)

Barry Chambers G8AGN, v 0.2, 19 July 2022

NOTE: It is not suggested that the discussion given below is the optimum way forward for those amateurs operating on a limited budget; it is merely intended to stimulate positive discussion and perhaps suggestions for future experimentation.

A recent DUBUS article [1] and several YouTube videos have outlined how to use DGPS (differential GPS) in a reference station + rover RTK (real-time **kinematic**) configuration to establish a very accurate baseline with a known orientation. This can then be used to align a protractor fitted to a dish mount so that accurate beam headings to distant stations can be established. Such a system can provide very accurate beam headings (much less than 1°) when using a base line of only a few m, but only at a cost approaching £500 per station. The question which then arises is whether a similar but simplified approach, but using only GPS receivers costing a few £ each, can achieve useful results.

As is well known, the location data provided by a typical consumer grade GPS receiver can vary over quite wide limits from minute to minute. Typical sources of error include the ever-changing ensemble of GPS satellites which the receiver uses, propagation effects, limited view of the sky at the receiver position, multipath effects, etc. In addition, low-cost receivers only make use of data transmitted by the satellites on a single frequency, whereas more expensive receivers can make use of two or even three frequencies, which enables propagation and other errors to be compensated for.

A commonly used measure of location accuracy, and the one displayed by many consumer grade GPS devices, is that given by the CEP value. This is the radius of a circle, centred on the mean GPS receiver location, within which 50% of the measured GPS positions are located. If the GPS receiver can be connected via a RS232 interface to a PC, then software such as GNSS Viewer [2] or **ublox** u-center [3] can be used to establish typical values of the CEP; often, these will be in the range 1 – 3 m for low-cost receivers, depending on the satellite ensemble and the receiver's field of view. Hence, for 50% of the time, the receiver's location is known to within $\pm 1\text{m}$ to $\pm 3\text{m}$. In addition, for 95% of the time, the location is known to within 2.08 times the CEP value, i.e. $\pm 2.1\text{m}$ to $\pm 6.3\text{m}$. This extended measure of position is designated as the R95 value [4].

A full discussion of how to make use of GPS CEP values in establishing a known baseline between a fixed reference station, RS, (situated at the dish tripod) and a remote fixed point, R, (the "rover") involves the use of statistical analysis, but in the discussion which follows, we will take a much simpler approach to make an estimate of worse case scenarios. As a starting point, consider a very simple situation as shown in Figure 1. We will use this geometry to estimate the uncertainty in the bearing, $\pm\theta$, between the points RS and R, when they are separated by a known baseline distance, BL. In this example, it is assumed that the position of RS and the length of the baseline are known exactly (the latter by using a measuring tape).

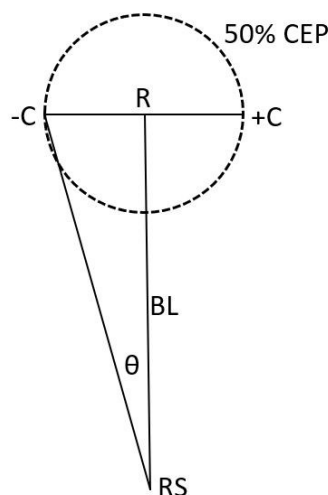


Figure 1 Position of rover derived from GPS

It is assumed that the position of R is being determined by a GPS receiver having a CEP error of C (metres). Now it is a simple matter to estimate the worse-case 50% bearing uncertainty, $\pm\theta$, for a fixed value of C, as the length of the base line BL increases. Hence

$$\theta = \text{atan}\left(\frac{C}{BL}\right) \quad (1)$$

Typical handheld GPS receivers exhibit a best-case CEP of 1-3m. Taking $C = 3\text{m}$ and $BL = 1\text{m}$, gives $\theta = \pm 71.6^\circ$, and with $BL = 100\text{m}$, $\theta \approx \pm 1.7^\circ$. If $BL = 400\text{m}$, $\theta \approx \pm 0.43^\circ$. For $C = 1\text{m}$, the corresponding values of θ for $BL = 100\text{m}$ and 400m are $\pm 0.6^\circ$ and $\pm 0.14^\circ$, respectively.

A more realistic system geometry is shown in Figure 2, where the position of the reference station, RS, is only known within a CEP radius C_1 and the position of the rover, R, within a CEP radius of C_2 . As before, the length of the baseline BL is known exactly through physical measurement using a tape.

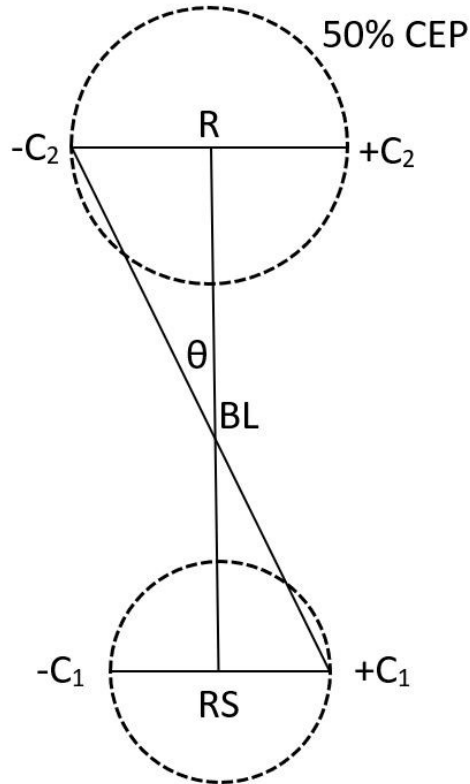


Figure 2 Positions of reference station and rover both derived from GPS

Now the 50% bearing uncertainty is given by

$$\theta = \text{atan}\left(\frac{C_1 + C_2}{BL}\right) \quad (3)$$

In the most optimistic case, $C_1 = C_2 = 1\text{m}$; then for $BL = 100\text{m}$, $\theta = \pm 1.1^\circ$ but for $C_1 = C_2 = 3\text{m}$, $\theta = \pm 3.4^\circ$ and a longer baseline would be required. Hence for $BL = 400\text{m}$ in the worst case, $\theta = \pm 0.9^\circ$.

