



An Amateur Radio publication for the Microwave Enthusiast

# scatterpoint

April / May 2022

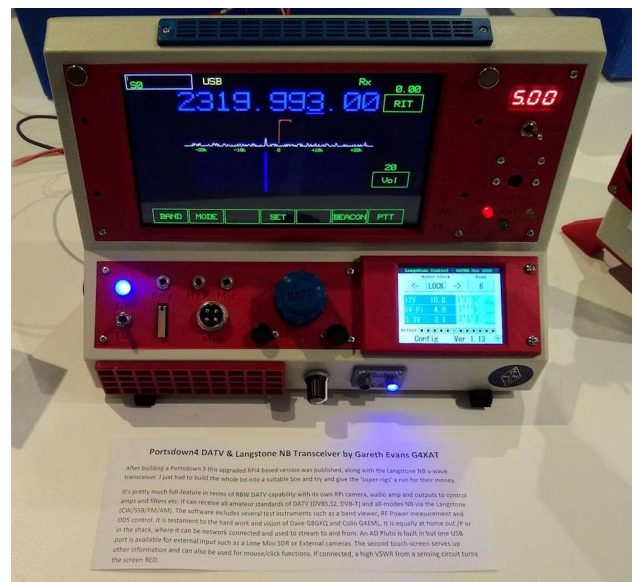
Published by the UK Microwave Group

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Noise Figure measurement at Martlesham 2022



Portsmouth & Langstone construction by Gareth G4XAT

**Portsmouth4 DATV & Langstone NB Transceiver by Gareth Evans G4XAT**

After building a Portsmouth 3 this upgraded RP4 based version was published, along with the Langstone NB transceiver. I just had to build the whole lot into a suitable box and try and give the 'super rig' a run for their money.

It is a pretty much full feature in terms of RP4 DATV capability with its own RP camera, audio and video outputs to control scope and more etc. It also receives all amateur standards of DATV (DVB-DL, DVB-T) and all modes NB on the Langstone (CW/SB/P/AM). The software includes several test instruments such as a band viewer, RF Power measurement and DSI control. It is an extension to the hardware and solution of Dave G3VVB and Colin G4XAM. It is equally at home on RP or in the shack, where it can be network connected and used to stream to and from. An AD Photo is built in but one USB port is available for external input such as a Line Mic DIB or External camera. The second touch screen serves up other information and can also be used for mouseclick functions. If connected, a high VSWR from a sensing circuit turns the screen RED.

## 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](mailto: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](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)

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

Thank you for you co-operation

**Roger G8CUB**

## Reproducing articles from Scatterpoint

If you plan to reproduce an article exactly as in Scatterpoint then please contact the [Editor](#) – otherwise you need to seek permission from the original source/author.

*You may not reproduce articles for profit or other commercial purpose. You may not publish Scatterpoint on a website or other document server.*

## 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](http://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](http://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](http://www.microwavers.org/chipbank.htm)

# UK Microwave Group Contact Information

Chairman: Position vacant      General Secretary: John Quarmby      Membership Secretary: Bryan Harber  
G3XDY      G8DKK

email: [chairman@microwavers.org](mailto:chairman@microwavers.org)      [secretary@microwavers.org](mailto:secretary@microwavers.org)      [membership@microwavers.org](mailto:membership@microwavers.org)  
Suffolk JO02OB      Hertfordshire IO91VX  
Tel: 01473 717830

Treasurer: David Millard      Scatterpoint Editor: Roger Ray      Beacon Coordinator: Denis Stanton  
M0GHZ      G8CUB      G0OLX

email: [treasurer@microwavers.org](mailto:treasurer@microwavers.org)      [editor@microwavers.org](mailto:editor@microwavers.org)      [beacons@microwavers.org](mailto:beacons@microwavers.org)  
Wiltshire IO91DK  
Tel: 07900 261121

Scatterpoint Activity news: John G4BAO      [scatterpoint@microwavers.org](mailto:scatterpoint@microwavers.org)  
Contests & Awards Manager: G3XDY as above      [g3xdy@btinternet.com](mailto:g3xdy@btinternet.com)

## Assistants

Murray Niman	Webmaster	G6JYB	<a href="mailto:g6jyb@microwavers.org">g6jyb@microwavers.org</a>
Kent Britain	USA	WA5VJB/G8EMY	<a href="mailto:wa5vjb@flash.net">wa5vjb@flash.net</a>
Mike & Ann Stevens	Trophies	G8CUL/G8NVI	<a href="mailto:trophies@microwavers.org">trophies@microwavers.org</a>
Noel Matthews	ATV	G8GTZ	<a href="mailto:noel@noelandsally.net">noel@noelandsally.net</a>
Robin Lucas	Beaconspot	G8APZ	<a href="mailto:admin@beaconspot.uk">admin@beaconspot.uk</a>
Chris Whitmarsh	mmWaves	G0FDZ	<a href="mailto:chris@g0fdz.com">chris@g0fdz.com</a>
Mike Scott	Chip Bank	G3LYP	<a href="mailto:g3lyp@btinternet.com">g3lyp@btinternet.com</a>
Paul Nickalls	Digital	G8AQA	<a href="mailto:g8aqa@microwavers.org">g8aqa@microwavers.org</a>
Heather Lomond	SDR	M0HNO	<a href="mailto:m0hno@microwavers.org">m0hno@microwavers.org</a>
Neil Smith	Tech Support	G4DBN	<a href="mailto:neil@g4dbn.uk">neil@g4dbn.uk</a>
Barry Lewis	RSGB uWave Manager	G4SJJ	<a href="mailto:barryplewis@btinternet.com">barryplewis@btinternet.com</a>

## UK Regional Reps

Martin Hall	Scotland	GM8IEM	<a href="mailto:martinhall@gorrell.co.uk">martinhall@gorrell.co.uk</a>
Gordon Curry	Northern Ireland	GI6ATZ	<a href="mailto:gi6atz@qsl.net">gi6atz@qsl.net</a>
Peter Harston	Wales	GW4JQP	<a href="mailto:pharston@gmail.com">pharston@gmail.com</a>

## International

Kent Britain	USA	WA5VJB/G8EMY	<a href="mailto:wa5vjb@flash.net">wa5vjb@flash.net</a>
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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      76GHz

# UK Microwave Group AGM Minutes 2022

The AGM of the UK Microwave Group took place on 1<sup>st</sup> May 2022, by Zoom video conferencing. 18 members were present.

## Minutes 2021

Minutes 2021 (as published in Scatterpoint Apr 2021) – no comments had been received, there were no matters arising.

## Secretary's Report – John Quarmby G3XDY

### Committee members and officers

The group has been running without a Chairman for over 7 months now. Most of the group's activities have continued as usual but the role of Chairman is important in providing leadership and direction for the group, and shaping policy. Thanks to two of our committee members (Barry G4SJH and Murray G6JYB) we have good representation in the RSGB and on international working groups, such as that dealing with Galileo.

Thanks also go to the committee members who run the Chipbank (Mike G3LYP), act as beacon co-Ordinator (Denis G0OLX), look after our trophies (Mike/Ann G8CUL/G8NVI), edit Scatterpoint (Roger G8CUB) and organise our contests (John G3XDY). I would like to thank all those members who give their time to help run the UKuG .

### Round Tables

The first Round Table since 2019 took place in December 2021 in the Midlands, thanks go to Paul G8AQA for organising this event. The first event of 2022 took place last weekend at Martlesham and was attended by 60 members.

It is expected that the 2022 programme of Round Tables will be close to usual, with RAL, Finningley, Crawley, Midland and Scottish Round Tables in the diary.

### EMF Assessments

EMF Assessments are now mandated by Ofcom for Amateur Stations. The group has been working closely with the RSGB on developing guidance and tools to support you in producing these assessments. So far guidance and tools for Yagi based systems have been completed. Work on dish antennas continues, further guidance is expected soon. The modelling of near field effects is complex.

### Frequency Allocations

All the frequency allocations we have continue to come under some level of threat from commercial applications:

Work on the co-existence of Amateur Radio services with Galileo continues, Barry G4SJH is playing an important role in coordinating the amateur radio inputs to the scenarios being investigated

The roll-out of 5G mobile services is increasing spectrum occupancy in the 2350 - 2390MHz band, mitigating interference caused by front end overload can be challenging

### Reverse Beacon Network

Finding sites and getting approval from primary users for beacons is challenging, so an additional approach to propagation monitoring is being developed.

The group is looking to create a network of SDR receivers around the UK to create a "Reverse Beacon Network". These would allow users to transmit towards the SDR and check whether their signal was being received.

At present there are several independent SDR receivers in operation, but a more integrated system would have benefits for users, and the committee would be prepared to fund hardware costs to create a unified network.

We are looking for a volunteer to lead this project, more information can be obtained from the secretary.

## Treasurer's Report – David Millard M0GHZ

It's been another stable year for the Group's finances, with net funds increasing by £1378 despite the following new outgoings in addition to our normal operating costs of Zoom, postage, trophies engraving, Paypal fees:

24GHz Loan equipment £230

Beacon support

GB3KBQ £265

GB3GCT £182

GB3RPE £736

Cloudlog has been discontinued as it was no longer being used

Income is solely from subs, donations and bank interest

Subs are down £50 on the previous year

A donation of £100, has been received from the family of G3JVL to cover the Walters & Szuch Trophy Prize for 2022.

