An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

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UK Microwave Group

Subscription Information

The following subscription rates apply

UK £6.00 US $9.00 Europe €9.00

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@microwaversorg

The CLOSING date is

the FIRST day of the month

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

Please submit your articles in any of the following formats:

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

Spreadsheets: Excel, OpenOffice, Numbers

Images: tiff, png, jpg

Schematics: sch (Eagle preferred)

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.

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 76GHz 122GHz

UK Microwave Group AGM Calling Notice

Notice is hereby given that the 2024 Annual General Meeting of the UK Microwave Group will be held at 14:00pm on Sunday, 14th April 2024, at Adastral Park, Martlesham Heath, Ipswich IP5 3RE. Meeting details are given below.

This will include the election of the officers of the committee and the presentation of the Chairman's, Secretary's and Treasurer's Annual Reports.

There are vacancies for committee roles. New committee members will be very welcome.

Any UKuG member wishing to stand should notify the UKµG Secretary, John Quarmby G3XDY, by 7th April 2024.

If you have any agenda or AOB items for the AGM then please contact the UKµG Secretary, John Quarmby G3XDY by 7th April 2024, email: secretary@microwavers.org

For those not able to make the meeting in person, a Zoom facility will be available, please follow this link:

UK Microwave-Group is inviting you to a scheduled Zoom meeting.

Topic: UKuG AGM

Time: Apr 14, 2024 02:00 PM London

Join Zoom Meeting https://us06web.zoom.us/j/86260873266?pwd=NAPT9iBtekACMJ96L93aHkXy15E1PC.1

Meeting ID: 878 6087 3266

Passcode: 315640

Maxicom Project

Luis EA5DOM

This is the story of a ham radio project which came to life in less than a year, but was really the result of Microwave operator experience archived over years. The “Swiss Knife” with tools to overcome the problems any Microwaver faces in portable operation with a “standard” IF. Gear like the omnipresent Yaesu FT817/818, finally in a single and compact device. Icom fashion inspired, by the way.

The problems you face in a typical microwave portable operation

Nothing new for most of you. Solved traditionally “old style” with many different smartphone Apps and gadgets like Arduinos, etc. And, finally a good paper block and pencil, with a list of nearby beacons, their frequency and pre-calculated beaming from the operation site (mandatory homework before going portable).

I need a flat horizontal stand to hold the IF rig attached to the tripod at the right height to operate the radio

Sure, if you use a FT817 or similar. But not with Maxicom. Your Yaesu radio can be safely stored in a bag under the tripod. Even used as counterweight to increase tripod stability against winds. Maxicom can be easily attached to the back of your dish right at your head level. The microphone is connected to Maxicom, not FT817. And also, the speaker is integrated with its own amplifier and volume control.

Need my glasses to read that @#*+! small FT817 display

That wasn’t a problem years ago, right?. Know that feeling. Same problem here

Maxicom shows you all the data in a nice 3.5-inch 480x320 colour touch display. Easy to read even without glasses.

Where is North? How can I calibrate the dish azimuth ?

No problem. There is an App which gives you Sun Az/El for the current site. But probably already using your smartphone to coordinate QSO with the correspondents. Maxicom shows you also the same Sun Az/El readout for your current QTH in a big display at the back of your dish.

What is my QTH locator?

Again, something you can get from your smartphone but also from Maxicom display because there is an embedded GPS. Yes, that protruding block at the right top covers the ceramic patch.

OK. Let’s try to receive local beacons

Finally, you select the IF band of your transverter and check the nearby beacons. Maybe your memory is good enough to recall the beacon frequency and the beam heading (congratulations). Or better check your “paper computer” and look for the frequency and beam heading from your usual portable QTH.

Opps! Not in your usual QTH. today. Then you will have to estimate the heading and try to chase the signal.

Maxicom will show you the different memory screens for the bands you can use. The IF 144/432 is also selectable. Let’s say we are working at 10GHz. This is the default screen when we select BANDS.

For every different band we can configure up to eight memories. Can be beacons, correspondents or sites of interest. Memories have a free text field, frequency field in kHz in the 1MHz microwave band, and the QTH grid. You can easily edit this beacon memories, but preferably at home. Maxicom connects to your Wifi router and gets an IP which shows you in screen. Then you can connect with its embedded ftp server using Filezilla or any other FTP client and edit the configuration file. More on “need a not programmed locator” follows
Once we select (touch) the desired memory we get the FT817 in frequency and the screen shows calculated beam and distance from your site. In this example we are located in IN80dh and selected EA1AWV in IN72gh

Wait! Poor conditions. Beacon is very weak. We hardly can hear it
That happens. Especially when the beacon is not local. Maxicom has a powerful audio waterfall. There is a bright gain control, so we can increase waterfall gain and detect really weak signals well under audible levels. Try to do something similar with an Icom IC-705 or IC-905. You will have to play a lot with the config settings to reach a decent waterfall for weak signals. For unknow reasons, Icom users are reluctant to do so. Just using the poor “by default” waterfall only usable for strong signals (like HF). Most of them are also reluctant to remove the protective plastic film on the display. Maybe it causes the radio to lose its value when resold.

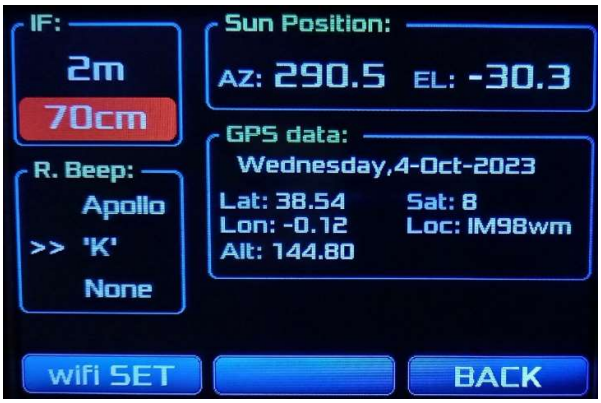
So, we are finally detecting the weak beacon. We can even calibrate dish azimuth if there is no sun
Exactly. When you can´t detect sun noise with your transverter and just relay on feeder shadow projected over dish, or simply the sun is at the opposite side of your dish and not practical for dish calibration. Then you already know your beaming to the beacon you are receiving. So just adjust your calibration dial in the tripod to this known beaming. And you will be ready to beam to any other site

Ready to chase your correspondent. But ….you don't have it registered in memory. New QTH locator!
No problem. Just press over the DX locator field with the provided plastic pen. Then the six locator characters are editable. With the multifunction knob select the corresponding letters and numbers and then you have the beaming and distance recalculated to the new locator. That simple!

Ready beaming at the right azimuth. Your correspondent asks for beacon signal to chase for you
You probably already made some trick for the FT817 to send CW signals. A keyer or a more complex circuit. Or maybe this time you removed it from the portable gear and just sing a "da-di-da" song in SSB
Not good idea if the signals are marginal. But maybe you are lucky and the guy at the other side has a very good couple of ears
If you have a Maxicom there is a BEACON option on the main screen. Just press with the plastic pen and keeping FT817 in SSB a 1500Hz tone will produce your beacon signal. By the way. The CW message can be edited in the config file. So, you can send your signal of choice. The TX period is temporized but also can be stopped if you press again over the BEACON button in screen

Poor tropo conditions. Your signal is detected but weak. No conditions for SSB. Try CW
No problem. As long as you didn't forget the keyer and you have minimum CW skills!
You can change mode from Maxicom screen just touching the USB button in the left top corner of main screen. Select CW and use the keyer you should have connected to FT817.

Conditions building up. We can try SSB or even FM !
Good. Select the desired mode. No need to access your FT817 inside the protective bag under tripod. If there is some QSB and sometimes the signal is lost you have a very important feature: a roger beep.
Maybe you already made your own roger-beep add on to FT817 with another Arduino and is still hanging around. Maxicom includes one. You can select it with a CW K or just a beep like Apollo astronauts.
This can be configured in the field from the CONFIG screen at any time.



So, finally you used most of the tools Maxicom provides in a typical portable microwave activity

But wait ! I'm not portable but working from home QTH. RS season and we have strong Doppler
So you need a fast dial to track the signal. Maxicom uses configurable Dial steps. Just pressing the main aluminium dial knob, you select steps in:
0.01kHz by default
0.1 kHz pressing once (the digit changes to green)
1kHz, 10kHz and 100kHz. Long pressing Dial knob turns you always to the high resolution 0.01kHz mode

Did I mentioned that you always see in screen the final frequency of your transverter ?
Sure, you noticed that feature. You may feel like an IC-905 owner but probably with a much better transverter and antenna performance. Less weight and just for a fraction of the cost
Just remember DONOT remove the display protective plastic!!!!