In all the examples discussed above, further inaccuracies will arise if the length of the base line is inferred from GPS derived locations of the reference station and rover but these will be small.

In the simplest case, the endpoints of the baseline connecting the points RS and R may be established within specified values of CEP using a single moveable GPS receiver and the bearing between them calculated using the Haversine formula [5]. This value for the bearing will be subject to the errors estimated above.

With the dish sighting scope trained on point R, a protractor on the dish mount must then be rotated to set it to this known baseline bearing. Once calibrated, the protractor must be fixed in place and can then be used to set up any other required bearing, such as that to a distant station. The mechanical arrangement of a rotating protractor on my own dish mount is shown in Figure 3.



Figure 3 Dish mounting showing rotatable protractor

From the above discussion, it seems likely that this technique should be viable “in the field”, but may be no better than using a compass heading obtained from Google Earth or GOMJW’s Path Profile software [6]. In practice, it has been found that even using a very high-quality sighting compass, such as those made by *Silva*™, measured bearings can be adrift by several degrees, especially in the presence of ferrous objects or if the compass has been mishandled over time.

If the dish boresight is well collimated to the sighting scope cross-hairs, other dish alignment techniques are possible but these will be dependent on weather conditions. If the day is overcast but visibility is good, then a dish can be aligned using a high-power red-light beacon operated by the distant station. This is less effective on a bright sunny day; in this case, if the two stations are situated along a roughly EW path, then the most effective alignment aid is a small, inexpensive, domestic mirror, as stocked in most hardware stores. Even a very small mirror is surprisingly visible at a distance of 10s of km but must be aligned correctly so that its boresight direction is the bisector of the elevation and azimuth angles between the distant station and the Sun. These angles will change as the Sun moves across the sky; furthermore, the light reflected from the mirror will have a beamwidth of only about 0.5° (i.e. the subtended angle of the Sun as seen from the Earth’s surface) and so frequent mirror realignment will be required. One possible aid to correct mirror alignment might be to use a “fireball” aimer [7].

References

1. Differential GPS Azimuth Reference for Microwave Portable Operations, VK3HZ and VK7MO, DUBUS 3/2019, pp 9-15.
2. GNSS Viewer, [Downloads — NavSpark](#)
3. Ublox u-center, [u-center | u-blox](#)
4. [Circular error probable - Wikipedia](#)
5. [Formula to Find Bearing or Heading angle between two points: Latitude Longitude - \(igismap.com\)](#)
6. Path Profile, [Mike Willis Web Site \(mike-willis.com\)](#)
7. [Making Your Mirrors - BSA Operation On Target \(google.com\)](#)

Report on the 2022 RAL Microwave Round Table



After a (long) 3-year wait, it was really good to be able to run the RAL Round Table again on the 19th June 2022. Around 60 people attended the event when before lunch we had talks on “Telemetry Control of a Mast-mounted PA and Preamp system” by Mike, G8CUL, “Raspberry PI-based Microwave Test Equipment” by Dave, G8GKQ and after lunch “Radio Navigation Satellite Service and the 23cm Band” by Barry, G4SJH and “A Portable 3m Dish for the 23cm and 3cm Bands” by Jacques, F1BHL, the latter being given via a Zoom recording. During lunch the Project competition was judged by John, G3XDY and Mike, G8CUL.



After the talks the Trophy awards were presented by John, G3XDY assisted by Heather, M0HMO, followed by the result of the RALRT round of the G3VVB Project Competition. 6 entries were presented for judging. These were –

122GHz Portable transceiver x 2	John Worsnop, G4BAO
5.7GHz TX/RX	Jen Easdown, G4HIZ
24GHz ATV/NB system	Gareth Evans, G4XAT
5.7GHz DATV RX strip	Gareth Evans, G4XAT
430MHz>3.4GHz Transverter	Dave Crump, G8GKQ
Portsmouth Double/Langstone Tcwr	Dave Crump, G8GKQ

By the narrowest of margins, the winner was Dave, G8GKQ with his Portsmouth Double/Langstone Transceiver. A small cup, suitably engraved was presented to Dave for him to keep.

Throughout the day a larger than normal number of flea-market stalls were selling a wide variety of interesting and of course useful items. Refreshments consisting of bacon butties in the morning, sandwiches and cakes at lunchtime and teas and coffees throughout the whole day were provided by Ann, G8NVI, assisted by John, G6LNU and Howard, M0JWC and probably hindered by Mike, G8CUL.



During the whole day a number of newly-built VK2CV transverters were tested between the car park and surrounding field, thus giving many their first 122GHz QSO! The best DX probably being in the region of a few hundred feet.

Overall, it was a good day which I hope many enjoyed.

Mike, G8CUL.

Microwave Round Table Dates

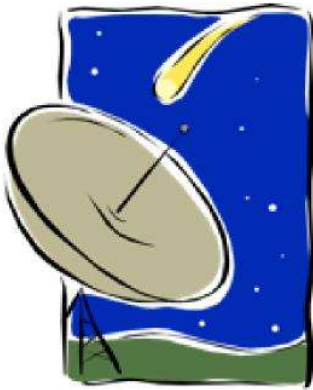
Crawley 18th September 10.30 -14.00

Scottish 22nd October 1030 – 17.00

Midlands 3rd December 10.00 – 16.00

Scatterpoint activity report

Activity News: June 2022



By John G4BAO

Please send your activity news to: scatterpoint@microwavers.org

From Ross G6GVI "Microwave update from Bolton"