This was won in 2021 by Ben G4BXD, and included under 'Trophies'

There is no requirement to increase the subscription rates which have remained at a very reasonable £6 for many years.

Our balance increases year on year and we need to increase our expenditure to the benefit of our members.

The committee is looking at funding further items of loan equipment for 9cm and QO-100 in 2022.

Funding support will be provided to Microwave Round Tables in 2022 if required.

If you have any suggestions or funding requirements, please forward them to the committee.

At our Auditor's suggestion, a list of our assets and their replacement costs is being compiled.

Grateful thanks to Graham Phillips G0KRB who kindly audited the accounts at no cost to the UKuG.

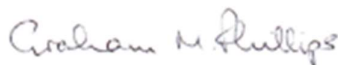
A question was raised by G8DKK on overseas members subs rates, alignment of rates was suggested. This will be on the agenda at the next UKuG committee meeting.

**UK Microwave Group Accounts**  
Covering period 01/Jan/2021 to 31/Dec/2021

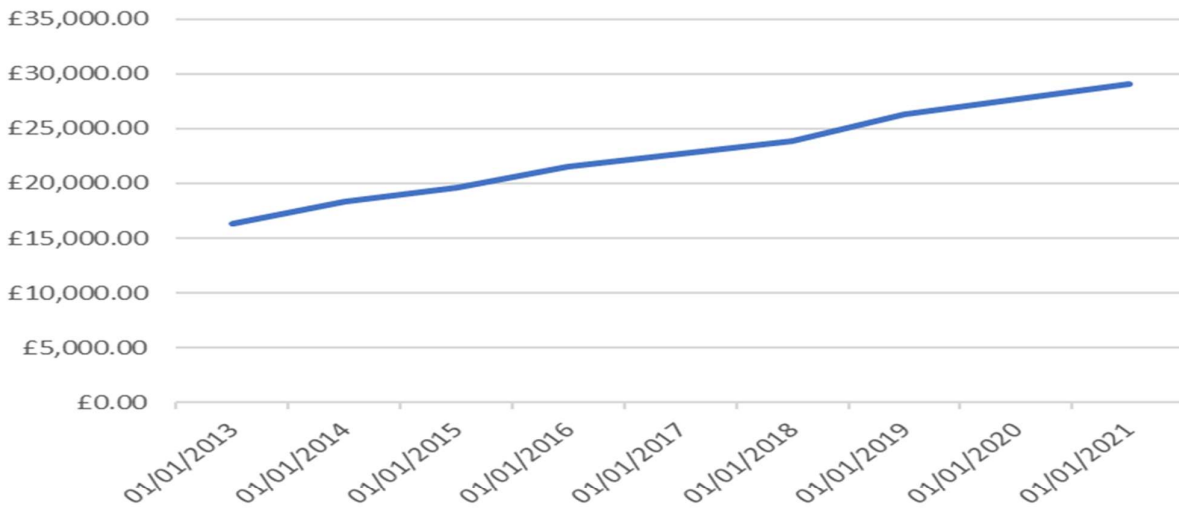
Item	Income	Expenditure	Balance
<b>Opening balances as at 01/01/2021</b>			
Current account			£1,361.65
Savings account			£24,801.39
Paypal			£1,528.73
Cash in hand			£0.00
<b>Opening balance</b>			<b>£27,691.77</b>
Chipbank	£0.00		
Subscriptions	£3,629.53		
Donations	£100.00		
Other	£0.01		
Interest	£2.66		
PayPal fees		£217.96	
RSGB Affiliation		£52.00	
Websites (inc beaconspot)		£244.46	
Beacon Support		£1,183.92	
Trophies		£214.31	
Chipbank Expenses		£48.79	
Publications		£0.00	
Postage		£10.45	
Zoom		£143.88	
Cloudlog		£8.00	
Loan equipment		£230.36	
<b>Sub-totals</b>	<b>£3,732.20</b>	<b>£2,354.13</b>	
<b>Excess income over expenditure</b>			<b>£1,378.07</b>
<b>Closing balance as at 31/12/21</b>			<b>£29,069.84</b>
<b>Represented by</b>			
Current account			£177.10
Savings account			£28,374.05
Paypal			£518.69
Cash			£0.00
		<b>Closing balance</b>	<b>£29,069.84</b>

Prepared by  
D. Millard M0GHZ  
Treasurer

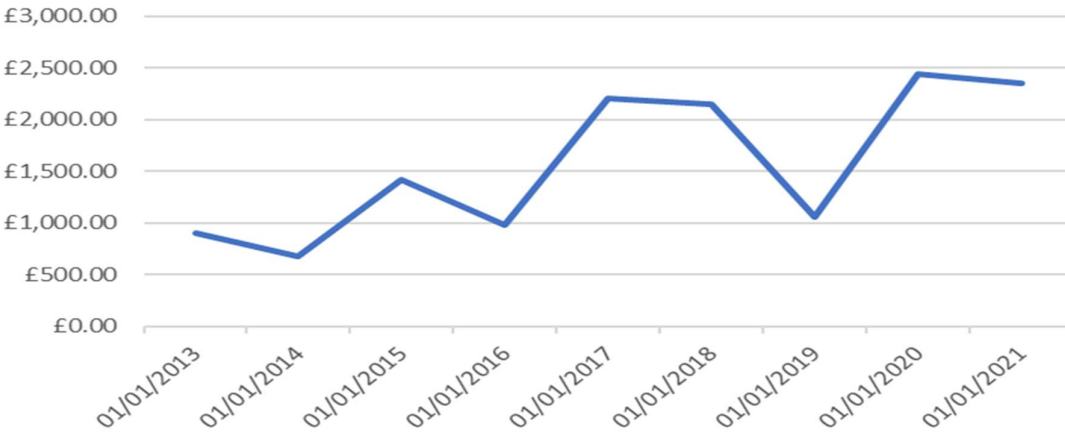
G. Phillips G0KRB BSc (Hons) CPFA  
Auditor



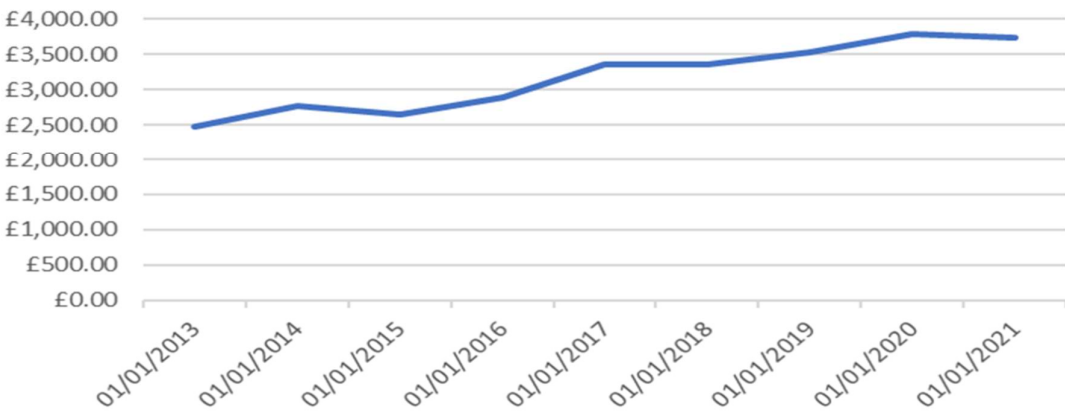
### Closing Balance



### Expenditure



### Income



## UKuG Membership – Bryan Harber G8DKK

### 2021

563 Members (9/2020)  
69 New Members (January to December 2020)  
22 New Members (January to April 2021)  
During 2020 60 members left the group  
Groups.io Scatterpoint  
551 members subscribed  
9 pending  
89% members pay by PayPal

### 2022

557 Members (4/2021)  
65 New Members (January to December 2021)  
23 New Members (January to April 2022)  
During 2021 49 members left the group  
Groups.io Scatterpoint  
590 members subscribed  
4 pending  
89% members pay by PayPal

### Email and Email IDs

If you change your email address, please email [membership@microwavers.org](mailto:membership@microwavers.org) with your new address  
Failure to do so results in membership renewal notifications failing to deliver and can result in cancelled membership  
If you change your groups.io email ID the membership secretary is automatically notified by groups.io – no action required  
I do not assume that a change of email ID in groups.io means a change to your email address for membership notifications  
Many members choose to have a different email ID for groups.io

G8AQA suggested that this published in Scatterpoint, Bryan will submit a suitable paragraph.

## Chipbank – Mike Scott G3LYP

A total of 32 requests were fulfilled during calendar 2021, somewhat down on the previous year.  
Due to Coronavirus, no meetings were attended during the year.  
Donations of components were received from Andy MM0FMF and Paul, G8AFC, for which many thanks.  
As the price of a second-class large letter stamp has risen to £1.05, the cost to the Group of a package weighing under 100 grams has risen to about £1.20 including the cost of packaging.