What about the PTT line to manage your transverter? Always an issue

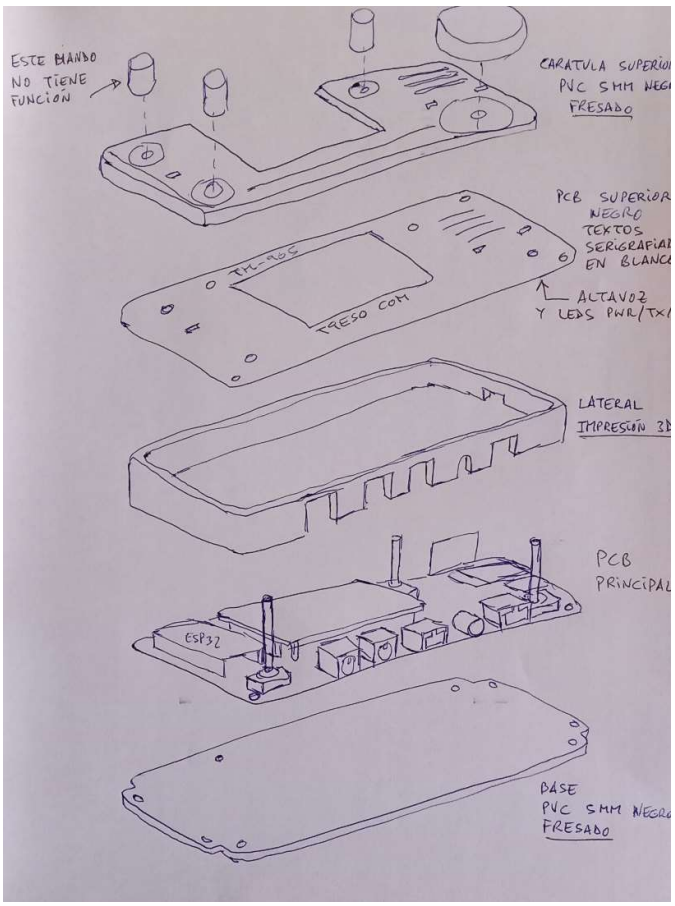
Maybe you already modified your FT817 to send a DC voltage over RF coax to PTT your transverter. This is the best option. But many other hams don't have this feature and find complicated to take out the PTT signal to connect to the transverter. When using Maxicom the ACC connector is in use with the cable. So, there is a 3,5mm stereo jack shocked in the right side of Maxicom. You will find here the PTT and the INHIBIT signals of your radio. So, no need to run another long cable from the FT817 to the transverter

Another interesting feature if your transverter is not GPSDO blessed.
You can compensate transverter offset in the config file
So always the right final frequency will be displayed all the time. And your FT817 will be dialed to this frequency (plus/minus) transverter offset

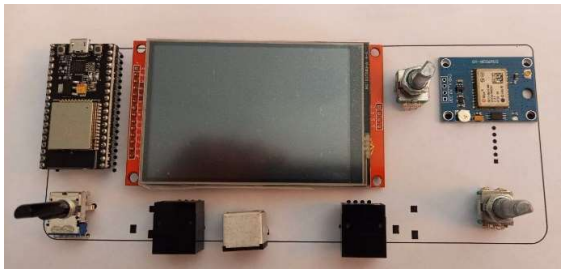
But let's back to the moment when this project started.

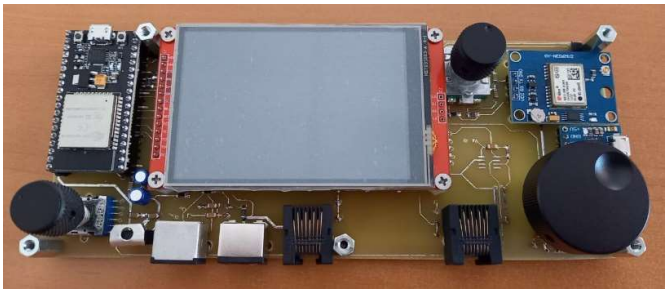
The EA & CT microwavers meeting in Guadarrama last February 2023. I met there Julio, EB4CUV. Julio is an old friend from the 80´s where we participated in Proyecto Globo launching balloons with Ham radio equipment from La Mancha region in Spain
Julio showed me his development. A CAT display for Yaesu FT897/857/817 mainly intended for HF use. Nice S-meter and dial/memory management. But at that time just a bare pcb, not in a case. I asked him if that would be able to include an audio waterfall. The answer was: "I have tested it and works"
All the way driving back home the project was taking shape in my mind. Then back to the drawing table and writing down all the features we needed for the device. I realized that it could be made just the same size and similar to an IC-705/905 front screen. We needed speaker, AF control, big touch color screen, quality aluminium knobs, big dial knob, multifunction knob and we even had an extra knob on the left top corner. Checking the main components sizes I could see that all could be fitted in the size of an Icom front screen

It would need a main pcb board and another one piggy backed over it would support the front leds, speaker and also use its silk screen text to show all the marking needed. The case would be made in three parts. Base, perimetral enclosure (with all the cavities for connectors) and top cover over the top pcb
This is a first draft I made showing the concept:



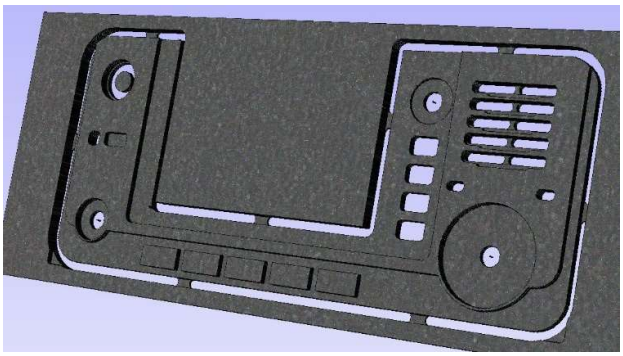
First thought was to produce these parts using 3D filament printing. But quality and endurance would be weak with this technology. Perimetral enclosure would be just 2mm thick. Too weak for a big sized 3D printer part
Then I tested a material called Forex-PVC. This is a thick PVC foam. Very light and strength enough. Easy to be milled by CNC and sold in 5, 10 and 19mm thick sheets
Already have the CNC machine, so ordered the material and started to test the first designs
Well, the first tests were in paper. Just from the pcb design software to check dimensions and mechanical problems

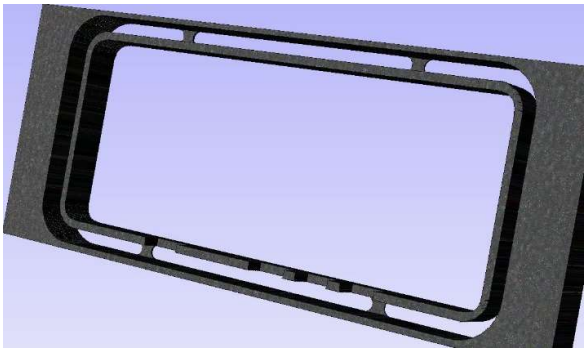




First name for the project was TiesoCom. In Spanish Tieso means rigid, but also refers to someone with very limited monetary resources. TiesoCom TM-905 was intended to be the PoorMan IC-905