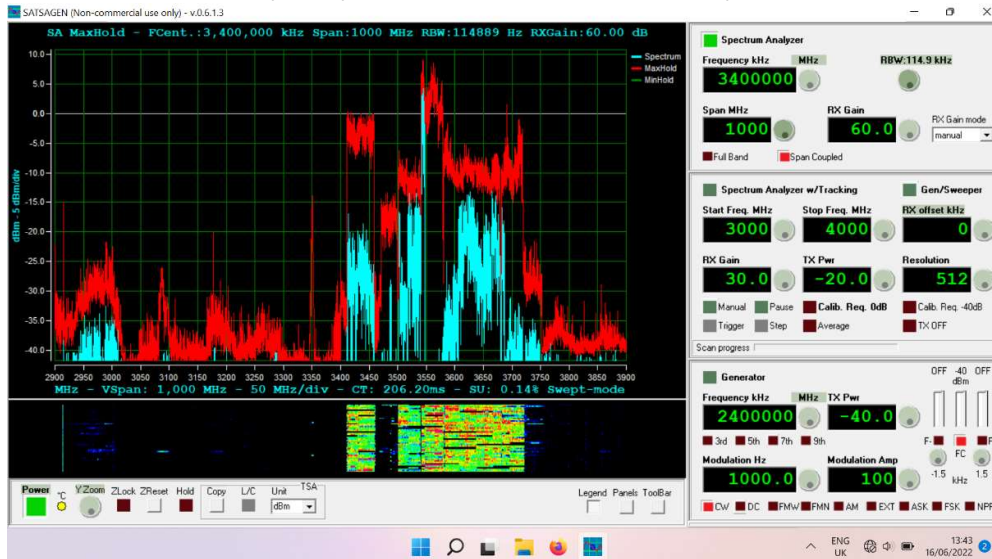
There are now six of us on 3.4GHz: four using transverters from SG Lab, one with a Kuhne and myself just using a Pluto SDR hanging out of an upstairs window!

Hence there has been a lot of interest recently in antenna construction for the band: mainly building Loop-Quad Yagis to the G3JVL design and adapting Wi-Fi grid dishes. Steve G4AQB also built a little dual biquad into a "shallow dish" reflector (an old steak-pie tin!) and Mark MOUFC imported a WiMAX panel from Italy.





As there was a lot of debate about the relative performance of these antennas, I have devised an antenna-testing range to measure their polar plots, comparing each with a common reference. I set this up during the Club's recent garden party in the grounds Smithills Hall Museum, where we found that the best performer was the long LQY made by Richard G4HGI, which showed a beamwidth of 15 degrees and an estimated gain of around 19dBi - see attached. I've also attached a couple of photos taken at this event taken by Mark MOUFC.



Also, on 3.4GHz, Dave G4JLG has found increasing problems when operating from his /P site on Winter Hill: whenever he pointed his dish anywhere near Manchester, his receiver was wiped out by S9+ noise. I suggested that this could be due to newly installed 5th-Generation cellular bases in the 3.41 - 3.8 GHz "n78" band, so we took my Pluto SDR up there to capture some spectra. Sure enough, there were some very strong local signals around 3600 MHz and slightly weaker ones (from the direction of Manchester) just above 3410 MHz - see the attached plot.

I found an old interdigital filter which I managed to tune to pass 3400 and reject 3600 and with this in-line with his transverter, Dave found the interference was substantially reduced - see his comments in Claimed Scores from the two recent UKAC events. From May: "Unable to hear some stations due to S9+20db noise probably from mobile phone base stations. Band virtually unusable now at this location" and then from June: "QRM from mobile Base stations reduced by use of a bandpass filter kindly provided by G6GVI" I think that Dave will be getting in touch with G4ZTR and PE1RKI to see about getting a custom narrowband filter made.

Meanwhile on 1.3GHz our Wednesday evening FM net had eight participants on 1st June: I was operating Special Jubilee call GQ0BWC and was joined by G4AQB in Bolton, G4JLG & G4NTY in Worsley, G1CXE/M near Stockport, G4HGI in Billinge, G4EQZ in Staffordshire and finally G3SMT in Shropshire. I'm constantly surprised by the contacts I can make on 1.3GHz from my QTH in the bottom of a valley!

Also, from Ross G6GVI “Celebrity panel games”

I've just been looking at the latest GHz Bands (from August RadCom) and saw the bit about G4DDK's 3.4GHz panel antenna. It looks to be the same model which Mark M0UFC recently got from Italy, and which we measured on my antenna range the other week - see attached. If my Reference log periodic (WA5VJB PCB) has around 5dBi, then the panel does indeed come out at 18dBi.

From Dave GW8TBY

Since G4BAO's feature on my FT1290 in GHz Bands, I'm ready for the fan-mail regarding the FT1290 project - and was wondering if the prices of the old Yaesu 290s will be shooting up as a result? And the 790s, which would be IFs for the 2.3GHz & 3.4GHz transverters.

G4BAO writes...Phil G8MLA, one of my locals has already independently made both 1.3GHz and 2.3GHz rigs using an FT290 and an FT790 and demonstrated it to me a few weeks ago at the regular Thursday lunchtime Cambridge “Coffee in the park” meet at Milton Country park.

From Nick G0HIK

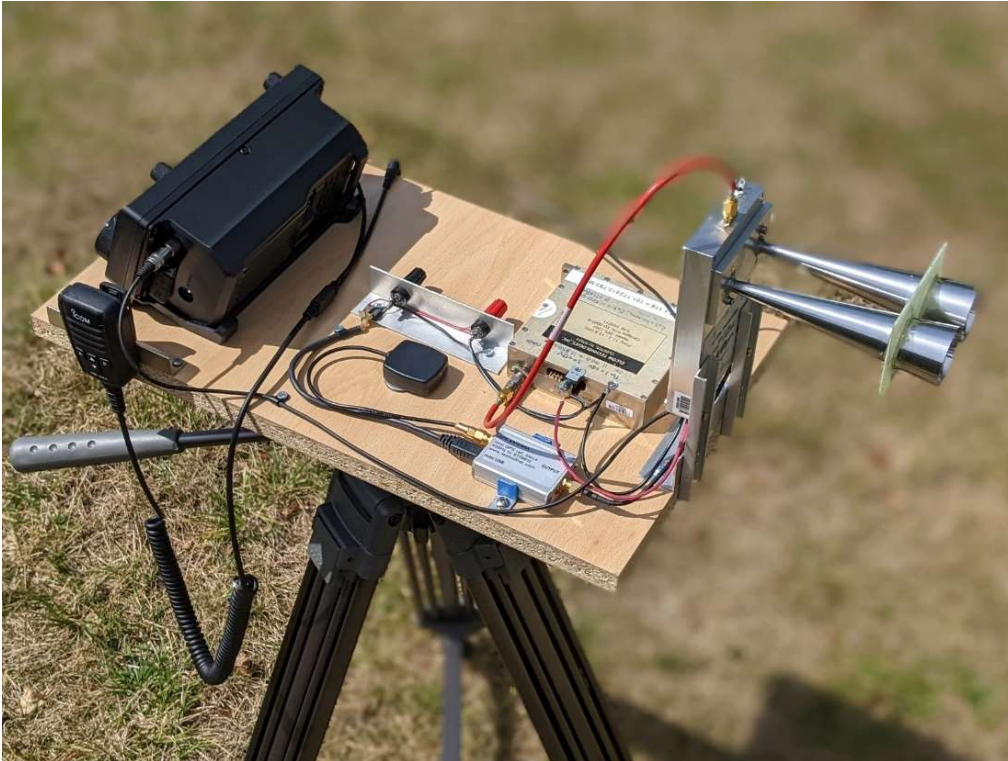
Last year, I gave a talk at the local radio club (FARS) the subject was getting operational on QO-100. Since then, three of the members have started to get going on this mode and two others have showed an interest.

