An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

Published by the UK Microwave Group

May 2024

In This Issue

Articles for Scatterpoint 2
Subscription Information 2
UKµG Project support 3
UKµG Technical support 3
UKµG Chip Bank – A free service for members 3
UK Microwave Group Contact Information 4
Loan Equipment 4
A 10MHz Phase Modulator 5
New Products 9
Activity News May 2024 14
Beacon News…… 18
This Month I have been….. 18
Martlesham Round Table 2024 19
Microwave Meetings 2024 27
Editors Comments 27
Contest Results 2024 28
UKuG MICROWAVE CONTEST CALENDAR 2024 30
MICROWAVE CONTEST CALENDAR 2024 31
EVENTS 2024 32

23cm update talk at Martlesham - Barry G4SJH

24GHz trials in May - John PA7JB

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 Dropbox Also, **free access to the Chip Bank**

Please make sure that you pay the stated amounts when you renew your subs next time If the amount is not correct your subs will be allocated on a pro-rata basis and you could miss out on a newsletter or two!

You will have to make a quick check with the membership secretary if you have forgotten the renewal date Please try to renew in good time so that continuity of newsletter issues is maintained Put a **renewal date reminder** somewhere prominent in your shack

Please also note the payment methods and be meticulous with PayPal and cheque details

PLEASE QUOTE YOUR CALLSIGN!

Payment can be made by: PayPal to

payukug@microwavers.org

or a cheque (drawn on a UK bank) payable to 'UK Microwave Group' and sent to the membership secretary (or, as a last resort, by cash sent to the Treasurer!)

Articles for Scatterpoint

News, views and articles for this newsletter are always welcome

Please send them to

editor@microwavers.org

The CLOSING date is

the FIRST day of the month

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

Please submit your articles in any of the following formats:

Text: txt, rtf, 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

UK Microwave Group Contact Information

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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

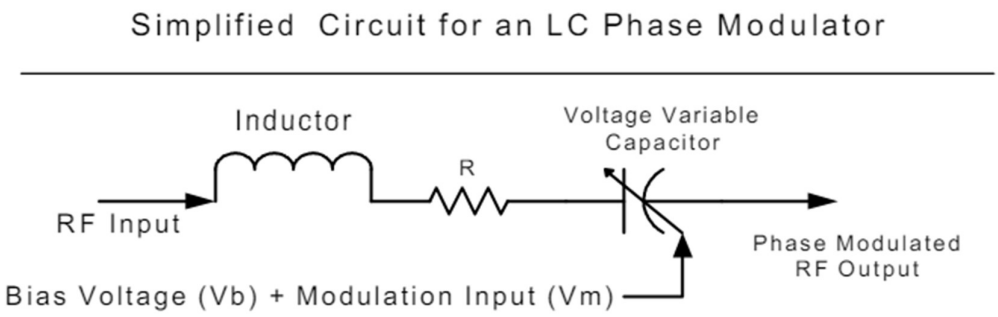
A 10MHz Phase Modulator

By Roger G8CUB

I can't claim any originality for this phase modulator, as over years there have been circuits from Andy G4JNT, John G8ACE and many others.

The reason a phase modulator is useful, is that on the millimetre bands; to produce any significant power, it is much easier to generate a CW signal.
Often the CW signal will be the LO, or the LO shifted in frequency.

Many times once dishes are aligned there is enough signal to use FM. Often a high stability 10MHz reference is used to drive the synthesiser. Trying to directly FM the reference does not work. With the high multiplication used, it is only necessary to shift the reference a few tens of degrees. A phase modulator is ideal for this purpose. Being placed between the 10MHz reference and the synthesiser.
The phase can be changed with a tuned circuit in the path. Changing the tuned circuit frequency, by altering the capacitance.



The above is the basis of the phase modulator. The inductor is tuned via the capacitance to the frequency required. In this case 10MHz. The capacitor can be made up of a fixed and or variable C in parallel with the varicap diode. The 'R' may be the internal resistance of the inductor, or an additional resistor to reduce the 'Q'.