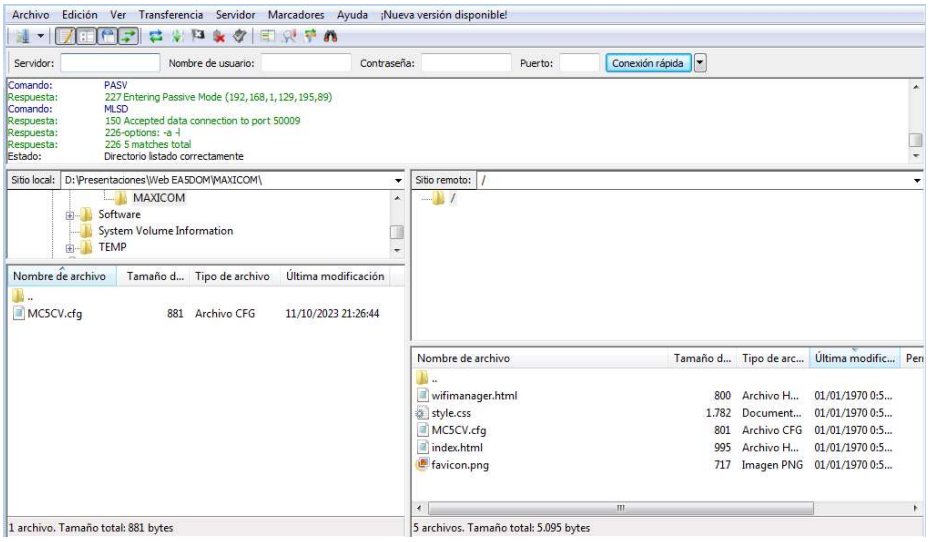
Later on, we decided that to change the name to Maxicom and the model would be 5CV8xx. That was in tribute to our friend Maxi, EA5CV (later EC5V) who passed away last summer 2023. 8xx refers it can be used with any Yaesu FT8xx radio
Maxi enjoyed this project and I'm sure it would have been an active part of it. Rest in peace Maxi





The design of the CNC milled cover parts evolved with different options and details up to the final versions

In the meantime, Julio EB4CUV developed the software for the ESP32 processor. One of the requirements was to use the Wifi module in ESP32 to let users to edit the config file via FTP. Once you configure SSID and Password of your router it becomes extremely fast and easy to edit the config file. So, no need to provide external cable connections to PC. Just if you need a firmware update it will be needed to extract the ESP32 from the socket and reload the new firmware from PC.



We presented the working prototypes in September 2023 at IberRadio show in Avila (near Madrid)
That was a chance to make a 10GHz QSO with the Icom Spain stand which was showing an IC-905. But unfortunately without any cables and unpowered. Anyway, we could show them the device working. Pity we could not make a picture of their face when they saw it. They thought it was a complete radio

Julio EB4CUV left, Ryosuke Kashiwagi (Icom Spain Manager) and myself Luis EA5DOM

Maxicom connected to an FT857 using a 23cm transverter

For further information we have a Telegram group you can join with this link:

Production parts were ready in December 2023, just before Christmas and the first batch of kits were then delivered.

UK Highest millimetre bands parameters

Chris Whitmarsh G0FDZ & Roger Ray G8CUB

The article below was put together by Chris G0FDZ, with some additions from myself (G8CUB) as an aid to deciding on band plan revisions for the higher Millimetre bands.

122 GHz band

UK allocation **122 GHz** 122,250-123,000 Secondary, No space operation allocated 1000W (30 dBW)

Usage was extremely low due to high losses due to Oxygen. Interest has dramatically increased since VK CW/FM board became available in the last 2 years.

Originally SSB transverter used a PLL LO source and 432 MHz IF. Operation was on 122.400 GHz from the start due to availability of PLL source (13.6 GHz x9) To minimised radiation outside of the band LO high mixing was then used.

Antenna - Procom 142 GHz dish (no longer made and used WG29)
A Cassegrain dish is an ideal solution. Some offset dishes also work well once optimised

60 GHz Flann horns work well, and generally have a wider beamwidth.

> When the VK board arrived it was decided to use for tramsit/LO **122.256** thus giving **122.400** the IF of 144 MHz for maximum compatability with existing sysytems. When the new dual band system arrives it will use the same pair, with IF frequencies shifted up by 100 kHz to give an IF of 144.1 MHz thus avoiding the birdie (FT817) on 144 MHz

So for IF of 144.100 we will use 122,256.000 MHz and 122,400.100 MHz transmit / LO

An additional frequency near the top end of the band, would provide the lowest loss for record attempts.

New dual band boards will make use of e4o 410 with 144.1 MHz IF to maintain compatibility

Frequencies in use now: 122.400 paired with 122.256 GHz
Frequencies for revised dual band system: 122.400,100 paired with 122.256,000 GHz (IF 144.100)

Band Plan: 122.400 & 122.256 GHz Centre of Activity

134 GHz band

UK allocation **134GHz** 134,000-136,000 Primary 1000W (30 dBW)
136,000-141,000 Secondary 400W (26 dBW)

Originally we used SSB transverters on the then band plan frequency of 134.928 GHz

Antennas ProComm 142 GHz dishes still work but there is compatibility issues with Procom flanges.
A new feed for VK boards will solve.

A Cassegrain dish is an ideal solution.
Again many 60 GHz horns work fine.

Frequency in use now **134.400**
For forthcoming VK Systems. Pairs as follows:

A	**134,256.000**	**134,400.100**	(IF 144.100)
B	**134,400.100**	**134,256.000**	(IF 144.100)

But due to warning about WRA -042 chip having possible trouble at high frequencies. This is an alternative

9	134,000.100	134,144.200	(144.100 IF)

This channel can be reached by changing 1bit on the freq. allocation table.

Band Plan: 134.400 & 134.256 GHz Centre of Activity

241 GHz band

UK Allocation 241,000-248,000 Secondary 400W (26 dBW)
248,000-250,000 Primary 1000W (30 dBW)

241 to 250 GHz top 2 GHz is exclusive. Early frequencies used were 241,010 or 241,020. They were used as a multiple of available synthesisers at the time.
Antennas

No 241 GHz commercial antennas are used yet available. WG30 is the correct WG but 29 still will work fine.

Horn antennas have used icing cone nozzles

Possibility of new VK system using latest Silicon Radar (Indie) TRA_240_091 chip operating at 241-250GHz

Suggested frequency for 241 – 248 band: Centre frequency suggested **241.600** GHz (15.10 x 16)*

Suggested frequency for 248-250GHz band: Centre frequency **248.800** GHz (15.55 x 16)*
*Integer start frequencies to minimised phase noise. Actual TX frequencies maybe +/- 432MHz.

Band plan: 241.600 Secondary segment (+/- IF)
248.800 GHz Primary segment (+/- IF)

Above 275+ GHz

So much space that can be used and is available but suggest using bands used by others.

Frequencies to avoid frequency bands using earth orbiting satellites

288 GHz G8CUB /G0FDZ	UK (288.000)
322 & 403 GHz	both used in the US
411 GHz DB6NT	Germany
725 GHz DB6NT	Germany

Interference avoidance

In general the local oscillator frequency of receivers will radiate. It is therefore necessary for the LO as well as the TX signal to be in-band. If DSB TX mixing is used, then the unwanted signal and LO should also be in-band.

Lower order products can usually be removed by the high-pass filtering effect of the waveguide.

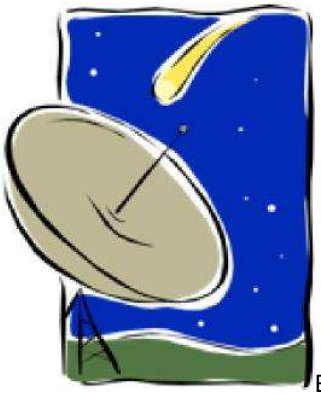
Increasing Range

Apart from using different modes and operating techniques, range will increase with transmit power. On the receive side improved sensitivity using lower noise mixers, and lower phase noise local oscillators, also helps. On both sides greater antenna gain will increase range at the expense of difficult pointing accuracy. A simple CW digital mode called Opera (1.41) is proving popular.

Common Band Plan

It may be too early to think of common band plan frequencies for Europe, and any decision will require much thinking at this stage.

Activity News February 2024



By John G4BAO

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

From John G4BAO

Quite a busy activity month for me despite spending a lot of time dealing with clearing the late G4BEL's radio equipment. Roger left just loads of nice kit. A list has been published and already lots of the GHz equipment has gone to members of this group, which is a good thing. I have taken a trading table at Martlesham to sell as much of the smaller small stuff such as adaptors cables as I can, and the prices will be very reasonable as it just has to go. I want to keep as much out of the hands of "dealers" as I can as already the "vultures have been circling." I'll say no more! Moving on to my activity, I have returned to 10GHz EME with my rebuilt 27 Watt PA and I had a brief foray on to 1.3GHz in the March contest. On 10GHz EME using Q65 I squeezed a signal through the leafless trees to work JA1WQF for initial #43. A new DXCC and continent on 10GHz. N0OY gave me initial #42 plus OZ1LPR, PA3DZL, and IK6CAK. I worked "the usual suspects" on 10GHz terrestrial in the SHF UKAC and several German stations on 1296MHz in the March European contest. I now have a better specification 1.2 metre dish than the existing "bendy" steel one and work will start on installing that soon! onwards and upwards!