## Election of Officers & Committee

The Trophy Managers Mike & Ann Stevens G8CUL/G8NVI are standing down. Heather Nickalls M0HMO is nominated to take over this role. Other nominations were requested from the floor, none were forthcoming. The Treasurer and Secretary were re-elected on a show of hands on the conference call.

The remainder of the committee was elected en bloc on a show of hands:

Chairman	Vacancy	
Treasurer	David Millard	M0GHZ
Secretary	John Quarmby	G3XDY
Membership Secretary	Bryan Harber	G8DKK
Beacon Coordinator	Denis Stanton	GOOLX
Web Master	Murray Niman	G6JYB
Contests/Awards	John Quarmby	G3XDY
24GHz and Up	Chris Whitmarsh	G0FDZ
Microwave SDR Projects	Paul Nickalls	G8AQA
Technology (Including loan gear)	Neil Smith	G4DBN

### Corresponding Members

USA Liaison	Kent Britain	WA5VJB/G8EMY
Northern Ireland	Gordon Curry	GI6ATZ
Scotland	Martin Hall	GM8IEM
Wales	Peter Harston	GW4JQP
ATV	Noel Matthews	G8GTZ
Beaconspot	Robin Lucas	G8APZ
Trophies Manager	Heather Nickalls	M0HMO
Scatterpoint Editor	Roger Ray	G8CUB
RSGB Microwave Manager	Barry Lewis	G4SJH



## Any Other Business

The issue of interference in the Coventry area on 1.3GHz was raised by Carl G0NZI. Murray G6JYB responded that the source was not the primary user, and as the primary user was not experiencing interference Ofcom were not expediting any action. Suggested action is to continue to report any interference to Ofcom to get action to move the service to a more appropriate frequency.

Barry G4SJH thanked the Secretary for filling the gaps that had arisen due the absence of a chairman.

Trophy awards were listed, the recipient of the G3JVL award is Nick G0HIK. The Fraser Shepherd award went to Barry G8AGN. The contest trophies awarded in 2021 were also listed.

The AGM was then closed by the Secretary.

## European Microwave Week '2021' Report



# EUROPEAN MICROWAVE WEEK 2021

SIX DAYS • THREE CONFERENCES • ONE EXHIBITION

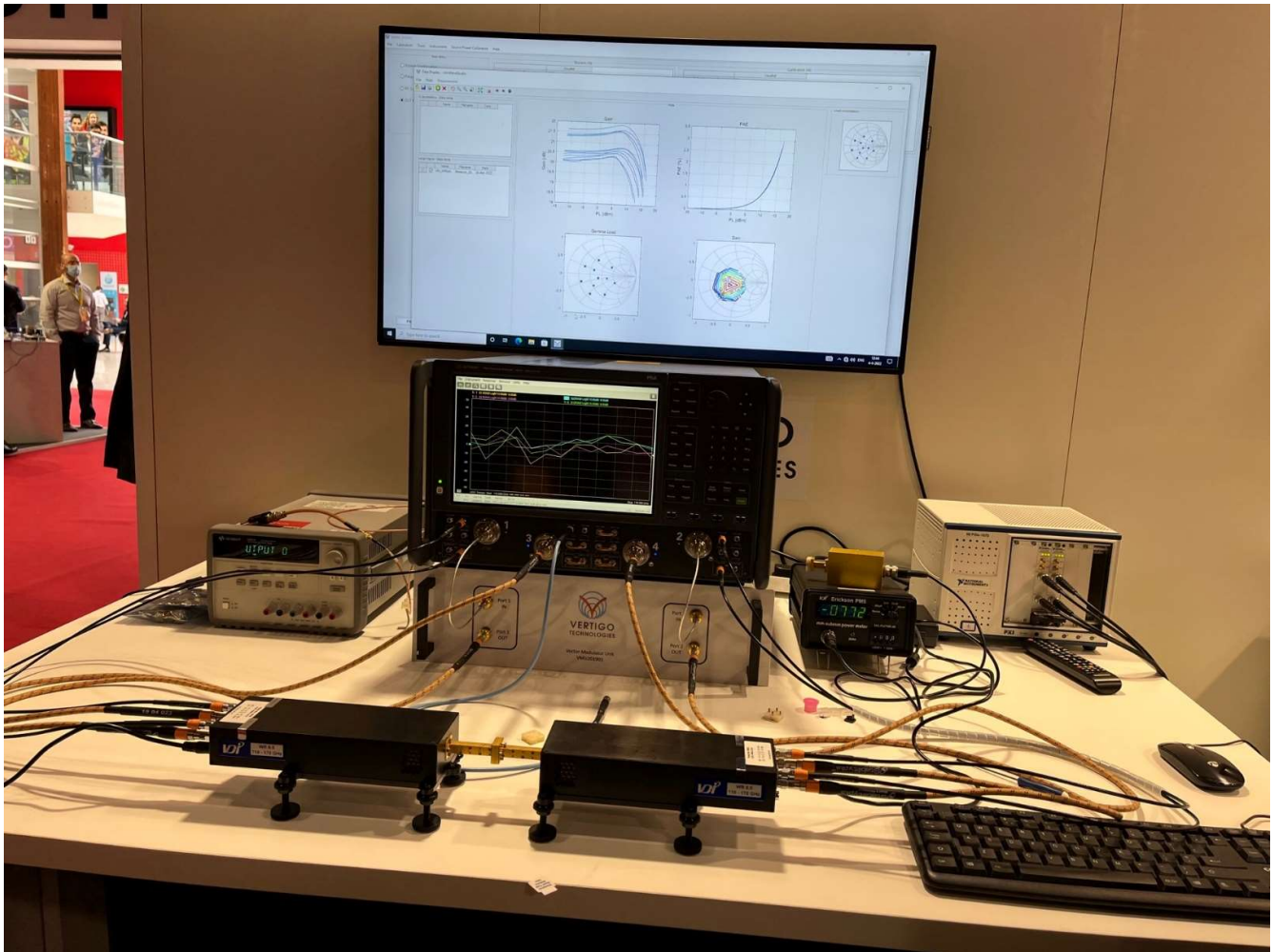
EXCEL LONDON EXHIBITION & CONFERENCE CENTRE, UK  
2 - 7 APRIL 2022

Exhibition Hours:  
Monday 4 April 9.30-18.00  
Tuesday 5 April 9.30-17.30  
Wednesday 6 April 9.30-15.00

[www.eumw2021.com](http://www.eumw2021.com)

Chris G0FDZ and I attended the exhibition at Excel London. I managed to get a nice bag of goodies, by registering for the talks, but selecting zero talks, at zero cost!  
Roger G8CUB

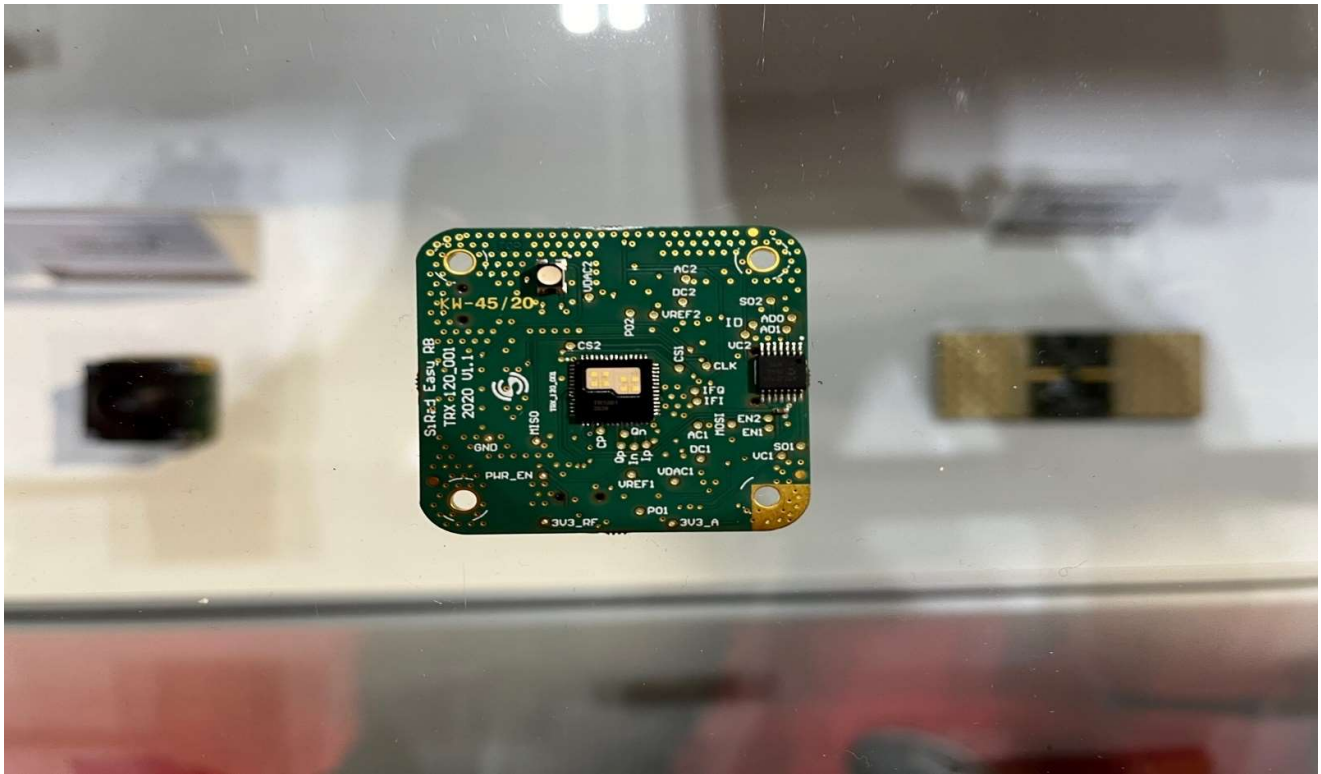




Several millimetre VNA up/down converters, were on show working up to the THz region. This one is showing 110 – 170GHz.