There seems to be at least one circuit on the web, where one side of the diode is sitting un-biased. That clearly cannot work. In my case I have put the diode between the inductor and ground. That sorts out the bias issue. The theory being any linear phase shift should do the job.

In the past there used to be a proliferation of audio processing ICs for FM transmitters. Now there seems to be just the SL6270 left. Those available are likely copies of the Plessey original. However they seem to work well enough.
The SL6270C is a VOGAD (voice operated gain adjustment device). Basically an audio pre-amplifier followed by audio compression. What is lacks is a limiter. That means a burst of audio/noise can get through, before the AGC can react. For communication on the millimetre bands, we are not attempting to get broadcast quality.
Phase modulators create pre-emphasis by the way they operate. However I feel that further pre-emphasis is required before the audio processing. Without that it can sound quite 'woolly'.

A limitation of the 6270 is that the maximum output is around 90mV. In practice that has proven sufficient for operation down to 47GHz. Even at that frequency the multiplication is 4700. So there is not a huge shift required.
The diode I use is a MV840 abrupt diode, for no better reason than that I have a pot full of them. It does give a decent capacitance against voltage change. (C=100pF@4V TR 2, Q 10-15). However any diode will work. If greater audio drive is required, then an OpAmp could follow the 6270.

An Electret microphone works easily with the 6270, producing enough audio to fully compress.

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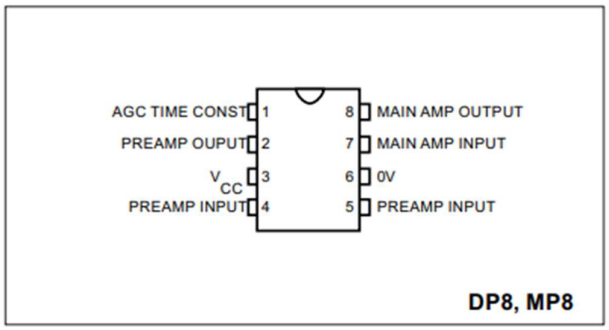


Fig. 2 Pin connections, SL6270 - DP (top view)