I consider this to be a major success as nearly all activity from members in the past, I guess like most clubs has been H.F. and 2mtr FM/DMR. On the 30th of June the four of us, G0HIK, M0KPW, M0KYL and M0RBE had a FARS net. One member is in his 80's and is still up for a challenge. Nice to see a bit more microwave R.F. emanating from IO84. With a couple of IC-9700's bought hopefully we shall see a little bit of activity on 1.3GHz in the future.

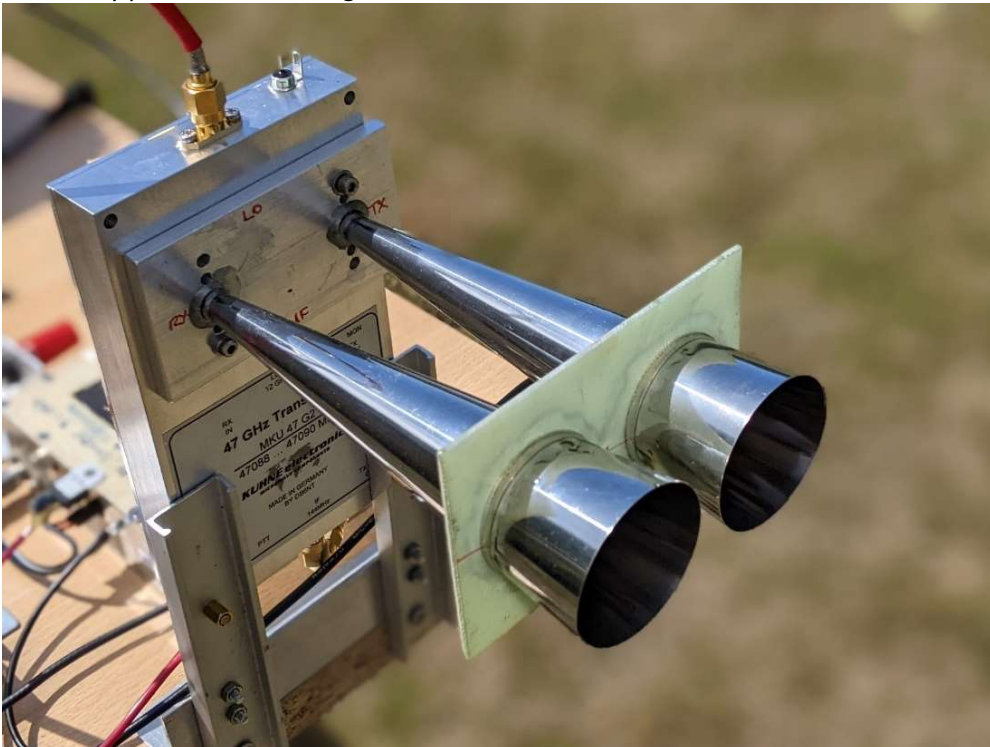
GM0USI messaged me to say he was visiting Great Cumbrae (IO75MS), in the Clyde with his 10g kit. I went to a local high spot Corney Fell (IO84IH) on the 27th of June with my 60cm dish and 2.5w and worked him easily. I also worked GI7UGV/P (IO74DN) at 5/9 ++. G4CBW was also on, I was blocked in his direction, but I copied him off a reflection, unfortunately he could only partially hear me.

A couple of days later I tried with Alan again, this time I was at home. We tried A/S but were unsuccessful. After this I moved the dish to the other side of the house and worked John GI7UGV/P (IO74FO) again this time he was at sea level. Over an obstructed path he was excellent signal strength, but very distorted. We tried F.M where signals were very clear with just a touch of what sounded like mobile flutter.

From Dave G1EHF



The June 24/47/76 GHz contest gave me an opportunity to try out my new 47 GHz kit based on a DB6NT transverter. I had previously used a simple anti-parallel diode sub-harmonic mixer feeding a 30 cm NEC Pasolink dish. This had worked surprisingly well considering the very low power and poor NF but did rely heavily on decent kit at the far end. The DB6NT had arrived only a few weeks before the contest so was hastily assembled into a system, with a Leo Bodnar GPSDO feeding an Elcom synth to provide the LO (see picture). The biggest issue was providing an antenna, as I don't have a w/g switch or any WR19 guide. I fashioned a twin horn arrangement from two large icing cones with 35mm openings. The transition between the cones and the WR19 ports was simply to cut the narrow cone ends so they just exceeded the wide dimension of the guide and then to mount them in a large aluminium block with epoxy resin. Very primitive but manageable in the timeframe!



This arrangement seemed to work quite well, with S9 NBFM exchanged with John G8ACE and Neil G4LDR over the 26 km path from Walbury to Stockbridge and I made 4 QSOs in total. It was also much easier to aim the ~23dB horns than the Pasolink dish. Future plans involve making some copper pyramidal horns and possibly interfacing into a larger dish with a w/g swap arrangement.