By the time you read this, the GB3CAM beacons on 10 and 24GHz will have been removed from the Water tower at Wyton, but John G4NPH and his son Aidan G8NPH have kindly offered to host them at JO02BI74 their QTH in Haddenham, Cambs some 10 miles to the East. The site is just down the road from that of the late G4BEL. Haddenham is the highest point in the Fens with a superb take off from East through South to West. Grateful thanks go to the site owners both Paul G4AJE, who hosted us for over 13 years and AP Wireless for the last two and a half. Both were very generous towards us. It will be very interesting to see how well we do from the new site, but in the meantime, there's a bit of paperwork to get on with. The move is not finalised yet but there is also talk of applying for a 3.4GHz beacon on the site as well. Watch social media and this column for progress reports.

From Steve G4HSK

I did a short test with G4BAO recently. Both of us use 1.2m dishes no QSO yet, but I've previously decoded John at -18 on Q65. Getting back on 10GHz EME has been a bit jinxed! Firstly, an intermittent fuse holder on one of the supply rails, then the relay switching the 12V to the PA and finally an issue with his K3! I suspect that was the reason I didn't see or decode John during this latest. My IF setup with the G4DDK Anglian 144/28MHz transverter splits the 28MHz RX path three ways. To the K3, to a Funcube dongle Pro+ with Linrad and QMAP / MAP65, and finally to a homebrew noise meter for Moon and sun noise measurements. My 1.2 metre EchoStar fibreglass dish is "an odd one." It seems to be comparable with a Channel Master as far as surface profile goes but the rear support ribbing is quite different. It's certainly very heavy and appears well made. I spent a long time optimising the dish feed setup but the weak link seems to be the azimuth rotation system, both in terms of backlash and pointing accuracy.

From Nick G4OGI

Here in North Kent I'm still working on optimising my10GHz system by looking at beacons via rain and aircraft scatter. I find my small 33cm dish with its 5-degree azimuth beamwidth, to be more effective than a larger dish. Even pointing directly towards HB9G but at 26.8 degrees elevation I see some signal from QO-100 even though it's about 7 degrees away in azimuth. I have captured GB3PKT and ON0VHF both with negative Doppler and noted that GB3PKT seems to radiate upwards more than outwards in this direction. I have seen short fast Doppler returns from PI7RTD, ON0HVL,

ON0UCL and HB9G with longer term weak signals from PA3GCO Obviously the dish is not yet set at an optimal elevation but as the path to HB9G is close to a major European Airway, the azimuth setting is probably ok for now. I'm considering reducing the elevation angle from 26.8 to around 12deg. I use a locked Octagon LNB, and the performance is sufficient at 10368 MHz to allow for rudimentary external noise level monitoring. I regularly see just under 1dB change between clear sky and the rain bearing cloud. More so with heavy rain.

From Adrian G4UVZ

I've notched up another 24GHz contact from my home station, working Clive GW4MBS at two portable locations both at around 130 km with multiple obstructions. Not quite strong enough for SSB but good 519 CW. In the first 6 months The new Wavelab equipment has now managed 2 x GWs 2 x G contacts and two beacons. Clive reported that it was a relief that his usual site 5 mins away from home was just as good as the potentially better site 45 mins away but regrets that there was nothing else to listen to. He did try for GB3AMU hoping that some aircraft scatter from somewhere might have given a trace n the screen but after 15 minutes, nothing.

From Colin GM4HWO

The Edinburgh 1.3GHz microwave beacon GB3EDN is back on the air after a move to a new location at the QTH of GM4HWO QRA IO85JV on the south side of Edinburgh. It has moved about 1.5 km south from its previous site in the University of Edinburgh, Kings Buildings Campus. The operating frequency is 1296.990MHz. It sends its callsign GB3EDN and QRA locator in both FSK and JT4 once per minute. The new site is about 200m higher than the previous site and it is hoped that coverage is somewhat improved. It has a clear view from northwest through to the east giving good coverage up the East coast and across the North Sea to Scandinavia. It is also hoped that there will be better propagation to the south from the new site. Spots on Beaconspot will be appreciated. Full details available on the Lothians Radio Society website https://www.lothiansradiosociety.com/

From G8CUB

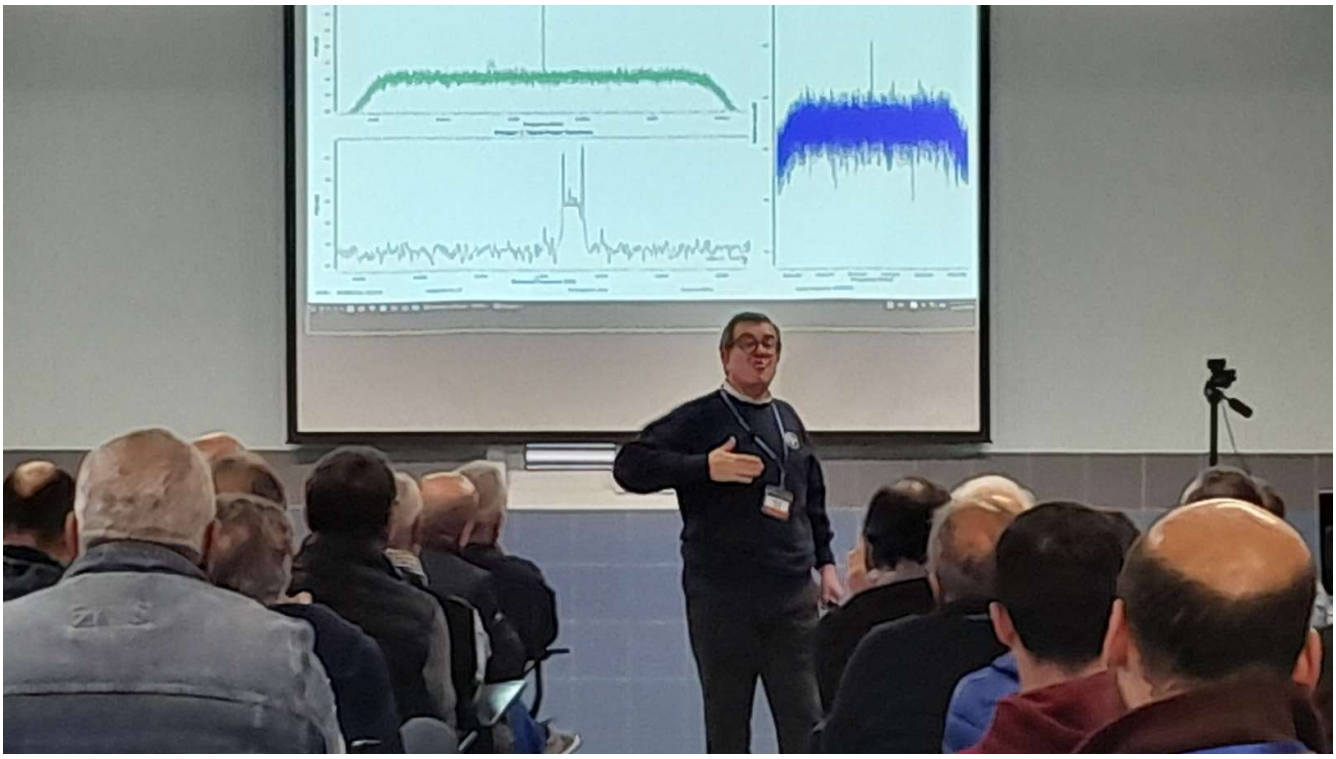
Active in the 122GHz Contest were:
Gareth G4XAT/P, Lehane G8KMH/P, Dave G1EHF/P, Noel G8GTZ/P, Neil G8LDR/P & Roger G8CUB/P.
Despite generally wet and misty conditions in the morning. A number of contacts were made.
In the afternoon conditions improved. Then contacts over the 26km path from Coombe Gibbet to Stockbridge, were successful using Opera. Dave G1EHF/P made a CW contact with G4LDR/P, over this path. This was a VK-VK contact, which was impressive considering the far from ideal conditions.