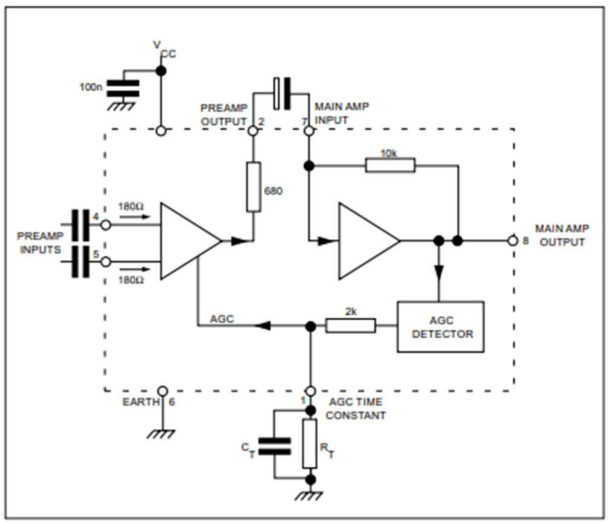


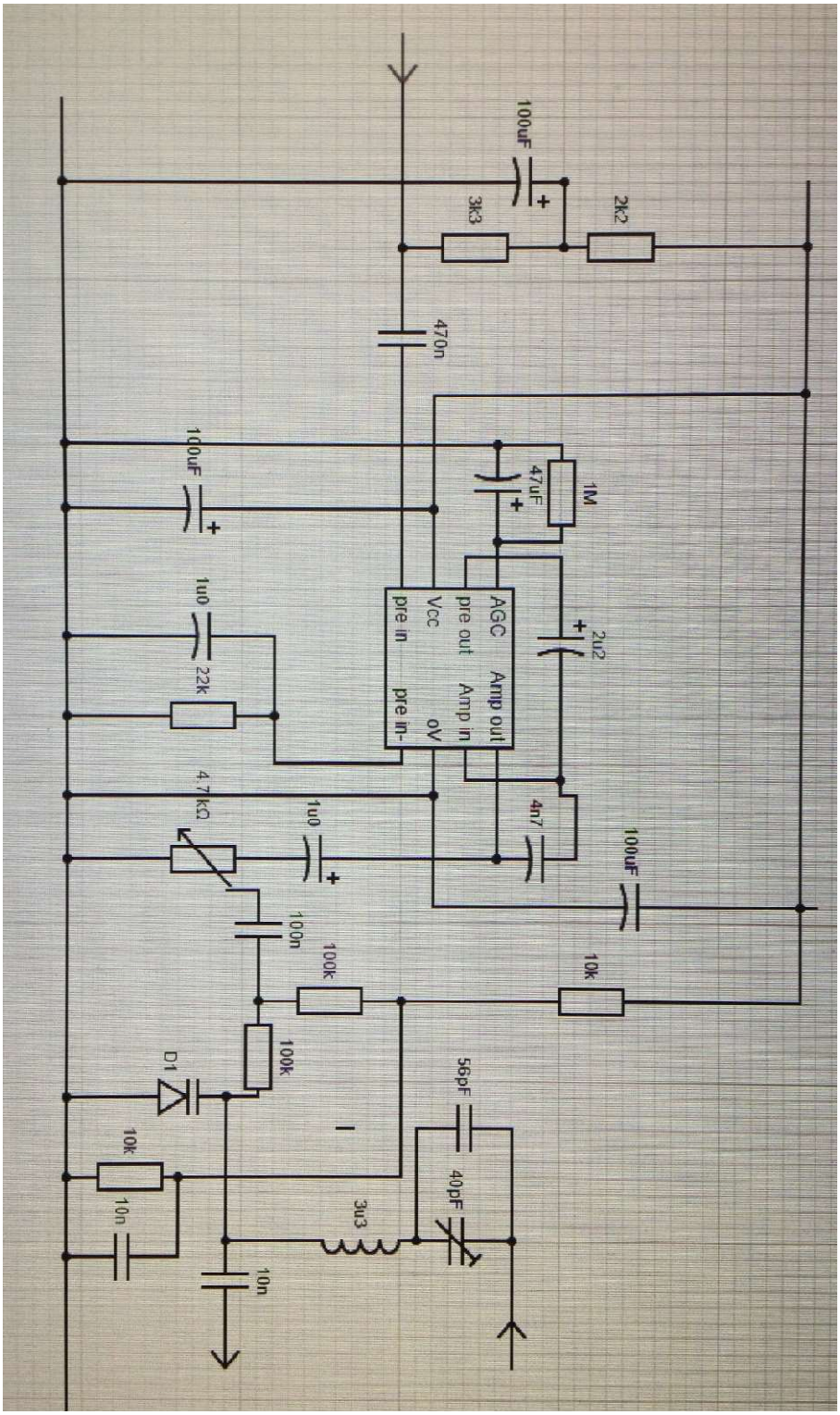
Fig. 3 SL6270 block diagram

Pinout and block diagram of the SL6270. Supply is 4.5 -10V. Therefore it is easy to use a 5 or 6V regulator.