From Dave G4GLT

Thought I would mention that this morning (14/6/2022) at just after 0600Z I started receiving the new beacon F5ZBA on 10368.905 MHz at good strength from my portable site at IO80DO. It was audible for the next four hours and is a distance of 645 Km from me. Fortunately I get no signal from GB3SCX on the same frequency in the direction of the new beacon as it is 66degrees away on the azimuth. The beacon locator is JN06WD, and it runs 1.5watts to a 10db slot. It is 700masl. The exact location is Gueret, Limousin. At this superb location in Limousin it is a very valuable addition to the French beacon network. Also received during this period were F5ZVV, HB9G, HB9BBD, F5ZWM, F1ZUQ, and F5ZPS.

I have recorded this new beacon using a Tascam portable digital recorder via an attenuator. So hopefully this will be on Beaconsport soon if the recording is good enough.

On 17/7/2022 on 10GHz conditions from my portable site at IO80DO were strong across the channel to F1BQ and F9ZG but no other French beacons inland were heard. It did open up also to PA and PA3GCO beacon was strong. Around 0630gmt I was in contact via ON4KST with Guy EA/F2CT at 1100metres on Gorramakil in IN93GF. I was very surprised to hear him coming through at 559 peaking 579. We had a QSO, and my initial report was 519 which he changed later to 559. The distance was 840km. After this Guy worked ON4KHG in JO10XO at 917km and F6DKW in JN18CN. ON4KHG was using a 48cm Procom dish and 2.5 watts. Guy was using 50w to a 1 metre plus dish. This kind of experience is what gives 10GHz it's buzz and excitement.

UKuG MICROWAVE CONTESTS – 2022

May 5.7GHz Contest 2022

Propagation was uninspiring for this contest, with the leader noting failures with stations that have been worked before. Congratulations go to Dave G1EHF/P as winner, with Pete G4CLA in the runner-up spot, who also worked the best DX at 214km.

73

John G3XDY

UKuG Contest Manager

5.7GHz Contest 29 May 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	G1EHF/P	IO91GI	8	945	G4CBW	199
2	G4CLA	IO92JL	8	942	M0EYT/P	214
3	G3ZME/P	IO82QL	9	866	G1EHF/P	149
4	M0EYT/P	IO80WP	6	829	G4CLA	214
5	M0GHZ	IO81VK	8	820	G4CBW	181
6	GW4HQX/P	IO81LS	7	704	G4CLA	148
7	G8AIM	IO92FH	2	183	G1EHF/P	107
8	GW4MBS	IO71XW	0	0		0

June 5.7GHz Contest 2022

Activity was low for this event. G6ZME/P (Telford & DARS) was the winner with David M0GHZ as runner up. Best DX recorded was the QSO from G6ZME/P to G3XDY at 265km. No continental stations appeared in the logs.

73

John G3XDY

UKuG Contest Manager

5.7GHz Contest 26 June 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	G6ZME/P	IO82QL	8	964	G3XDY	265
2	M0GHZ	IO81VK	4	484	G3XDY	246
3	G4LDR	IO91EC	3	286	G6ZME/P	168
4	G4BRK	IO91HP	3	253	G6ZME/P	127
5	G8AIM	IO92FH	1	76	G6ZME/P	76

May 10GHz Contest 2022

Conditions were very average for this first 10GHz contest in 2022.

John G4ZTR took the top spot in this session, with a substantial lead over runner-up Telford & DARS G3ZME/P.

G3ZME/P recorded the best DX in the contest at 535km with F6DKW.

Congratulations also to Dave G1EHF/P, who was the only entrant in the Restricted section on this occasion.

73

John G3XDY

UKuG Contest Manager

10GHz Contest 26 May 2022

Open Section

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX
						Kms
1	G4ZTR	JO01KW	20	4401	F6DKW	365
2	G3ZME/P	IO82QL	21	3378	F6DKW	535
3	G4CLA	IO92JL	18	2822	F4BUC/P	469
4	M0EYT/P	IO80WP	14	2525	ON/PA0MHE	385
5	M0GHZ	IO81VK	15	2108	ON/PA0MHE	383
6	GW3TKH/P	IO81LS	13	2011	ON/PA0MHE	443
7	GW4MBS/P	IO71XW	7	1166	G4ODA	282
8	G0WZV	JO01KV	8	1030	G3ZME/P	248
9	GW0MDQ/P	IO82KW	7	1017	G4UVZ	218
10	G4BXD	IO82UJ	6	618	G4ZTR	222
11	GM0HIK/P	IO75KK	4	322	GM0USI/P	94
12	G8AIM	IO92FH	2	183	G1EHF/P	107
13	GM4DIJ/P	IO74LU	2	125	GM0HIK/P	66

Restricted Section

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX
						Kms
1	G1EHF/P	IO91GI	13	1689	G4CBW	199

June 10GHz Contest 2022

Activity was at a low ebb for this event, and the usual French activity was reduced as their activity day was rescheduled to the previous weekend.

There were no entries in the Restricted section for this session.

In the Open section Telford & DARS G3ZME/P were the leaders, with John G4ZTR as runner up.

Best DX was recorded by G4LDR with F6DKW at 379km.

73

John G3XDY

UKuG Contest Manager

10GHz Contest 26 June 2022

Open Section

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX
						Kms
1	G3ZME/P	IO82QL	12	1646	G3XDY	265
2	G4ZTR	JO01KW	7	1357	F6DKW	365
3	G4LDR	IO91EC	7	1223	F6DKW	378
4	G0WZV	JO01KV	5	540	G3ZME/P	248
5	M0GHZ	IO81VK	3	422	G4ZTR	220
6	G4MBS/P	IO92BC	3	332	G4UVZ	153
7	G8AIM	IO92FH	1	76	G3ZME/P	76

5.7/10GHz Championship Tables

Positions after two events, best three count to the total

5.7GHz

Pos	Callsign	29/05/2021	26/06/2021	TOTAL
1	M0GHZ	867	502	1369
2	G1EHF/P	1000	0	1000
3	G6ZME/P	0	1000	1000
4	G4CLA	996	0	996
5	G3ZME/P	916	0	916
6	M0EYT/P	877	0	877
7	GW4HQX/P	744	0	744
8	G4LDR	0	296	296
9	G8AIM	193	78	271
10	G4BRK	0	262	262
11	GW4MBS	0	0	0