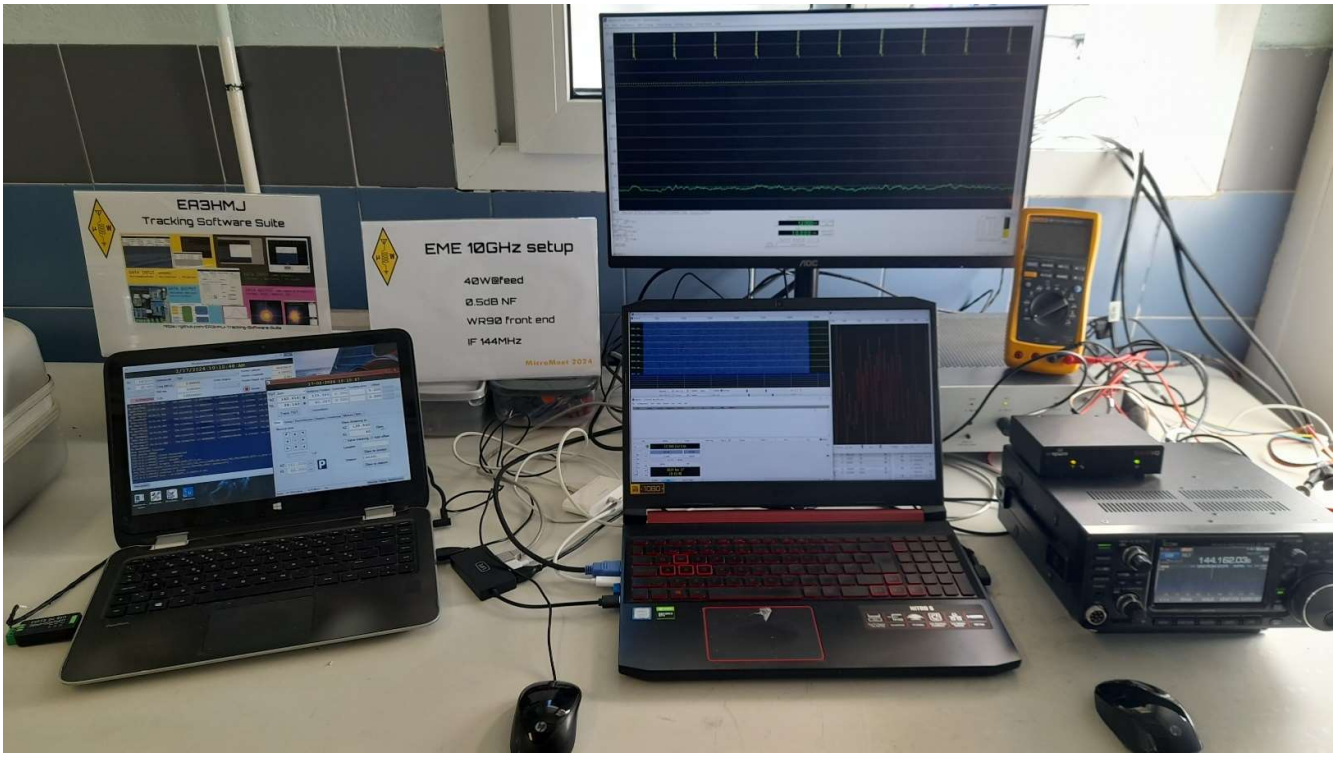
From Northern Spain

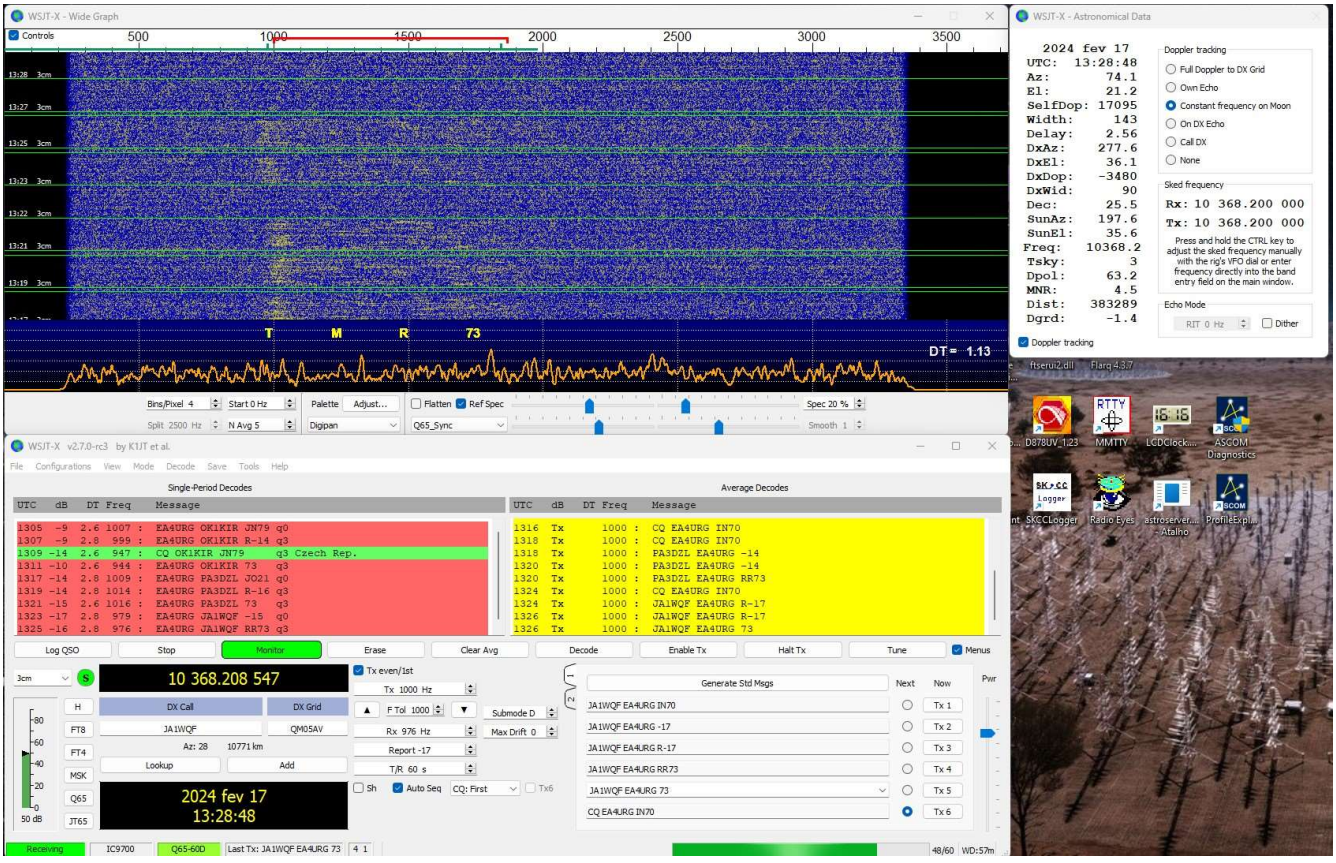
Down in Northern Spain a group are preparing what they describe as a "Hyper-Cantabrian" North Spain 10GHz activity for this summer. All the stations are on the North Spanish coast so QSOs to the UK are quite possible. Those involved are Máximo EA1DDO / HK1H / M0HAO, Manel EA1BLA, Antonio EA1IW, and Ivan EA1GHE / M0KSW. Others plan to join them. Look for them if conditions allow but it's a very difficult path from the Eastern side of UK EA on 10GHz.

Micromeet 2024 Report

Micromeet_2004, Madrid, Sierra de Guadarrama The opportunity to exchange knowledge, experiences, engineering solutions, measure and fine-tune equipment and subsystems. This sums up the annual meeting of hyper-frequency enthusiasts... But it's much more than that!
Optimising systems and understanding why they work well... or badly. Seeing in practice what happens if certain techniques are used. Listening to experts in various fields: developing software for receiving deep space probes (DSN), developing open source tools for implementing SDR, demodulating space probes, measuring system phase noise, doing (and knowing how to do!!) measurements. To see for yourself how a lunar reflection system can be made with a small dish at 10GHz. The importance of a tracking system and how to calibrate it... etc. All this and much more was presented. This time there were two rooms: one for talks and meetings. Another for the measuring equipment and systems.
Another outdoor space, dedicated to catering, also functioned as a social area, giving the more than 90 people who visited the Centro de Congresos Fray Luis de Leon the chance to get together. Flawless facilities, exemplary organisation!
On Friday 16th, after the visit to the ESA facilities in Villanueva de la Cañada, the installation of the laboratory and Moon System (EME) began.
The laboratory featured the HP 8510C VNA from 0.1 to 20GHz and the Agilent E4407B NFA / SA from 0.01 to 26.5GHz. Sources, signal generators... nothing, or almost nothing, was missing to make the measurements that so many had longed for.
The Lua system was just installed on Saturday 17th. Two computers: one dedicated to the tracking system, the other to the IC-9700 and WSJT control system. Yes, the Morse key was there too! With a 90cm offset dish it would have been difficult, but nothing is impossible!
Eight QSOs were carried out, one of them with Japan (RX on 10450, Tx on 10368). Total success!
The new CAT equipment for Yaesu FT8xx equipment was presented. The Maxicom 5CV8XX. It has Waterfall and functionalities for V/U/SHF and Microwave.