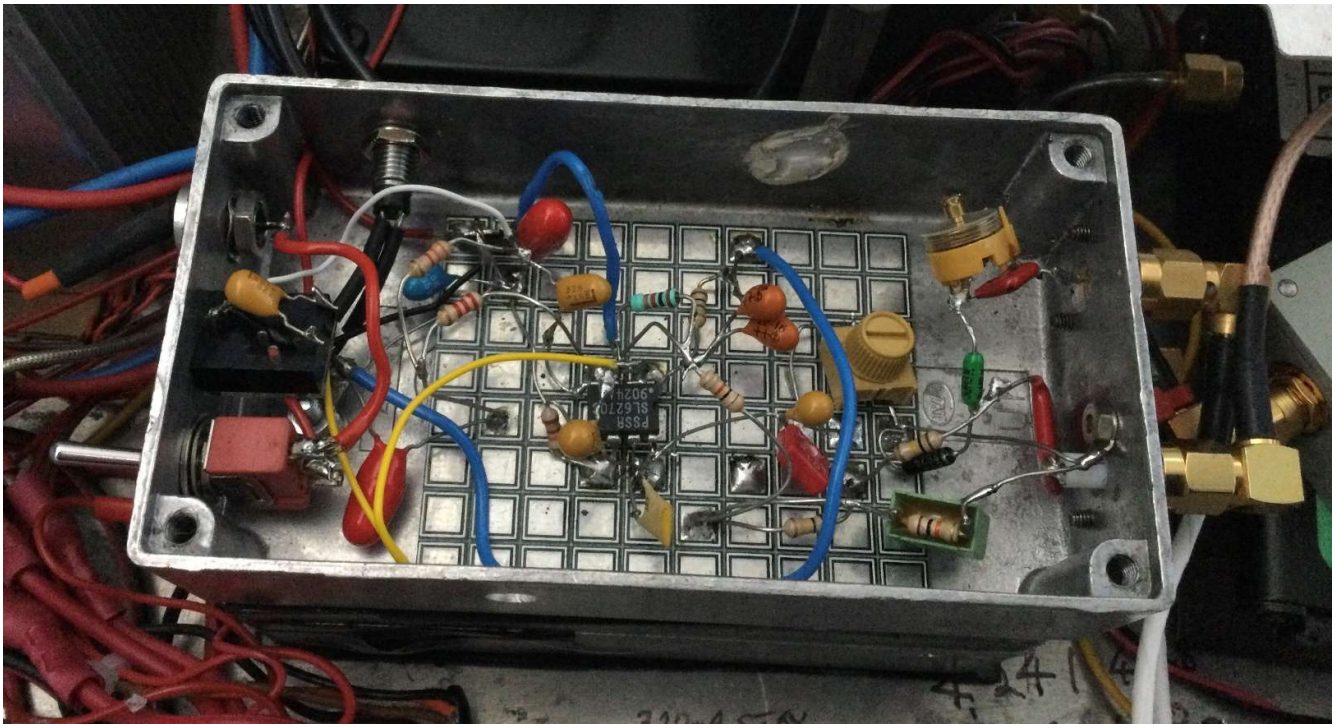
Not trying to re-invent the wheel. I used the circuit given in figure 4 of the data sheet. Input impedance is 150 ohms, AC coupled into pin 4. Pin 5 should be decoupled to ground. It may be useful to play with the time constants on pin1. According to the data 47uF & 1M, give a discharge rate of 20dB per second.

The easiest way to adjust the deviation is to use a receiver on the frequency of interest. Then either listen to the audio, or preferably display the RF on a basic analyser.

The tuning then is to peak the tuned circuit at 10MHz for maximum output. Then adjust the ‘pot’ for the required deviation. If very wide deviation are attempted, then there may be a variation in amplitude. Certainly for the higher bands, the small amplitude change, is not an issue.



The10MHz in/out is on the right. Microphone input on the left. The IC is the SL6270C.
Supply is from either a 5 or 6V regulator, 78L05 0r 78L06



One of my phase modulators. It is not pretty, but ……

The tuned circuit (next to the SMAs), is simply a 3u3 inductor, with series fixed/tuned capacitor.

A label on top reminds the variable resistor setting for 122/134 or 47GHz. 47G was a bit low on deviation, so I added another diode in parallel, then it was fine.