The Silicon Radar stand was of particular interest, with the availability of their 122/124GHz chip.



The original 122GHz transceiver, showing position of the TX & RX antennas



The one we are waiting for on a PCB – though the chips are available now.

They also have an interesting 300GHz transceiver chip, that looks like it would work at 288GHz. Anyone fancy doing a PCB layout?

# Noise measurements on voltage regulators

Hans, ON4CDU

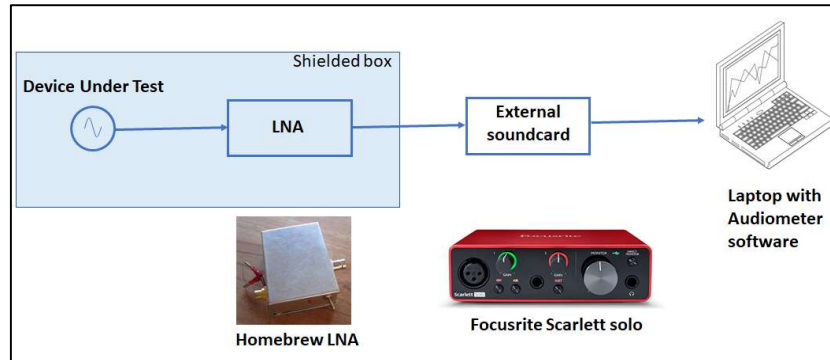
## Abstract

For microwave PLL/VCO circuits, a low-noise power supply is of great importance. Measuring the noise of voltage regulators is not difficult, but building a good measurement setup does take some effort.

As a bonus, one can also measure the thermal noise of resistors with the same measurement setup. The setup is based on publications by Thomas Baier DG8SAQ in FunkAmateur. His publication has prompted many others to repeat and further elaborate the experiments described there.

The setup consists of a computer with the AudioMeter software package. In order to have sufficient dynamic range and also sufficient measuring bandwidth, a good external sound card is recommended. A low-noise amplifier (LNA) feeds the sound card to enable the measurement of very weak signals.

The Device Under Test (DUT) measurement takes place in a shielded room to avoid measuring nuisance radiation from nearby devices, especially 50 Hz emissions.



System setup

## Measuring thermal noise of resistors

The noise power generated by a resistor in a 1 Hz bandwidth.

$$S = 4 k T R \quad (\text{V}^2/\text{Hz})$$

k the constant of Boltzmann  $1,3806 \times 10^{-23}$  Joule per degree Kelvin

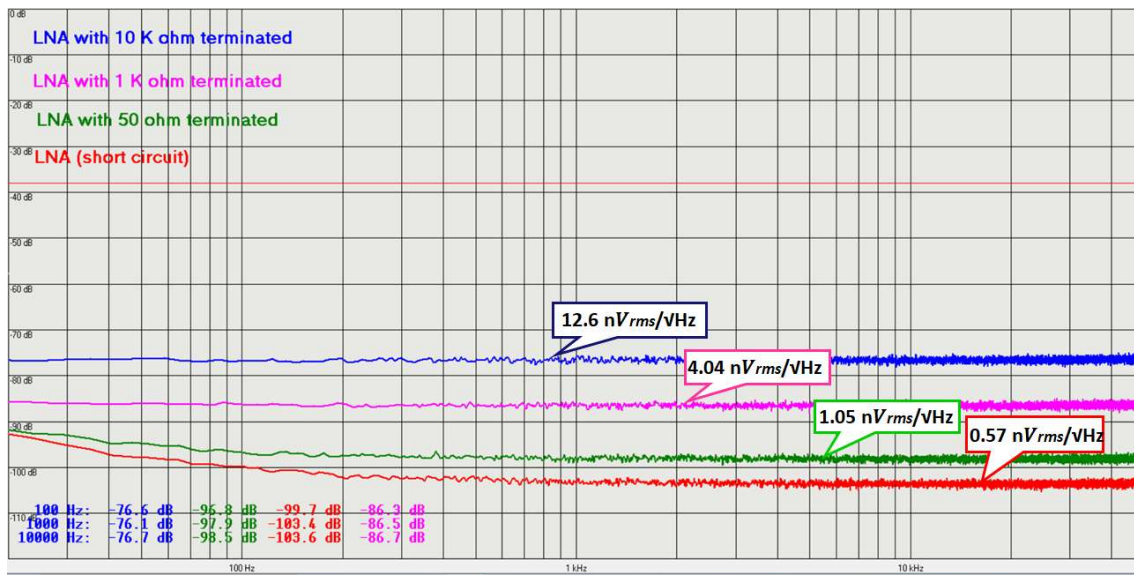
T the temperature in Kelvin

R the resistor value in Ohm

$$V = \sqrt{4 k T R} \quad (\text{V}_{\text{rms}}/\sqrt{\text{Hz}})$$

Shack temperature: 20 degree Celsius = 273 + 20 = 293 degree Kelvin.

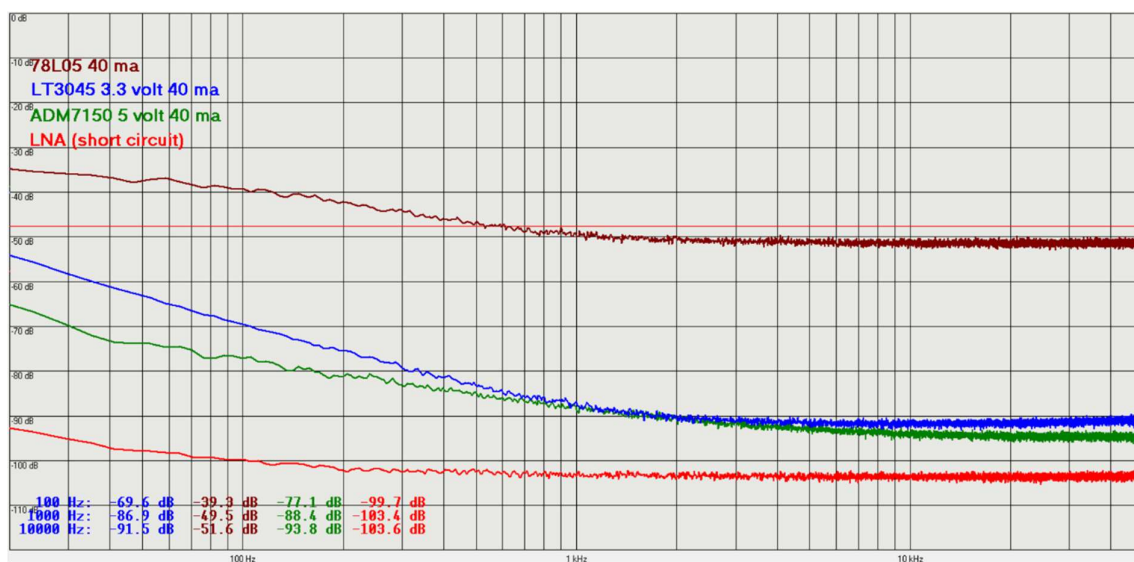
Resistor value (Ohm)	Calculated ( $\text{nV}_{\text{rms}}/\sqrt{\text{Hz}}$ )	Measured ( $\text{nV}_{\text{rms}}/\sqrt{\text{Hz}}$ )
50	0.90	1.05
1000	4.02	4.04
10000	12.7	12.6



### The measured thermal noise of resistors

For 1000 and 10000 Ohm the measured and the calculated values are quite the same; temperature and resistor tolerance and measuring system accuracy declare the small differences. For 50 Ohm we have to take into account the system noise floor:  $\sqrt{(0.90^2 + 0.57^2)} = 1.07 \text{ nV}_{rms}/\sqrt{\text{Hz}}$ . This is in line with the measured value.