10GHz Open

Pos	Callsign	29/05/2021	26/06/2021	TOTAL
1	G4ZTR	1000	824	1824
2	G3ZME/P	767	1000	1767
3	G4LDR	0	743	743
4	M0GHZ	478	256	734
5	G4CLA	641	0	641
6	M0EYT/P	573	0	573
7	G0WZV	234	328	562
8	G(W)4MBS/P	264	201	465
9	GW3TKH/P	456	0	456
10	GW0MDQ/P	231	0	231
11	G4BXD	140	0	140
12	G8AIM	41	46	87
13	GM0HIK/P	73	0	73
14	GM4DIJ/P	28	0	28

10GHz Restricted

Pos	Callsign	29/05/2021	26/06/2021	TOTAL
1	G1EHF/P	1000	0	1000

June 2022 Lowband Contest Results

Entries and activity were rather low for this event, but some good DX was worked on 1296MHz thanks to the coincident European contests.

MOHNA/P lead on 1296MHz with a good margin over John G4ZTR as runner up. G4ZTR worked the best DX with DJ6OL in JO52 at 628km. Nick G0HIK/P was the leading low power entrant.

Results on 2300MHz mirrored those of June 2021, with logs received from two stations, with MOHNA/P ahead of Mike G8CUL.

MOHNA/P also won on 2320MHz, with Mike G8CUL in the runner up slot. Anthony G7LRQ recorded the best DX with DL0LN at 534km.

The Combe Gibberlets MOHNA/P completed their clean sweep on 3400MHz, with John G4ZTR in the runner up position. Best DX recorded was from MOHNA/P to G1LPS at 371km.

Certificates go to the following band leaders, runners-up and leading low power stations.

1296MHz MOHNA/P, G4ZTR, G0HIK/P

2300MHz MOHNA/P, G8CUL

2320MHz MOHNA/P, G8CUL

3400MHz MOHNA/P, G4ZTR

John G3XDY
UKuG Contest Manager

1296MHz Contest 5 June 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	M0HNA/P	IO91GI	39	11436	DL5DAW	614
2	G4ZTR	JO01KW	26	8040	DJ6OL	628
3	G7LRQ	IO91TQ	26	7870	DL5DAW	538
4	G8CUL	IO91JO	22	5179	DL0LN	592
5	G4BAO	JO02CG	17	4033	DL0LN	491
6	G3TCT	IO81QC	11	2072	ON4CJQ/P	525
7	G0HIK/P	IO84JE	8	2038	G4ZTR	371
8	GW4JQP	IO71KR	6	1956	G3XDY	437
9	G3SQQ	IO93JC	11	1935	ON4CJQ/P	481
10	GM4BYF	IO85JV	4	1835	G4ZTR	515
11	G6GVI	IO83SN	8	1576	G3XDY	298
12	G3YJR	IO93FJ	9	1523	G3XDY	238
13	MW0OMB	IO81HN	7	1441	G3XDY	320
14	G4KZY	IO91EE	8	1082	GW4JQP	250
15	G0DJA	IO93IF	3	437	G3XDY	213
16	GM8IEM	IO78HF	1	211	GM6VXB	211
17	M0IAM	IO91QE	2	123	G8CUL	62
18	2E0GTD	IO91GE	1	19	M0HNA/P	19

2300MHz Contest 5 June 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	M0HNA/P	IO91GI	2	233	G3XDY	200
2	G8CUL	IO91JO	2	207	G3XDY	174

2320MHz Contest 5 June 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	M0HNA/P	IO91GI	11	2148	ON4CJQ/P	445
2	G8CUL	IO91JO	9	1987	F8DLS	431
3	G7LRQ	IO91TQ	8	1900	DL0LN	534
4	G4ZTR	JO01KW	6	1100	F8DLS	360
5	G3SQQ	IO93JC	4	756	G3XDY	201
6	GM8IEM	IO78HF	1	143	GM0ONN/P	143

3400MHz Contest 5 June 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	M0HNA/P	IO91GI	8	1339	G1LPS	371
2	G4ZTR	JO01KW	4	698	G1LPS	348
3	G8CUL	IO91JO	3	356	G3XDY	174
4	G4BAO	JO02CG	3	350	M0HNA/P	154
5	G6GVI	IO83SN	1	6	G4AQB	6

2022 Lowband Contest Overall Results

Four events to date, best three overall count to the total.

1.3 GHz

Pos	Call	06/03/2021	10/04/2021	08/05/2021	05/06/2021	Total
1	M0HNA/P	0	1000	1,000	1,000	3,000
2	G4BRK	1000	754	559	0	2,313
	G7LRQ					
3	(G7L)	0	727	514	688	1,929
4	M0GHZ	564	438	472	0	1,474
5	G4ZTR	0	735	0	703	1,438
6	G3SQQ	329	459	327	169	1,115
7	G8CUL	0	656	0	452	1,108
8	GW4JQP	318	490	183	171	991
9	G4KUX	0	857	0	0	857
10	G3TCT	524	0	0	181	705
11	G16ATZ	0	661	0	0	661
12	G3UKV	309	343	0	0	652
13	G0HIK/P	0	448	0	178	626
14	GM4BYF	241	0	153	160	554
15	G6GVI	176	185	72	137	498
16	G4BAO	128	363	0	0	491
17	G3SED	485	0	0	0	485
18	G0DJA	412	0	0	38	450
19	GM4DIJ/P	74	355	0	0	429
20	G8DOH	0	283	0	0	283
21	G3YJR	105	0	0	133	238
22	G0NZI	0	163	0	0	163
23	PE1EWR	0	135	0	0	135
23	MW0OMB	0	0	0	126	126
25	GM8IEM	66	0	35	18	119
26	G4LDR	0	0	115	0	115
27	G8AIM	97	0	0	0	97
28	G4KZY	0	0	0	94	94
29	G4EPA	91	0	0	0	91
30	G5RS/P	0	0	86	0	86
31	G8DMN/P	0	57	0	0	57
32	M0IAM	0	0	0	10	10
33	2E0GTD	0	0	1	1	2