A switch in the circuit is a good idea. Having your Electret mic modulate the LO on receive is not helpful!

If anyone wants an MV840 diode. Please see me at Finningley. Or drop me an SAE.

6cm / 5.7Ghz – 40W – SSPA KIT

This SSPA KIT is easy to assemble, it is a complete KIT with all the components

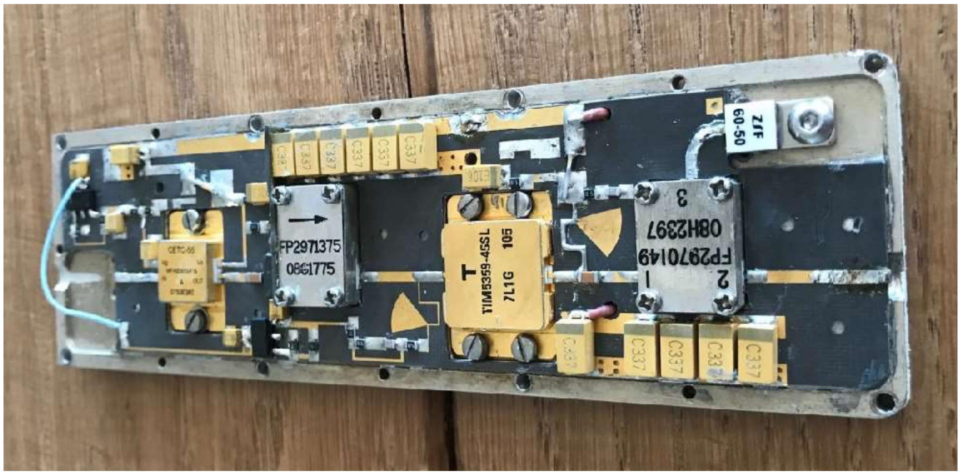
This is a "Do it yourself KIT"

TECHNICAL SPECIFICATIONS

- **PWR OUT:** +/- **40Watt**
- **PWR IN: 10 to 20mW**
- DC V: 10.0 do not exceed 10.5V!
- DC A: 12.5 to 13.5A notice that **idling current** is abt. 11 - 12A
- **It is a tested board and tuned on: 5760.100Mhz**

RF-BOARD

This is an already modified and tested board !



SSPA 40W BOARD

Very good protection with Isolator between MMIC and Power GaAs Fet, after Power GaAs Fet a Circulator with 60W dummy load !!!

NEW CASE / HOUSING WITH COVER SPECIALLY MADE FOR THIS SSPA BOARD

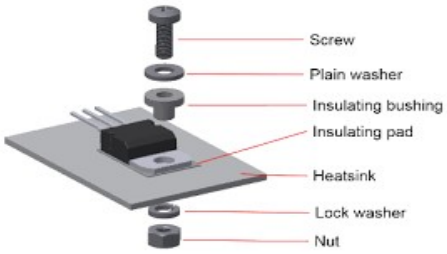
You will get an instruction manual

DC CONTROL and BIAS board

DC CONTROL BOARD FOR +10.0V DC / -5V DC / GND and PTT (with protection)
Mounting holes are also GND ! HEATSINK WAS ONLY FOR TESTING !!!!