EA3HMJ
Tracking Software Suite
EME 10GHz setup
40W@feed
0.5dB NF
WR90 front end
IF 144MHz


WSJT-X - Wide Graph
WSJT-X - Astronomical Data
2024 fev 17
UTC: 13:28:48
Az: 74.1
El: 21.2
SelfDop: 17095
Width: 143
Delay: 2.56
DxAz: 277.6
DxEl: 36.1
DxDop: -3480
DxWid: 90
Dec: 25.5
SunAz: 197.6
SunEl: 35.6
Freq: 10368.2
Tsky: 3
Dpol: 63.2
MNR: 4.5
Dist: 383289
Dgrd: -1.4
Doppler tracking
Full Doppler to DX Grid
Own Echo
Constant frequency on Moon
On DX Echo
Call DX
None
Sked frequency
Rx: 10 368.200 000
Tx: 10 368.200 000
Echo Mode
Dither
T M R 73
DT = 1.13
WSJT-X v2.7.0-rc3 by K1JT et al.
Single-Period Decodes
Average Decodes
Log QSO
Stop
Monitor
Erase
Clear Avg
Decode
Enable Tx
Halt Tx
Tune
Menus
10 368.208 547
2024 fev 17
13:28:48
Generate Std Msgs
Next
Now
Receiving

Everyone's enthusiasm and motivation to do even better at the next edition exceeded all expectations! See you next year! 73,

Miguel CT1BYM

Next on the calendar:

Blomard 2024

IMPORTANT INFORMATION ABOUT BLOMARD 2024
the gathering of VHF-UHF-SHF will be organized at
Peyrat le Château in Limousin next to Lake
Vassiviere: March 30, 2024

ref03blog.wordpress.com/blomard-2024-vhf-uhf-shf/

Martlesham 2024

Registration is now open for Martlesham Roundtable on Sunday 14th April at BT Adastral Park, near Ipswich
Please note; Prior registration is required.
https://www.microwavers.org/main/events/martlesham-roundtable-5/

On the Saturday there is an optional visit to Bawdsey Radar IP12 3BA 2-4pm
In the evening there will be an informal gathering, for a meal at the Swallow, Brewers Fayre, IP3 9SS

A full provisional programme:
https://www.microwavers.org/main/wp-content/uploads/2023/12/Martlesham-Roundtable-2024.pdf

Editors Comment

We seem to have the wettest couple of months ever. Which has not been good for microwave, except for some rain scatter.

Now that Spring is with us, we can look forward to some good weather and conditions – hopefully

I would like to thank all the contributors this month. Without articles, we would not have a Newsletter……
Especial thanks to Luis EA5DOM, and Miguel CT1BYM.

With some possible issues with email forwarding. Please also send direct to me as well as editor@.
g8cub@yahoo.co.uk

Beacon News

The **Edinburgh 23cm beacon** is back on the air after a move to a new location.
It has moved about 1.5 km south from its previous site in the University of Edinburgh,
Kings Buildings Campus. The frequency is 1296.990MHz.
It sends callsign and QRA (IO85jv) in both FSK and JT4 once per minute. The new site is
about 200m higher than the previous site and it is hoped that coverage is somewhat improved.
It has a clear view from NW through to the east giving good coverage up the East coast
and across the N Sea to Scandinavia. It is also hoped that there will be better propagation to
the south from the new site.

Spots on Beaconspot will be appreciated!

Brian Flynn, GM8BJF

GB3LEX has been, and still is, off air since 3rd.Dec 2023.

The high winds in November '23 have severely damaged coax feeders to many of the antennas on the mast, this includes GB3LEX and also GB3LES.
The antenna for 432MHz beacon GB3LEU is still functioning but with very a high VSWR

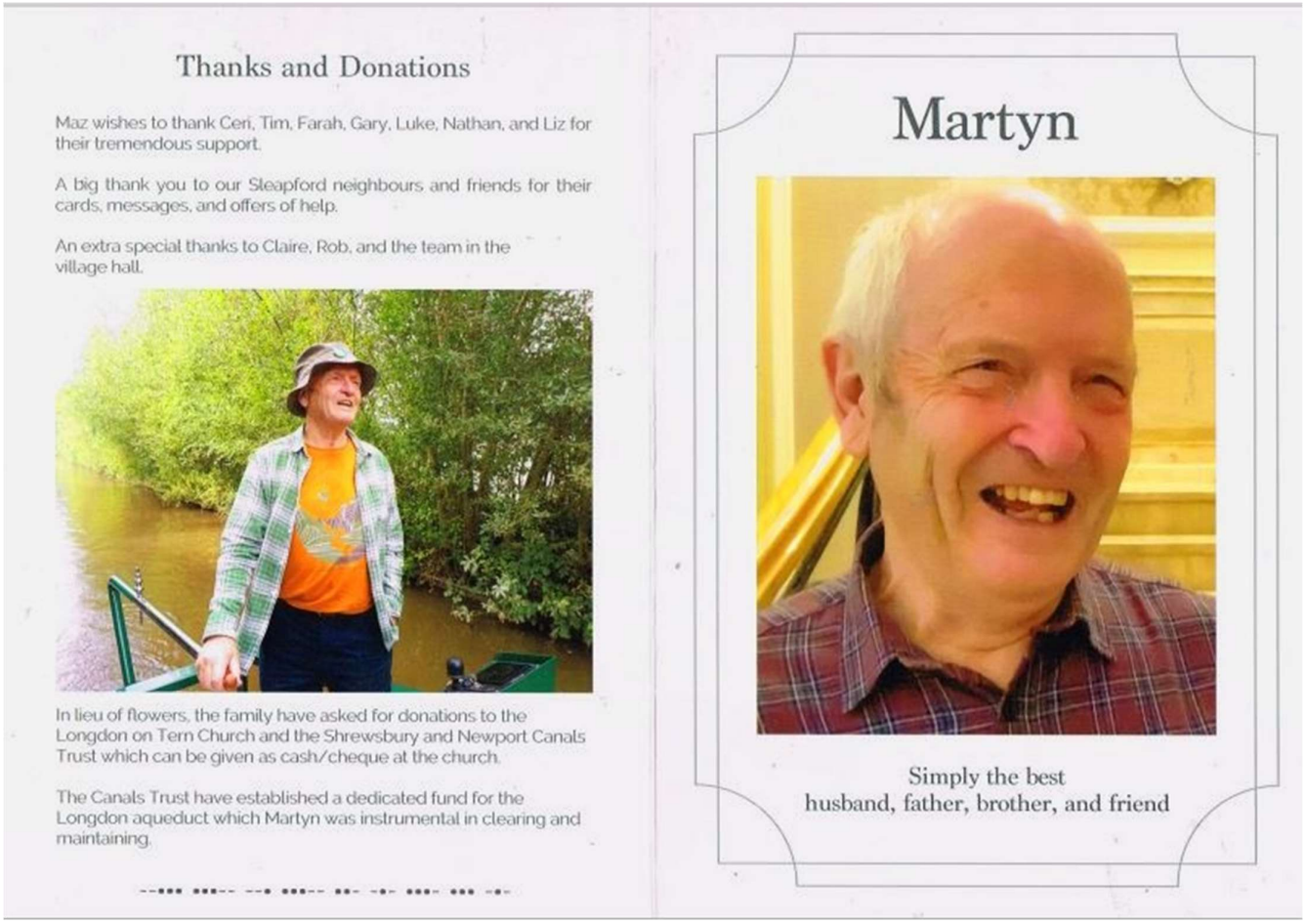
Geoff Findon G3TQF

Martyn Vincent sk

Funeral Order of Service for Martyn G3UKV.