2.30 GHz

Pos	Call	06/03/2021	10/04/2021	08/05/2021	05/06/2021	Total
1	M0HNA/P	1000	1,000	1,000	1,000	3,000
2	G8CUL	0	743	0	888	1,631
3	G4LDR	0	0	75	0	75

2.32 GHz

Pos	Call	06/03/2021	10/04/2021	08/05/2021	05/06/2021	Total
1	M0HNA/P	476	998	1000	1000	2,998
2	G4BRK G7LRQ	1000	1,000	888	0	2,888
3	(G7L)	0	581	767	884	2,232
4	M0GHZ	560	569	533	0	1,662
5	G8CUL	0	694	0	925	1,619
6	G3SQQ	579	502	398	351	1,479
7	G4ZTR	0	890	0	512	1,402
8	G3UKV	385	480	0	0	865
9	GM4DIJ/P	0	606	0	0	606
10	G4LDR	0	0	380	0	380
11	G1DFL/P	0	353	0	0	353
12	G8AIM	138	0	0	0	138
13	G0NZI	0	84	0	0	84
14	GW4MBS	0	72	0	0	72
15	GM8IEM	0	0	0	66	66

3.4 GHz

Pos	Call	06/03/2021	10/04/2021	08/05/2021	05/06/2021	Total
1	M0HNA/P	0	1000	824	1,000	2,824
2	G4BRK	1,000	214	1,000	0	2,214
3	M0GHZ	550	785	413	0	1,748
4	G4ZTR	0	826	0	521	1,347
5	G3UKV	629	458	0	0	1,087
6	G0HIK/P	0	726	0	0	726
7	G4BAO	413	0	0	261	674
8	G8CUL	0	383	0	265	648
9	G4LDR	0	0	219	0	219
10	G8AIM	118	0	0	0	118
11	G6GVI	12	4	3	4	20

24GHz/47GHz/76GHz Contest May 2022

Everybody complained about the wet weather for this event, but that didn't hold entrants back from making some good contacts. Congratulations to Dave G(W)4FRE/P who operated from locations either side of the border won both 24 and 47GHz, with runners up Barry G4SJH/P on 24GHz and Roger G8CUB/P on 47GHz. On 76GHz John G8ACE/P was the leading station.

John G3XDY

UKuG Contest Manager

24GHz Contest 15 May 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	G(W)4FRE/P	IO81LS19	6	523	G4SJH/P	122
2	G4SJH/P	IO91GI44	8	345	GW4FRE/P	122
3	G3UKV/P	IO82QL83	5	277	G8CUB/P	124
4	G1DFL/P	IO91CL12	4	147	GW4FRE/P	94
5	G8CUB/P	IO91CL12	2	123	GW4FRE/P	94
6	G4LDR	IO91EC02	3	80	G4SJH/P	32
7	G8ACE/P	IO91GC68	3	76	G4SJH/P	26

47GHz Contest 15 May 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	G(W)4FRE/P	IO81LS19	2	159	G8CUB/P	94
2	G8CUB/P	IO91CL12	2	95	GW4FRE/P	94
3	G8ACE/P	IO91GC68	2	50	G8GTZ/P	26
4	G1DFL/P	IO91CL12	1	1	G8CUB/P	1

76GHz Contest 15 May 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	G8ACE/P	IO91GC68	1	26	G8GTZ/P	26
2=	G1DFL/P	IO91CL12	1	1	G8CUB/P	1
2=	G8CUB/P	IO91CL12	1	1	G1DFL/P	1

UKuG MICROWAVE CONTEST CALENDAR 2022

Dates, 2022	Time UTC	Contest name
31-Jul	0600 - 1800	3rd 5.7GHz Contest
31-Jul	0600 - 1800	3rd 10GHz Contest
28-Aug	0600 - 1800	4th 5.7GHz Contest
28-Aug	0600 - 1800	4th 10GHz Contest
11-Sep	0900 - 1700	3rd 24GHz Contest & 24GHz Trophy
12-Sep	0900 - 1700	3rd 47GHz Contest
12-Sep	0900 - 1700	3rd 76GHz Contest
25-Sep	0600 - 1800	5th 5.7GHz Contest
25-Sep	0600 - 1800	5th 10GHz Contest
16-Oct	0900 - 1700	4th 24GHz Contest
16-Oct	0900 - 1700	4th 47GHz Contest
16-Oct	0900 - 1700	4th 76GHz Contest
13-Nov	1000 - 1400	5th Low band 1.3/2.3/3.4GHz