Dimensions DC Control Board: 51 x 51 mm without P-channel FET

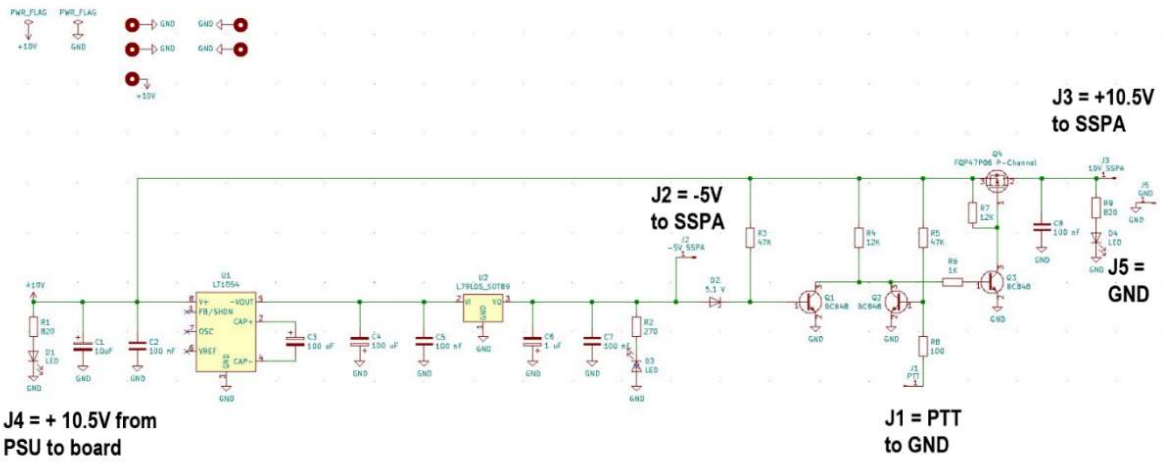
The P-channel FET must have **INSULATED MOUNTING** on the heatsink of the SSPA or seperate heatsink. **The small heatsink which we provide with the DC board is just for testing and is not big enough for continuous use !**



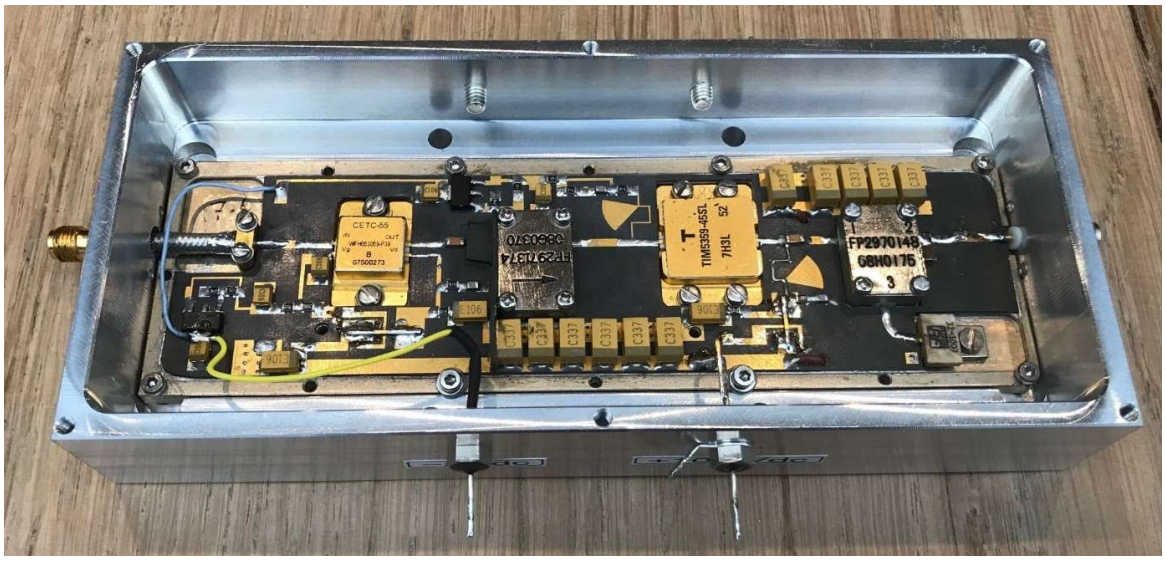
INSULATED MOUNTING EXAMPLE !!