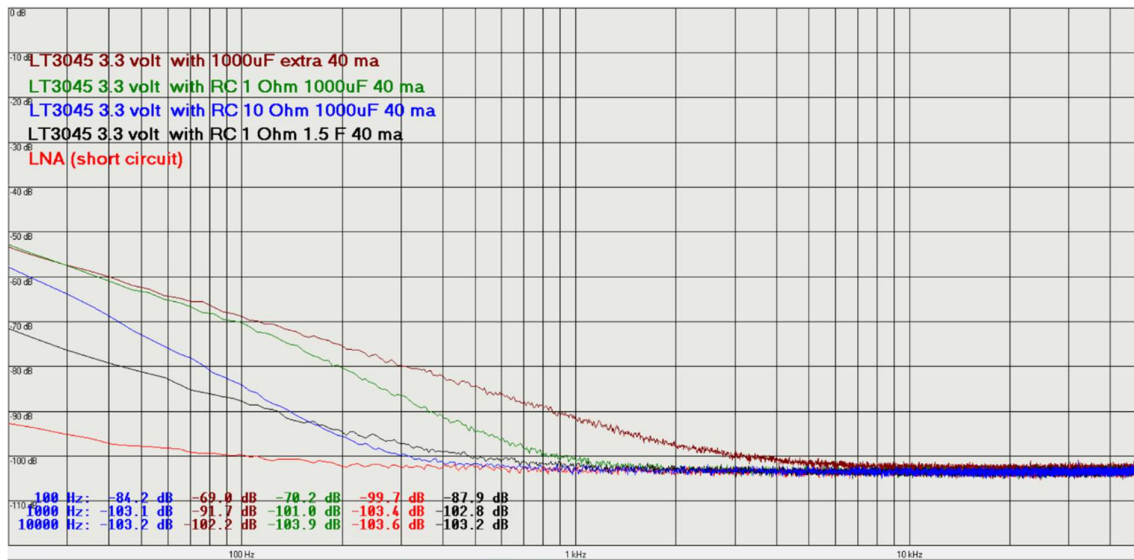
### Noise measurements on voltage regulators



### Noise spectrum plotted for 78L05, LT3045 and ADM7150

From the measured graphs it is clear that both the LT3045 and the ADM7150 are really low noise types. The datasheet of the ADM7150 specifies the noise spectral density as  $1.7 \text{ nV}/\sqrt{\text{Hz}}$  from 10 kHz to 1 MHz. In figure 11 we can read at 10 kHz for the LNA -103.6 dB and for the ADM 7150 -93.8 dB. The LNA has a noise spectral density as  $0.57 \text{ nV}/\sqrt{\text{Hz}}$ ; this means the measured noise spectral density of the ADM7150 is  $1.76 \text{ nV}/\sqrt{\text{Hz}}$ . So we can trust the datasheet....

An RC network at the output of a voltage regulator reduces the noise spectrum quite a lot. This is not surprising but it is easy and can be very useful. Depending on the application (with some voltage drop), this is a nice solution.



#### Noise spectrum influenced by an RC network at the output

For many measurements there is no need for a dynamic range of 24 bits. A test with the internal soundcard of an ACER swift 3 and with an small USB dongle both with 14 bits and a sample frequency of 48 kHz was carried out. The full article with literature reference can be found at: <https://on4cdu.net/noise-measurements-on-voltage-regulators/>

Hans, ON4CDU, email: on4cdu (at) uba.be

## Keyer Modules no longer available

ALL...

Having just received an order for four Keyer Modules, realised I can't fulfil it coz of the global chip shortage and low stock of 12F617 devices at 'JNT Labs.

So don't try to order any keyer modules :-)

from Andy G4JNT

## 23cm Band and Sat-Nav Coexistence Report

<https://forum.batc.org.uk/viewtopic.php?f=91&t=7939>

from Noel G8GTZ

## Report on the April 2022 Martlesham Microwave Round Table



It has been three long years since the last Martlesham Microwave Round Table (MMRT). Thankfully MRS, the organisers, were able to offer an MMRT for 2022, even though the event was reduced to a single day, and had to be moved to a new location.

The general opinion was that, serendipitously, the new location is rather better than the previous one. MRS are very grateful to BT for making the facility available, and to Adam Oliver in particular for his sterling support on the day.





Picture from Chris G0FDZ



Picture from Chris G0FDZ

As well as the usual equipment testing facility, we ran four lectures on the day, which were well attended, in a very comfortable room. The topics included VNA measurements, 30 THz (think infrared), lenses and reflectors for microwave and mmwave, and finally Yagi-Uda driven elements. The streamer, courtesy of BATC, had quite a few international watchers. The usual vittles—liquid and edible—were available, courtesy of Jen and her ever efficient team.