Quite a number of radio amateurs there, including members of Telford & District Amateur Radio Society (TDARS),
Hereford Amateur Radio Society (HARS), Salop Amateur Radio Society (SARS) and the Bristol Contest Group (BCG).

73
David G4ASR



Thanks and Donations

Maz wishes to thank Ceri, Tim, Farah, Gary, Luke, Nathan, and Liz for their tremendous support.

A big thank you to our Sleapford neighbours and friends for their cards, messages, and offers of help.

An extra special thanks to Claire, Rob, and the team in the village hall.

In lieu of flowers, the family have asked for donations to the Longdon on Tern Church and the Shrewsbury and Newport Canals Trust which can be given as cash/cheque at the church.

The Canals Trust have established a dedicated fund for the Longdon aqueduct which Martyn was instrumental in clearing and maintaining.

Martyn

Simply the best
husband, father, brother, and friend

Order of Service

Entry music
Thank You for the Music by ABBA

Welcome
Reverend Andy Ackroyd

Poem
The Dash by Linda Ellis, read by Andy

The early years
Jen Burton and Barry Vincent

Marriage, children, and teaching
Maz, Ceri, and Tim, read by Andy

Hymn
Morning Has Broken

Martyn's hobbies
Ham Radio (Simon Bird) and the Canals Trust (Bernie Jones)

Prayer
Led by Reverend Andy

Committal and Blessing
Reverend Andy

Exit music
My Old Man's a Dustman by Lonnie Donegan

G3UKV

Remembering Roger, G4BEL

By John G4BAO

Roger obtained his First Amateur radio callsign, G8BBB in 1968.

“G8 triple B” was soon to become a big noise on the VHF bands. He was first mentioned in Short Wave Magazine in August 1968.

“G8BBB (Littleport, Cambs.) is now very active on Two with AM, SSB and CW but is looking for 70 cm. skeds at any time. Preferred direction is north and frequency 433.020 SSB or AM, with inputs of 300 watts p.e.p.and150 watts respectively.”

Ever the competitor, he was already in 3rd place in the three-band annual VHF table for 1968 with 35 counties and 9 countries worked on 2 metres and 25 counties and 5 countries on 70cm. By the end of 1968 he was active on the 23cm band, Short Wave magazine reporting his station as 3 Watts to a 23-over-23 slot-fed beam operating from Henry G3REH’’s 100-foot tower at Spalding. Roger and Henry had a private point-to-point link between their stations to pass on DX information. At this stage Roger had reached the top of the monthly 70cm table and 2nd on 2 metres leaving him second in the overall table.

The 1970s saw Roger get interested in Amateur television and was involved with the BATC Convention held in Cambridge in July 1970. 1971 continued his groundbreaking work on 23cms a regular contest winner, and included a QSO with Phillipe F2TU, who also sadly passed away few years ago. Roger, operating from almost at sea level with Phillipe at 4500ft.a.s.l. in the French Alps Roger was running just 8 watts from a 2C39 into an 8/8 slot at 48ft with a K6AXN receive converter. His 23cm achievements total now stood at three countries and eleven counties.

On passing his Post office Morse test, Roger became G4BEL in 1972 after just missing out on getting the G4BBB call. In those days, if you wanted a particular call you had to wait for it to come up in sequence.

1977 saw Roger building a new radio "shack" and he became active on 13cm with 20 watts of SSB into a five-foot dish with a log periodic feed at 35 feet.

Typical of Roger, a note in Short Wave Magazine, in the 23cm section of "VHF bands" for August 1978 quotes him as asking to be deleted from the 23cm activity table as he was "fed up with being at the top" reckoning it was time others took up the challenge!

He continued his operation on in to the 80s, regularly winning contests, especially on his favourite band 70cm, and as a complete contrast was a regular on the LF 80meter "Fenland Slow Scan TV Net."

Over the remaining years, he built up his impressive VHF and Microwave station at The Rampart, including two towers and equipment for all bands up to and including 24GHz. One of the very few stations who managed to operate from home on that notoriously difficult band.

Over his life his passion for the hobby helped so many people set up on the VHF and Microwave bands with advice and equipment. Some remembrances from these people are included below.

Henry G3REH

"He did so much for so many people! I spent a lot of time with him but much of it is a long time ago. One outstanding memory was one VHF field day the aerials had been erected overnight but then came a gale! Most of them were OK except the 70/23 mast with Roger's homemade 6ft dish on it. The pole had bent into a banana shape, and we tried to let it down carefully to reinstall it. However, on its way down it suddenly dropped. Roger was underneath it and managed to catch it and save it from destruction. It was reinstalled on a straight piece of pipe and was used for that weekend."

John G4BAO

"Roger gave me so much advice and encouragement while I was preparing equipment for 24GHz and gave me my first QSO on the band back in April 2007. A phone call to him would usually get him on the band to test with.

I remember one occasion when I took a portable system up to a Camb-Hams Field Day and Roger made himself available for an hour or so to give a number of visitors their first experience of a 24GHz QSO"

Bernie G4HWA

"Very sad news about Roger. I remember working him when he was G8BBB with my G8CJY call. Always a big signal from Haddenham, RIP Roger."

Dave G4IUG ex G8EAO

"Almost 50 years ago Roger was always available for help and advice when I lived in West Suffolk on the Cambridge border as G8EAO. Roger will always be part of my past R.I.P."

Bob, G1ZJP

"Very sad to learn of Roger's passing. I met Roger through radio but not through ham radio, but rather through Motorsport UK safety radio. Roger, through his company, Tower Communications was the radio engineer for many motor clubs in his area. He was always very pleasant and obliging and it goes without saying, very technically competent. Roger sold 2 radios to me & set them up for Motorsport UK usage whilst I waited & chatted. I hadn't seen Roger in a while, such was the reliability of his radios & workmanship.

My condolences to his wife, family & close friends. He will be missed very much."

Keith G4ODA

Very very sad news John. As I've said to Henry 8BBB first appears in my SWL log in March 72. For a start as swl I was hooked on HF but had built a single FET super regen RX to listen to local 2m net (just on indoor dipole). Roger was the first signal I heard outside of Spalding. I think was the trigger to appreciating what may be possible on the real bands and within a couple of months had my first converter working and lost all interest in HF. I'm not at all sure without having heard Roger I would be on the higher bands today.

Coming after the news of Martyn UKV it does make me think! Never met Martyn but had spoken to him just a few days before his passing. Always one those people you

could have a quick word with during a contest rather than just rrr qrz. We were looking forward to yet another try on 24G, sadly never to be. A real gentleman.

John G3XDY So sorry to hear he has passed away. Roger was an inspiration for me getting onto the microwaves, alongside Simon G3LQR. March & DRAS was a great competitive spur in the days of G4MRS/P, with Roger at the helm.

UKuG MICROWAVE CONTESTS 2024

Dates, 2024	Time UTC	Contest name
3-Mar	1000 - 1600	1st Low band 1.3/2.3/3.4GHz
7-Apr	1000 - 1600	2nd Low band 1.3/2.3/3.4GHz
5-May	0800 - 1400	3rd Low band 1.3/2.3/3.4GHz
5-May	0900 – 1700	1st 24GHz Contest
5-May	0900 – 1700	1st 47GHz Contest
5-May	0900 – 1700	1st 76GHz Contest
26-May	0600 - 1800	1st 5.7GHz Contest
26-May	0600 - 1800	1st 10GHz Contest
2-Jun	1000 - 1600	4th Low band 1.3/2.3/3.4GHz
30-Jun	0600 - 1800	2nd 5.7GHz Contest
30-Jun	0600 - 1800	2nd 10GHz Contest
14-Jul	0900 – 1700	2nd 24GHz Contest
14-Jul	0900 – 1700	2nd 47GHz Contest
14-Jul	0900 – 1700	2nd 76GHz Contest
28 -Jul	0600 - 1800	3rd 5.7GHz Contest
28 -Jul	0600 - 1800	3rd 10GHz Contest
18-Aug	0900 – 1700	24GHz Trophy Contest
25-Aug	0600 - 1800	4th 5.7GHz Contest
25-Aug	0600 - 1800	4th 10GHz Contest
15-Sep	0900 - 1700	3rd 24GHz Contest
15-Sep	0900 - 1700	3rd 47GHz Contest
15-Sep	0900 - 1700	3rd 76GHz Contest
29 -Sep	0600 - 1800	5th 5.7GHz Contest
29 -Sep	0600 - 1800	5th 10GHz Contest
6 -Oct	0900 - 1700	4th 24GHz Contest
6 -Oct	0900 - 1700	4th 47GHz Contest
6 -Oct	0900 - 1700	4th 76GHz Contest
10 -Nov	1000 - 1400	5th Low band 1.3/2.3/3.4GHz