MICROWAVE CONTESTS - 2022

Month	Contest name	Certificates	Date 2022	Time GMT	Notes
Jan	1.3GHz Activity Contest	Arranged by RSGB	18-Jan	2000 - 2230	RSGB Contest
Jan	2.3GHz+ Activity Contest	Arranged by RSGB	25-Jan	1930 - 2230	RSGB Contest
Feb	1.3GHz Activity Contest	Arranged by RSGB	15-Feb	2000 - 2230	RSGB Contest
Feb	2.3GHz+ Activity Contest	Arranged by RSGB	22-Feb	1930 - 2230	RSGB Contest
Mar	Low Band 1296/2300/2320/3400MHz	F, P, L	6-Mar	1000 - 1600	First 4 hours coincide with IARU event
Mar	1.3GHz Activity Contest	Arranged by RSGB	15-Mar	2000 - 2230	RSGB Contest
Mar	2.3GHz+ Activity Contest	Arranged by RSGB	22-Mar	1930 - 2230	RSGB Contest
Apr	Low Band 1296/2300/2320/3400MHz	F, P, L	10-Apr	1000 - 1600	
Apr	1.3GHz Activity Contest	Arranged by RSGB	19-Apr	1900 - 2130	RSGB Contest
Apr	2.3GHz+ Activity Contest	Arranged by RSGB	26-Apr	1830 - 2130	RSGB Contest
May	REF/DUBUS EME 1.2GHz	Arranged by REF/DUBUS	7-May to 8-May	0000 - 2400	REF/DUBUS EME 1.2GHz
May	432MHz & up	Arranged by RSGB	7-May to 8-May	1400 - 1400	RSGB Contest
May	10GHz Trophy	Arranged by RSGB	8-May	0800 - 1400	Sunday, to coincide with IARU
May	Low Band 1296/2300/2320/3400MHz	F, P, L	8-May	0800 - 1400	Aligned with IARU event
May	24GHz/47/76GHz		15-May	0900-1700	
May	1.3GHz Activity Contest	Arranged by RSGB	17-May	1900 - 2130	RSGB Contest
May	2.3GHz+ Activity Contest	Arranged by RSGB	24-May	1830 - 2130	RSGB Contest
May	REF/DUBUS EME 10GHz & Up	Arranged by REF/DUBUS	28-May to 29-May	0000 - 2400	REF/DUBUS EME 10GHz & up
May	5.7GHz/10GHz	F, P, L	29-May	0600-1800	
Jun	REF/DUBUS EME 2.3GHz	Arranged by REF/DUBUS	4-Jun to 5-Jun	0000 - 2400	REF/DUBUS EME 2.3GHz
Jun	Low Band 1296/2300/2320/3400MHz	F, P, L	5-Jun	1000 - 1600	Aligned with some Eu events
Jun	1.3GHz Activity Contest	Arranged by RSGB	14-Jun	1900 - 2130	RSGB Contest
Jun	2.3GHz+ Activity Contest	Arranged by RSGB	21-Jun	1830 - 2130	RSGB Contest
Jun	5.7GHz/10GHz	F, P, L	26-Jun	0600-1800	
Jul	REF/DUBUS EME 5.7GHz	Arranged by REF/DUBUS	2-Jul to 3-Jul	0000 - 2400	REF/DUBUS EME 5.7GHz
Jul	VHF NFD (1.3GHz)	Arranged by RSGB	2-Jul to 3-Jul	1400 - 1400	RSGB Contest
Jul	24GHz/47/76GHz		10-Jul	0900-1700	
Jul	1.3GHz Activity Contest	Arranged by RSGB	19-Jul	1900 - 2130	RSGB Contest
Jul	2.3GHz+ Activity Contest	Arranged by RSGB	26-Jul	1830 - 2130	RSGB Contest
Jul	REF/DUBUS EME 3.4GHz	Arranged by REF/DUBUS	30-Jul to 31-Jul	0000 - 2400	REF/DUBUS EME 3.4GHz
Jul	5.7GHz/10GHz	F, P, L	31-Jul	0600-1800	
Aug	1.3GHz Activity Contest	Arranged by RSGB	16-Aug	1900 - 2130	RSGB Contest
Aug	2.3GHz+ Activity Contest	Arranged by RSGB	23-Aug	1830 - 2130	RSGB Contest
Aug	5.7GHz/10GHz	F, P, L	28-Aug	0600-1800	
Sep	24GHz/47/76GHz		11-Sep	0900-1700	
Sep	ARRL Microwave EME	Arranged by ARRL	17-Sep to 18-Sep	0000 - 2359	ARRL EME 2.3GHz & Up
Sep	1.3GHz Activity Contest	Arranged by RSGB	20-Sep	1900 - 2130	RSGB Contest
Sep	5.7GHz/10GHz	F, P, L	25-Sep	0600-1800	
Sep	2.3GHz+ Activity Contest	Arranged by RSGB	27-Sep	1830 - 2130	RSGB Contest
Oct	432MHz & up	Arranged by RSGB	1-Oct to 2-Oct	1400 - 1400	IARU/RSGB Contest
Oct	1.3 & 2.3GHz Trophies	Arranged by RSGB	1-Oct	1400 - 2200	RSGB Contest
Oct	ARRL EME 50-1296MHz	Arranged by ARRL	15-Oct to 16-Oct	0000 - 2359	ARRL EME Contest
Oct	24GHz/47/76GHz		16-Oct	0900-1700	
Oct	1.3GHz Activity Contest	Arranged by RSGB	18-Oct	1900 - 2130	RSGB Contest
Oct	2.3GHz+ Activity Contest	Arranged by RSGB	25-Oct	1830 - 2130	RSGB Contest
Nov	ARRL EME 50-1296MHz	Arranged by ARRL	12-Nov to 13-Nov	0000 - 2359	ARRL EME Contest
Nov	Low Band 1296/2300/2320/3400MHz	F, P, L	13-Nov	1000 - 1400	
Nov	1.3GHz Activity Contest	Arranged by RSGB	15-Nov	2000 - 2230	RSGB Contest
Nov	2.3GHz+ Activity Contest	Arranged by RSGB	22-Nov	1930 - 2230	RSGB Contest
Dec	1.3GHz Activity Contest	Arranged by RSGB	20-Dec	2000 - 2230	RSGB Contest

Sections		F	Fixed / home station
		P	Portable
		L	Low-power <10W 1.3/2.3/3.4GHz, <1W 5.7GHz)
Main changes from 2021 calendar			
122GHz+ events removed (no fixed dates in 2022)			

EVENTS 2022

For the latest information please see: <https://microwavers.org>

2022

August 7	BATC Convention, Midland Air Museum, Coventry	www.batc.org.uk
August 12-14	EME 2022, Prague - rescheduled 2021 event	www.eme2020.cz
September 18	Crawley Roundtable, Crawley club, Tilgate forest	CARC – Crawley Amateur Radio Club
September 25-30	2022 European Microwave Week, Milan, Italy	www.eumweek.com
October 7-9	RSGB Convention	
October 15-15	National Hamfest	
October 22	Scottish Roundtable	https://www.gmroundtable.org.uk
December 3	Midlands Roundtable – Eaton Manor SY6 7DH	

80m UK Microwavers net

Tuesdays 08:30 local on 3626 kHz (+/- QRM)

73 Martyn Vincent G3UKV

Editors Comments

Thanks to the contributors this month. As always the magazine is only as good as the contributions. A busy time for the editor with house moves etc. Normal service should resume next month.