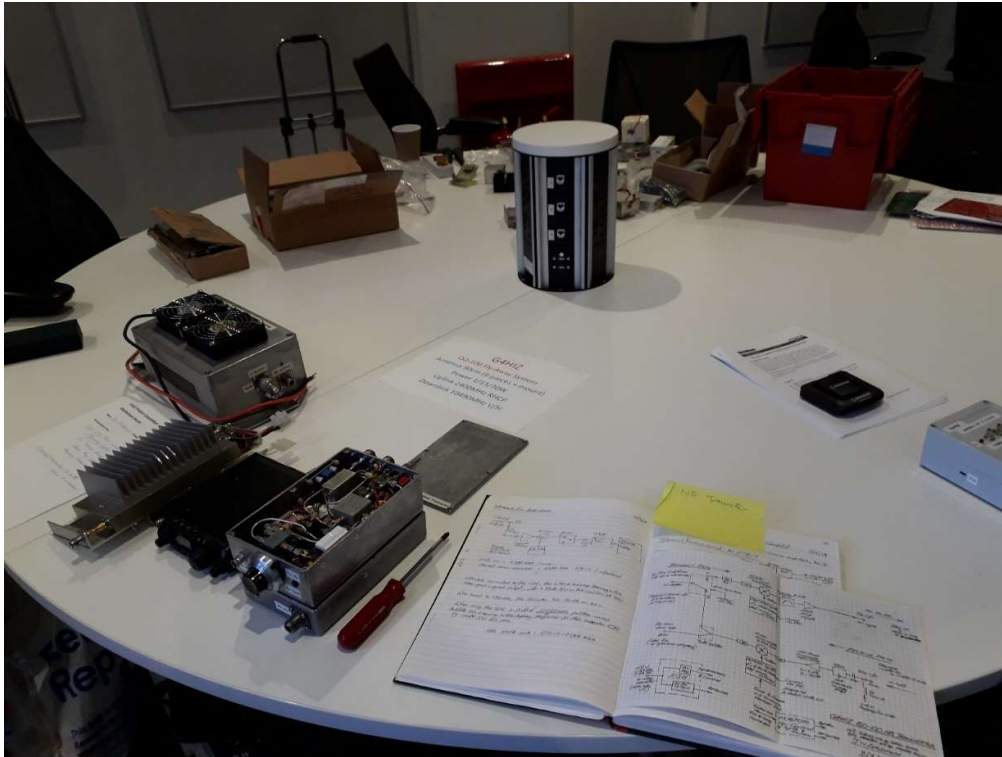




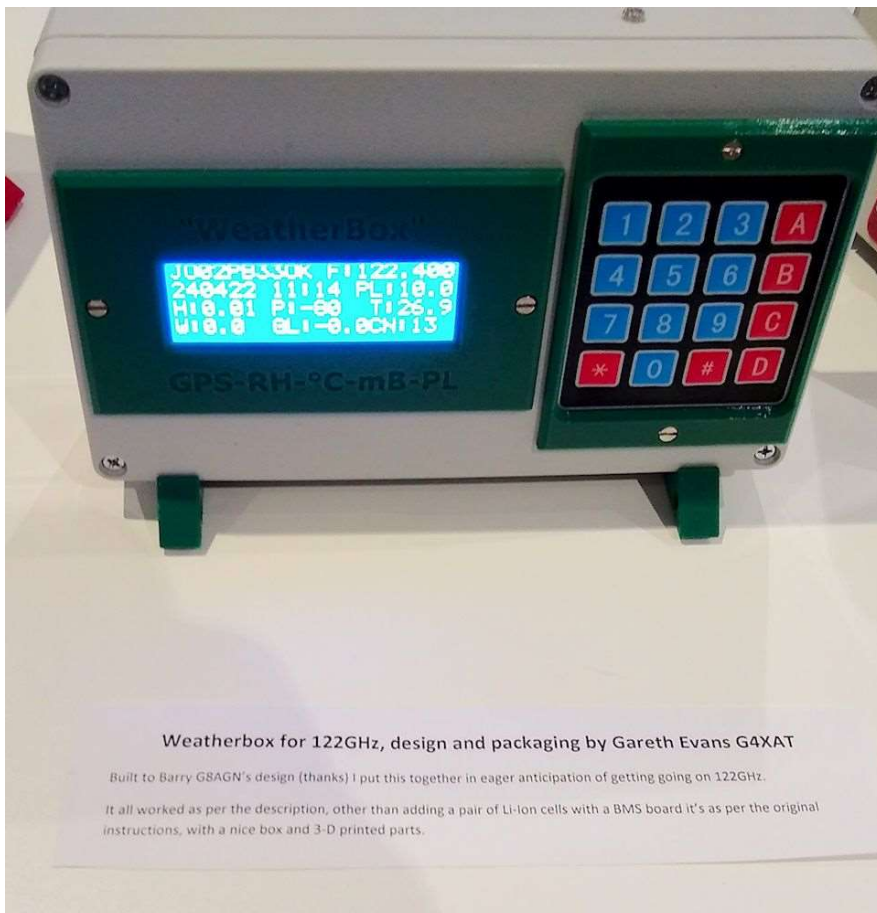
Plenty of 10GHz bits on offer

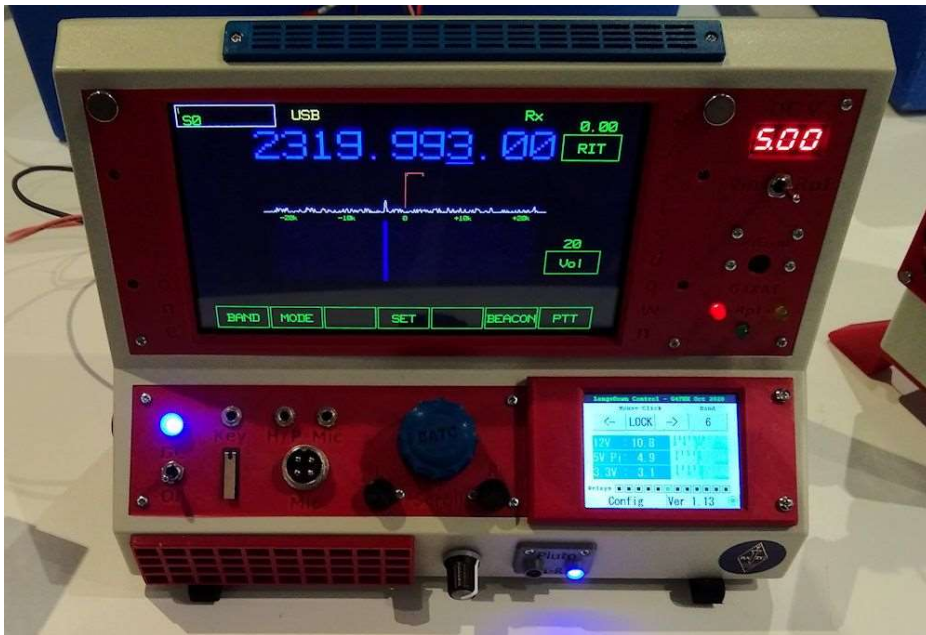
We hope, in spite of what the intervening year might visit upon us, to organise a two-day event in 2023. It will be good to welcome old friends and new faces once again, to offer inspiration and conviviality.

The MMRT also hosted the first round of the UK Microwave Group Construction Competition, with some excellent entries. It was good to see business being done at the traders' tables. We were delighted to welcome a small number of visitors from Europe and the USA.



Picture from Chris G0FDZ





**Portdown4 DATV & Langstone NB Transceiver by Gareth Evans G4XAT**

After building a Portdown 3 this upgraded RP4 based version was published, along with the Langstone NB v-wave transceiver. I just had to build the whole lot into a suitable box and try and give the "super-rigs" a run for their money.

It's pretty much full-feature in terms of RBW DATV capability with its own RP camera, audio amp and outputs to control amps and filters etc. It can receive all amateur standards of DATV (DVBS, S2, DVB-T) and all-modes NB via the Langstone (CW/SSB/FM/AM). The software includes several test instruments such as a band viewer, RF Power measurement and DDS control. It is testament to the hard work and vision of Dave G8GXQ and Colin G4EML. It is equally at home out of the shack, where it can be network connected and used to stream to and from. An AD Pluto is built in but one USB port is available for external input such as a Lime Mini SDR or External cameras. The second touch-screen serves up other information and can also be used for mouse/click functions. If connected, a high VSWR from a sensing circuit turns the screen RED.



**EX UM15 PA for QO-100/EME by Gareth Evans, G4XAT**

Designed and built for QO-100 (13cm, 150W) and modified as per guidance from Jim...



Robin Gape, G8DQX, Chair of MRS

## G3VVB Trophy Project Competition 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, e.g. 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 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.

From John G3XDY

## Parabolic Microwave Reflectors.



Since closing our company I have a stock of parabolic prime focus reflectors that are brand new, never used which I wish to sell. I had them spun to use up the remaining aluminium which we had after the company closed.

The majority are 1.2 metre diameter and spun from aluminium with a rolled edge. They are unpainted. There are three types:-

- (1) One inch diameter tube rolled into the edge.
- (2) Three quarter inch tube rolled into the edge.
- (3) Rolled edge with no tube.

The latter are obviously the lightest.

I also have a number of other sizes and types some of which I sold via an advertisement in the RSGB Bulletin.

Attached is a list of the reflectors that I still have and a sketch with the principal dimensions of the 1.2 m reflectors and suggested prices but be free to haggle if you wish. Incidentally the prices are many times less than we sold them for commercially, so they are a genuine bargain and once they are gone that's it!

The 1.2 m profile is accurate to about 0.01mm and the surface is smooth and free from ripples greater than 0.05 mm. I regularly sold these reflectors for surveillance applications at 40 GHz and beyond with no problems and I would be confident that they could still be useful at over 60 GHz with careful alignment.

If you know of anyone that might be interested including any astronomers then please contact me via my e-mail, which is: hrhbxl@gmail.com

My location is Leominster in Herefordshire and I would expect any buyer to collect the reflector as I would not trust a carrier without putting it in an expensive packing crate. You would be welcome to visit me to see the reflectors, just contact me via email to arrange a visit.

If you have any questions at all please email me.

Item Number	Diameter	Focal Length	Qty	Comments
	mm	mm		
3	0.6	204	1	Perforated reflector, powder coated
4	0.6	204	1	Perforated reflector, powder coated
5	0.6	236	1	Mounting boss plus feed arm points
6	0.6	204	1	Plain reflector
7	0.75	250	1	Plain reflector
8	0.9	1012	1	Powder coated plus Mounting boss and feed arm points
9	0.9	1012	1	Powder coated
10	0.9	337	1	Crimped holes for feed arms and mounting holes in reflector
11	1.2	304	1	Focal plane reflector
12	1.2	457	13	Open bead
13	1.2	457	1	¾" tube in rim
14	1.2	457	10	1" tube in rim
15	1.9	823	1	Open bead plain aluminium
16	1.9	823	2	1" tube in rim plain Aluminium

List of remaining reflectors, once gone there will be no more. Buyers to collect as freight and packaging would be expensive.

Prices Negotiable.

Regards to all,

Richard G8AZ

(Dr Richard Holliday)

## Microwave Round Table Dates

RAL 19<sup>th</sup> June 10.00 – 16.15

Finningley 25<sup>th</sup> – 26<sup>th</sup> June

Crawley 18<sup>th</sup> September 10.30 -14.00

Scottish 22<sup>nd</sup> October 1030 – 17.00

Midlands 3<sup>rd</sup> December 10.00 – 16.00

## RAL

**19<sup>th</sup> June at Chilton Village Hall OX11 0SR – just off A34**

Talks:

"Radio Navigation Satellite Service and the 23cm Band" by Barry G4SJH

"A portable 3m dish for 23cm and 13cm bands" by Jacques F1BHL (Winner of the 2022 RSGB Construction Contest Innovation Class) (to be presented via a Zoom Recording)

"Telemetry control of a masthead preamp and PA system" by Mike G8CUL

"Raspberry Pi-based Microwave Test Equipment" by Dave G8GKQ

Presentation of the 2021 Awards and Trophies

RAL RT Round of the Construction Contest - please bring your entries along!

Flea Market

Light refreshments including Bacon Butties and Sandwiches

Details: <https://g3pia.net/microwave.php>

Ann G8NVI

## Finningley

Provisional talks:

Barry AGN will be showing some 30Thz work

Bryan G8DKK has offered to do a hand's on VNA session

Heather M0HMO is doing an SDR talk

Kevin G3AAF

## Draft Terms of Reference for Reverse Beacon Network Project Leader UK Microwave Group

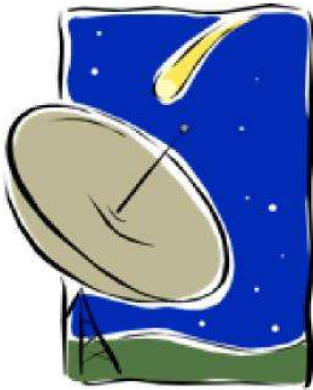
A reverse beacon network (RBN) in the UK would be a considerable asset to microwave operators. As sites and power costs for the existing beacon network become more difficult to find, a new approach is needed which a network of microwave receivers on the internet may fulfil.

Some funding from the UK Microwave Group can be made available for equipment for the RBN, similar to funding support for conventional beacons.

We are looking for a leader with good software and network skills who can take this project forward and work with others to develop and deploy the RBN in the UK. If you believe you have the capabilities to lead this project, please get in touch with our secretary, John G3XDY (email [g3xdy@btinternet.com](mailto:g3xdy@btinternet.com)) to discuss.

# Scatterpoint activity report

Activity News: April - May 2022



By John G4BAO

**Please send your activity news to: [scatterpoint@microwavers.org](mailto:scatterpoint@microwavers.org)**

Plenty of activity reported in the recent 432 MHz and up contests, over the weekend of 7<sup>th</sup> – 8<sup>th</sup> May. Apart from your scribe, G4BAO who completely forgot the Saturday contest and on Sunday had visitors all day and an important football match to watch after they left!