UKuG MICROWAVE CONTEST CALENDAR 2024

Month	Contest name	Organiser	Date 2024	Time GMT	Notes
Jan	1.3GHz Activity Contest	*Arranged by RSGB*	16-Jan	2000 - 2230	RSGB Contest
Jan	2.3GHz+ Activity Contest	*Arranged by RSGB*	23-Jan	1930 - 2230	RSGB Contest
Feb	122GHz Contest	UKuG	4-Feb	0900 - 1700	New event
Feb	1.3GHz Activity Contest	*Arranged by RSGB*	20-Feb	2000 - 2230	RSGB Contest
Feb	2.3GHz+ Activity Contest	*Arranged by RSGB*	27-Feb	1930 - 2230	RSGB Contest
Mar	Low Band 1296/2300/2320/3400MHz	UKuG	3-Mar	1000 - 1600	First 4 hours coincide with IARU event
Mar	REF/DUBUS EME 3.4GHz	*Arranged by REF/DUBUS*	17-Mar	0000 - 2400	REF/DUBUS EME 3.4GHz
Mar	1.3GHz Activity Contest	*Arranged by RSGB*	19-Mar	2000 - 2230	RSGB Contest
Mar	2.3GHz+ Activity Contest	*Arranged by RSGB*	26-Mar	1930 - 2230	RSGB Contest
Apr	Low Band 1296/2300/2320/3400MHz	UKuG	7-Apr	0900 - 1500	
Apr	REF/DUBUS EME 2.3GHz	*Arranged by REF/DUBUS*	14-Apr	0000 - 2400	REF/DUBUS EME 2.3GHz
Apr	1.3GHz Activity Contest	*Arranged by RSGB*	16-Apr	1900 - 2130	RSGB Contest
Apr	2.3GHz+ Activity Contest	*Arranged by RSGB*	23-Apr	1830 - 2130	RSGB Contest
May	*432MHz & up*	*Arranged by RSGB*	4-May to 5-May	1400 -1400	RSGB Contest
May	*10GHz Trophy*	*Arranged by RSGB*	5-May	0800 - 1400	Sunday, to coincide with IARU
May	Low Band 1296/2300/2320/3400MHz	UKuG	5-May	0800 - 1400	Aligned with IARU event
May	24GHz/47/76GHz	UKuG	5-May	0900-1700	Aligned with IARU event
May	REF/DUBUS EME 1.2GHz	*Arranged by REF/DUBUS*	11-May to 12-May	0000 - 2400	REF/DUBUS EME 1.2GHz
May	1.3GHz Activity Contest	*Arranged by RSGB*	21-May	1900 - 2130	RSGB Contest
May	5.7GHz/10GHz	UKuG	26-May	0600-1800	
May	2.3GHz+ Activity Contest	*Arranged by RSGB*	28-May	1830 - 2130	RSGB Contest
Jun	Low Band 1296/2300/2320/3400MHz	UKuG	2-Jun	0900 - 1500	Aligned with some Eu events
Jun	REF/DUBUS EME 24GHz	*Arranged by REF/DUBUS*	8-Jun	0000 - 2400	REF/DUBUS EME 24GHz
Jun	REF/DUBUS EME 10GHz	*Arranged by REF/DUBUS*	9-Jun	0000 - 2400	REF/DUBUS EME 10GHz
Jun	1.3GHz Activity Contest	*Arranged by RSGB*	18-Jun	1900 - 2130	RSGB Contest
Jun	2.3GHz+ Activity Contest	*Arranged by RSGB*	25-Jun	1830 - 2130	RSGB Contest
Jun	5.7GHz/10GHz	UKuG	30-Jun	0600-1800	
Jul	VHF NFD (1.3GHz)	*Arranged by RSGB*	6-Jul to 7-Jul	1400 - 1400	RSGB Contest
Jul	24GHz/47/76GHz	UKuG	15-Jul	0900-1700	
Jul	1.3GHz Activity Contest	*Arranged by RSGB*	16-Jul	1900 - 2130	RSGB Contest
Jul	2.3GHz+ Activity Contest	*Arranged by RSGB*	23-Jul	1830 - 2130	RSGB Contest
Jul	5.7GHz/10GHz	UKuG	28-Jul	0600-1800	
Jul	REF/DUBUS EME 5.7GHz	*Arranged by REF/DUBUS*	28-Jul	0000 - 2400	REF/DUBUS EME 5.7GHz
Aug	24GHz Trophy Contest	UKuG	18-Aug	0900 - 1700	New event
Aug	1.3GHz Activity Contest	*Arranged by RSGB*	20-Aug	1900 - 2130	RSGB Contest
Aug	2.3GHz+ Activity Contest	*Arranged by RSGB*	27-Aug	1830 - 2130	RSGB Contest
Aug	ARRL Microwave EME	*Arranged by ARRL*	24-Aug to 25 -Aug	0000 - 2359	ARRL EME 2.3GHz & Up
Aug	5.7GHz/10GHz	UKuG	25-Aug	0600-1800	
Sep	24GHz/47/76GHz	UKuG	15-Sep	0900-1700	
Sep	1.3GHz Activity Contest	*Arranged by RSGB*	17-Sep	1900 - 2130	RSGB Contest
Sep	ARRL Microwave EME	*Arranged by ARRL*	21-Sep to 22-Sep	0000 - 2359	ARRL EME 2.3GHz & Up
Sep	2.3GHz+ Activity Contest	*Arranged by RSGB*	24-Sep	1830 - 2130	RSGB Contest
Sep	5.7GHz/10GHz	UKuG	29-Sep	0600-1800	
Oct	*432MHz & up*	*Arranged by RSGB*	5-Oct to 6-Oct	1400 - 1400	IARU/RSGB Contest
Oct	*1.3 & 2.3GHz Trophies*	*Arranged by RSGB*	5-Oct	1400 - 2200	RSGB Contest
Oct	24GHz/47/76GHz	UKuG	6-Oct	0900-1700	
Oct	1.3GHz Activity Contest	*Arranged by RSGB*	15-Oct	1900 - 2130	RSGB Contest
Oct	ARRL EME 50-1296MHz	*Arranged by ARRL*	19-Oct to 20-Oct	0000 - 2359	ARRL EME Contest
Oct	2.3GHz+ Activity Contest	*Arranged by RSGB*	22-Oct	1830 - 2130	RSGB Contest
Nov	Low Band 1296/2300/2320/3400MHz	UKuG	10-Nov	1000 - 1400	
Nov	ARRL EME 50-1296MHz	*Arranged by ARRL*	16-Nov to 17-Nov	0000 - 2359	ARRL EME Contest
Nov	1.3GHz Activity Contest	*Arranged by RSGB*	19-Nov	2000 - 2230	RSGB Contest
Nov	2.3GHz+ Activity Contest	*Arranged by RSGB*	26-Nov	1930 - 2230	RSGB Contest
Dec	1.3GHz Activity Contest	*Arranged by RSGB*	17-Dec	2000 - 2230	RSGB Contest

Sections		
	F	Fixed / home station
	P	Portable
	L	Low-power <10W 1.3/2.3/3.4GHz, <1W 5.7/10GHz)

Added 24GHz and 122GHz events, rescheduled 24/47/76GHz events for 2024

EVENTS 2024

March 30	Blomard 2024, France	ref03blog.wordpress.com/blomard-2024-vhf-uhf-shf/
April 13-14	Martlesham Roundtable / AGM, Ipswich	www.microwavers.org
May 17-19	Hamvention, Dayton Ohio	www.hamvention.org
June 28-30	Ham Radio, Friedrichshafen	www.hamradio-friedrichafen.de
July tbc	Finningley Roundtable, Finningley	www.g0ghk.com
August 4	BATC Convention, Midland Air Museum, Coventry	www.batc.org.uk
August 9-11	20th EME Conference, Ewing NJ, USA	EME2024Trenton.org
September tbc	Crawley Roundtable	https://carc.org.uk/
October 3-5	Microwave Update, Vancouver, Canada	microwaveupdate.org