I'll get me coat.....

Anyway, reports of those of you who didn't mess up...

## From John G4ZTR

I operated in the rain from Walton-on-the-Naze as M1CRO/P during the recent contest. It rained much of the day, then the cloud descended a lot lower and at 20m ASL it got pretty low!

Equipment was: 70cms; 4 x 21 ele, (lost in the fog) 23cms 8 x 23 ele, 13cms through 3cms; dishes, 24GHz





### From Nick G0HIK

I did a SOTA summit during the contest and just managed to squeeze behind the cairn out of most of the stiff breeze. Almost as soon as I got logged on to KST the meeps seemed to keep coming. I hope I didn't miss anyone who called me. Unfortunately, the 22dBi horn does not cut the mustard and I failed with nearly everyone. Exception was GM4DIJ who was very strong as well as G4CBW. G4ASR, just kept getting away, no DX heard here. After 2 1/2 hours on the summit and the laptop/transverter and 705 batteries dying I called it a day. No cigar today with only 2 QSO's on 3cm when I need four for the SOTA activation. Just as I left the top, I got a message from GIOGDP, who should have been an easy one across the Irish Sea. Oh well next time hopefully and maybe will have my 90cm portable dish in operation to help out.

Back in the van I setup at a nearby site and enjoyed giving a few points away on 23 and 9.

### From Neil G4DBN

On Sunday 8<sup>th</sup> May I copied DB0GHZ from JO34WE at 579 direct on about 87 degrees (south of normal) and almost as strong from 170 degrees. Also got a big signal from PI7ASM, but no sign of OZ/SM/LA or any other EU beacons. Or any actual humans, obviously. Very wet, the North Sea.

### From Brian GM4DIJ

I just threw everything into the car the night before and headed down to the contest site at 5am. I heard GM4ISM briefly. I could have worked GIOGDP but my phone credit and the laptop battery ran out. I could have run the genny for the laptop but there was really no-one else workable who responded to my meeps.

### From Robin G1YFG

Much enjoyment! I managed a few contacts on 9cm and a few on 3cm. As expected, anything without KST was difficult, but for a few (brief) moments I was able to get a connection on Cleve and make some contacts. I thought I was going to have to turn back initially as the fog on Cleve was so thick I could barely see far enough ahead to make progress. I struggled to find the correct bit of track to my preferred launch point. Learned a lot as usual, need to sort my portable game out.

### From Roger G8CUB

Monitoring the Bell Hill 24GHz beacon from a site near Dorchester at the end of May.



# UKuG MICROWAVE CONTESTS - 2022

## March 2022 Lowband Contest Results

More entries were received this year, bringing levels back to near the 2020 lock-down numbers, but most commented that activity was low.

On 1.3GHz Neil G4BRK takes the top spot by some margin from David M0GHZ in the runner up place. New entrant Mike G3SED takes the Low Power top spot in this event. The aircraft scatter contact between M0GHZ and PI4GN in JO33 at 641km was the best DX recorded. Conditions were flat with aircraft scatter providing DX contacts.

2300MHz saw a single entry from M0HNA/P, who worked G4ODA and G3XDY on this band.

Neil G4BRK also won the 2320MHz section, with John G3SQQ as runner up. Best DX was between G3SQQ and PI4GN at 528km.

G4BRK completed a trio of wins with the leading position on 3400MHz, Martyn G3UKV taking second place. Best DX was the QSO between M0GHZ and G4ODA at 206km.

John G3XDY  
UKuG Contest Manager

### 1296MHz March Low Band 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX kms
1	G4BRK	IO91HP	27	6406	PI4GN	579
2	M0GHZ	IO81VK	18	3617	PI4GN	641
3	G3TCT	IO81QC	18	3360	GI6ATZ	430
4	G3SED	IO90IV	14	3110	PI4GN	611
5	G0DJA	IO93IF	13	2643	PI4GN	532
6	G3SQQ	IO93JC	15	2111	G3SED	246
7	GW4JQP	IO71KR	12	2040	G3XDY	437
8	G3UKV	IO82RR	15	1982	GI6ATZ	292
9	GM4BYF	IO85JV	4	1548	G4BRK	488
10	G6GVI	IO83SN	9	1128	M0GHZ	237
11	G4BAO	JO02CG	6	825	G3TCT	235
12	G3YJR	IO93FJ	5	676	G3XDY	238
13	G8AIM	IO92FH	8	626	G3XDY	190
14	G4EPA	IO92KI	7	588	G3TCT	174
15	GM4DIJ/P	IO74MU	2	476	G4ODA	393
16	GM8IEM	IO78HF	1	428	GI6ATZ	428

Many thanks for check log received from G4ODA

### 2300MHz March Low Band 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX kms
1	M0HNA/P	IO91GI	2	382	G3XDY	200

## 2320MHz March Low Band 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	G4BRK	IO91HP	13	2890	F8DLS	443
2	G3SQQ	IO93JC	9	1674	PI4GN	528
3	M0GHZ	IO81VK	9	1621	ON4CJQ/P	497
4	M0HNA/P	IO91GI	8	1378	ON4CJQ/P	445
5	G3UKV	IO82RR	8	1114	G3XDY	265
6	G8AIM	IO92FH	4	399	G3XDY	190

## 3400MHz March Low Band 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	G4BRK	IO91HP	4	489	G4ODA	152
2	G3UKV	IO82RR	2	308	G4ODA	163
3	M0GHZ	IO81VK	2	269	G4ODA	206
4	G4BAO	JO02CG	2	202	G4BRK	129
5	G8AIM	IO92FH	1	58	G3VKV	58
6	G6GVI	IO83SN	1	6	G4AQB	6

Many thanks for check log received from G4ODA

*The March Low Band Contest results have been reprinted in their entirety, as the 2320 / 3400MHz results were missed in the April edition of Scatterpoint.*

## April 2022 Lowband Contest Results

Entries were somewhat down compared with 2021, however last year's lockdown distorts the picture somewhat. Conditions were unexceptional.

M0HNA/P won 1296MHz with a dozen more contacts than the runner up, Nick G4KUX. Neil G4BRK took third place this month. G4KUX recorded the best DX with a 712km contact with Maurice F6DKW. John G3SQQ takes the top spot in the low power category.

There were two entries on 2300MHz, M0HNA/P was the winner, and G8CUL as runner up. Keith G4ODA provided the best DX for both entrants, with the 182km mark reached for M0HNA/P.

Neil G4BRK takes the top slot on 2320MHz by a narrow margin over M0HNA/P. Pete G1DFL/P won the low power category with just 800mW. The best DX worked was the 505km QSO between John G4ZTR and Brian GM4DIJ/P

M0HNA/P takes the top slot on 3400MHz, John G4ZTR is the runner-up. David M0GHZ was in third place and was the leading low power entrant. The best DX worked was the QSO from G4ZTR to G0HIK/P at 337km.

1296MHz M0HNA/P, G4KUX, G3SQQ  
2300MHz M0HNA/P, G8CUL  
2320MHz G4BRK, M0HNA/P, G1DFL/P  
3400MHz M0HNA/P, G4ZTR, M0GHZ

Thanks go to Keith G4ODA for his checklogs.

## 1296MHz April 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	MOHNA/P	IO91GI	44	8343	PA0WMX	515
2	G4KUX	IO94BP	23	7155	F6DKW	712
3	G4BRK	IO91HP	32	6292	PA0WMX	509
4	G4ZTR	JO01KW	27	6133	GI6ATZ	531
5	G7LRQ	IO91TQ	30	6068	GI6ATZ	480
6	GI6ATZ	IO74AJ	15	5518	G4ZTR	531
7	G8CUL	IO91JO	26	5478	PA0WMX	497
8	GW4JQP	IO71KR	19	4094	G4ZTR	413
9	G3SQQ	IO93JC	18	3830	PA0WMX	526
10	G0HIK/P	IO84JE	16	3744	G4ZTR	371
11	M0GHZ	IO81VK	19	3660	PA0WMX	567
12	G4BAO	JO02CG	14	3036	GI6ATZ	473
13	GM4DIJ/P	IO74MU	9	2962	G4ZTR	505
14	G3UKV	IO82RR	20	2865	GI6ATZ	292
15	G8DOH	IO92FA	15	2364	PA0WMX	523
16	G6GVI	IO83SN	9	1550	MOHNA/P	255
17	G0NZI	IO92GM	12	1366	G4KUX	238
18	PE1EWR	JO11SL	4	1133	G4BRK	341
19	G8DMN/P	IO81RF	6	483	G7LRQ	159

## 2300MHz April 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	MOHNA/P	IO91GI	3	246	G4ODA	182
2	G8CUL	IO91JO	2	183	G4ODA	150

## 2320MHz April 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	G4BRK	IO91HP	16	2660	F8DLS	443
2	MOHNA/P	IO91GI	20	2655	PE1EWR	347
3	G4ZTR	JO01KW	12	2368	GM4DIJ/P	505
4	G8CUL	IO91JO	14	1847	F8DLS	431
5	GM4DIJ/P	IO74MU	4	1612	G4ZTR	505
6	G7LRQ	IO91TQ	12	1547	F8DLS	393
7	M0GHZ	IO81VK	11	1514	ON/PA0MHE	383
8	G3SQQ	IO93JC	7	1337	ON/PA0MHE	371
9	G3UKV	IO82RR	9	1278	G4LDR	192
10	G1DFL/P	IO91OQ	11	939	G3UKV	167
11	G0NZI	IO92GM	2	225	MOHNA/P	130
12	GW4MBS	IO71XW	1	192	G4LDR	192

## 3400MHz April 2022

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	M0HNA/P	IO91GI	11	1251	G0HIK/P	337
2	G4ZTR	JO01KW	7	1034	M0GHZ	220
3	M0GHZ	IO81VK	7	983	G0HIK/P	314
4	G0HIK/P	IO84JE	3	909	M0HNA/P	337
5	G3UKV	IO82RR	4	574	G4LDR	192
6	G8CUL	IO91JO	6	480	G4ODA	150
7	G4BRK	IO91HP	4	268	G4ZTR	159
8	G6GVI	IO83SN	1	6	G4AQB	6

## May 2022 Lowband Contest Results

No comments about the overlap with the RSGB 10GHz Trophy Contest were received this year, but activity levels were rather low, despite good conditions at the start of the contest.

M0HNA/P was the winner on 1296MHz, operated by G3TCU and G3TCT. In second place was Neil G4BRK. The leading low power entrant was John G3SQQ. Some good DX was available into Germany at the start of the contest, with the QSO between M0HNA/P and DP4B (JO52) taking the honours at 830km.

There were two entries on 2300MHz. M0HNA/P operated by G1EHF and G3TCT was the winner, with Neil G4LDR runner up and leading low power entrant. A QSO from M0HNA/P to G3XDY was the best DX at 200km.

On 2320MHz M0HNA/P again leads the pack, with Neil G4BRK as runner up. Best DX was G4LDR's contact with PI4GN at 620km.

3400MHz was won by G4BRK with runner up M0HNA/P, operated by Dave G1EHF and Graham G3TCT. The best DX was from G4BRK to DK5EZ at 590km, and was a new ODX on the band for Neil. Ross G6GVI takes the leading low power entrant award.

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

1296MHz M0HNA/P, G4BRK, G3SQQ  
2300MHz M0HNA/P, G4LDR  
2320MHz M0HNA/P, G4BRK  
3400MHz G4BRK, M0HNA/P, G6GVI

John G3XDY  
UKuG Contest Manager

## May 2022 Low Band Contest 1296MHz

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	M0HNA/P	IO91GI	47	12842	DP4B	830
2	G4BRK	IO91HP	29	7181	DJ8AK	735
3	G7L	IO91TQ	28	6609	F6KFH	610
4	M0GHZ	IO81VK	23	6070	DK5EZ	648
5	G3SQQ	IO93JC	18	4200	DJ8AK	724
6	GW4JQP	IO71KR	13	2357	M1CRO/P	442
7	GM4BYF	IO85JV	5	1966	M1CRO/P	538
8	G4LDR	IO91EC	8	1481	EI8KN	410
9	G5RS/P	JO00EW	8	1115	G3SQQ	265
10	G6GVI	IO83SN	6	936	M0HNA/P	255
11	GM8IEM	IO78HF	1	453	G4KUX	453
12	2E0GTD	IO91GE	1	19	M0HNA/P	19

## May 2022 Low Band Contest 2300MHz

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	M0HNA/P	IO91GI	3	413	G3XDY	200
2	G4LDR	IO91EC	1	31	M0HNA/P	31

## May 2022 Low Band Contest 2320MHz

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	M0HNA/P	IO91GI	15	2681	ON4CJQ/P	445
2	G4BRK	IO91HP	12	2383	DK5EZ	590
3	G7L	IO91TQ	10	2057	PI4GN	514
4	M0GHZ	IO81VK	10	1430	M1CRO/P	246
5	G3SQQ	IO93JC	7	1069	M1CRO/P	220
6	G4LDR	IO91EC	6	1021	PI4GN	620

## May 2022 Low Band Contest 3400MHz

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms
1	G4BRK	IO91HP	9	1824	DK5EZ	590
2	M0HNA/P	IO91GI	10	1504	PI4Z	371
3	M0GHZ	IO81VK	7	754	G3XDY	246
4	G4LDR	IO91EC	5	401	G4ODA	212
5	G6GVI	IO83SN	1	6	G4AQB	6

## 2022 Lowband Contest Overall Results

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

### 1.3 GHz

Pos	Call	06/03/2021	10/04/2021	08/05/2021	Total
1	G4BRK	1000	754	559	2,313
2	M0HNA/P	0	1000	1,000	2,000
3	M0GHZ	564	438	472	1,474
4	G3SQQ	329	459	327	1,115
5	GW4JQP	318	490	183	991
6	G4KUX	0	857	0	857
7	G4ZTR	0	735	0	735
8	G7LRQ	0	727	0	727
9	G16ATZ	0	661	0	661
10	G8CUL	0	656	0	656
11	G3UKV	309	343	0	652
12	G3TCT	524	0	0	524
13	G7L	0	0	514	514
14	G4BAO	128	363	0	491
15	G3SED	485	0	0	485
16	G0HIK/P	0	448	0	448
17	G6GVI	176	185	72	433
18	GM4DIJ/P	74	355	0	429
19	G0DJA	412	0	0	412
20	GM4BYF	241	0	153	394
21	G8DOH	0	283	0	283
22	G0NZI	0	163	0	163
23	PE1EWR	0	135	0	135
23	G4LDR	0	0	115	115
25	G3YJR	105	0	0	105
26	GM8IEM	66	0	35	101
27	G8AIM	97	0	0	97
28	G4EPA	91	0	0	91
29	G5RS/P	0	0	86	86
30	G8DMN/P	0	57	0	57
31	2E0GTD	0	0	1	1

### 2.30 GHz

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

### 2.32 GHz

Pos	Call	06/03/2021	10/04/2021	08/05/2021	Total
1	G4BRK	1000	1,000	888	2,888
2	M0HNA/P	476	998	1000	2,474
3	M0GHZ	560	569	533	1,662
4	G3SQQ	579	502	398	1,479
5	G4ZTR	0	890	0	890
6	G3UKV	385	480	0	865
7	G7L	0	0	767	767
8	G8CUL	0	694	0	694
9	GM4DIJ/P	0	606	0	606
10	G7LRQ	0	581	0	581
11	G4LDR	0	0	380	380
12	G1DFL/P	0	353	0	353
13	G8AIM	138	0	0	138
14	G0NZI	0	84	0	84
15	GW4MBS	0	72	0	72

### 3.4 GHz

Pos	Call	06/03/2021	10/04/2021	08/05/2021	Total
1	G4BRK	1,000	214	1,000	2,214
2	M0HNA/P	0	1000	824	1,824
3	M0GHZ	550	785	413	1,748
4	G3UKV	629	458	0	1,087
5	G4ZTR	0	826	0	826
6	G0HIK/P	0	726	0	726
7	G4BAO	413	0	0	413
8	G8CUL	0	383	0	383
9	G4LDR	0	0	219	219
10	G8AIM	118	0	0	118
11	G6GVI	12	4	3	19



## UKuG MICROWAVE CONTEST CALENDAR 2022

Dates, 2022	Time UTC	Contest name
5-Jun	1000 - 1600	4th Low band 1.3/2.3/3.4GHz
26-Jun	0600 - 1800	2nd 5.7GHz Contest
26-Jun	0600 - 1800	2nd 10GHz Contest
10-Jul	0900 - 1700	2nd 24GHz Contest
10-Jul	0900 - 1700	2nd 47GHz Contest
10-Jul	0900 - 1700	2nd 76GHz Contest
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

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

## EVENTS 2022

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

### 2022

June 19	RAL Roundtable - Chilton village Hall	<a href="https://www.hars.org.uk">HARS: Harwell Amateur Radio Society (g3pia.net)</a>
June 24-26	Ham Radio, Friedrichshafen	<a href="http://www.hamradio-friedrichshafen.de">www.hamradio-friedrichshafen.de</a>
June 25-26	Finningley Roundtable	<a href="https://www.finningleyars.org.uk">Finningley ARS – G0GHK</a>
August 7	BATC Convention, Midland Air Museum, Coventry	<a href="http://www.batc.org.uk">www.batc.org.uk</a>
August 12-14	EME 2022, Prague - rescheduled 2021 event	<a href="http://www.eme2020.cz">www.eme2020.cz</a>
September 18	Crawley Roundtable, Crawley club, Tilgate forest	<a href="https://www.carc.org.uk">CARC – Crawley Amateur Radio Club</a>
September 25-30	2022 European Microwave Week, Milan, Italy	<a href="http://www.eumweek.com">www.eumweek.com</a>
October 7-9	RSGB Convention	
October 15-15	National Hamfest	
October 22	Scottish Roundtable	<a href="https://www.gmroundtable.org.uk">https://www.gmroundtable.org.uk</a>
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 for all the input this month. Apologies for the delay in publishing this issue, too much going on. I look forward to seeing many of you at RAL. I have been having a bit of a clear-out, prior to completing my house move, so will have a few bits for sale.