- **LED D1 YELLOW = Indication : +10.0V DC from Power Supply**
- **LED D3 GREEN = Indication : -5V DC to SSPA**
- **LED D4 RED = Indication : +10.0V DC to SSPA AFTER PTT**

SCHEMATIC DIAGRAM DC CONTROL BOARD on the next page



H1, H2, H3 and H4 are mounting holes



Picture of a completely assembled SSPA

Weight: SSPA + DC Control board = 465 gram

Dimensions SSPA:

- **Height = 30mm**
- **Width = 70mm**
- **Length = 158mm**

BEFORE YOU CONNECT THE DC CONTROL BOARD TO THE SSPA:
Check/measure the -5V DC before your initial test
Check/measure +10V DC when you PTT to GND the DC board before initial test

NEVER RUN THE SSPA WITH +10V WITHOUT -5V DC connected from the DC board !!!!!
ALLWAYS -5V DC from the DC board to the SSPA

DATA SHEET TIM5359-45SL, DRAIN CURRENT TYP. 9.6A so high Idle current

TOSHIBA *MICROWAVE POWER GaAs FET*

MICROWAVE SEMICONDUCTOR TECHNICAL DATA **TIM5359-45SL**

FEATURES

- **BROAD BAND INTERNALLY MATCHED FET**
- **HIGH POWER**
  P1dB= 46.5dBm at 5.3GHz to 5.9GHz
- **HIGH GAIN**
  G1dB= 9.0dB at 5.3GHz to 5.9GHz
- **LOW INTERMODULATION DISTORTION**
  IM3= -45dBc at Pout= 35.5dBm
  Single Carrier Level
- **HERMETICALLY SEALED PACKAGE**

RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Gain Compression Point	P1dB	VDS= 10V IDSset= 9.0A f = 5.3 to 5.9GHz	dBm	46.0	46.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	8.0	9.0	—
Drain Current	IDS1		A	—	9.6	10.8
Gain Flatness	ΔG		dB	—	—	±0.8
Power Added Efficiency	ηadd		%	—	41	—
3rd Order Intermodulation Distortion	IM3	Two Tone Test Po= 35.5dBm, Δf= 5MHz (Single Carrier Level)	dBc	-42	-45	—
Drain Current	IDS2		A	—	9.6	10.8
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin – P1dB) X Rth(c-c)	°C	—	—	100

Recommended Gate Resistance(Rg): 28 Ω

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 11.0A	S	—	8.0	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 170mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	24	—
Gate-Source Breakdown Voltage	VGSO	IGS= -500μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	0.8	1.2

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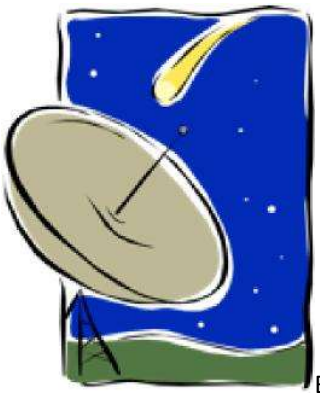
For availability and price: Contact Jac PA3DZL pa3dzl@icloud.com

Activity News May 2024



By John G4BAO

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

From G4FRE

While on a week's walking holiday based in Selworthy, Somerset I made a side trip to Dunkery beacon on May 15.

Operating from the layby 1km North of the summit previously used by G8GTZ (IO81FD19) I first worked G4UVZ IO80KX 35km easily on 24 GHz .

View toward Cleeve common

I then worked G8CUB/P Cleeve Common, IO81XW81 at 136km on 24GHz NBFM and 47GHz SSB . There was too much moisture on the path for 76GHz, we did try. Before that I went searching for the Bell Hill 24GHz beacon GB3SCK (which I didn't hear) but I heard GB3ZME/B at 185km. It had disappeared after the contacts with Roger.


View toward IO80UU

Worked G8GTZ/P and G8GKQ/P (IO80UU24) 96km on 24GHz NBFM and DATV followed by working G4LDR/P on 24GHz and 47GHz CW.

I failed to work M0GHZ/P (IO81TK) and G8IKP/P (Hardy's monument)

Dave

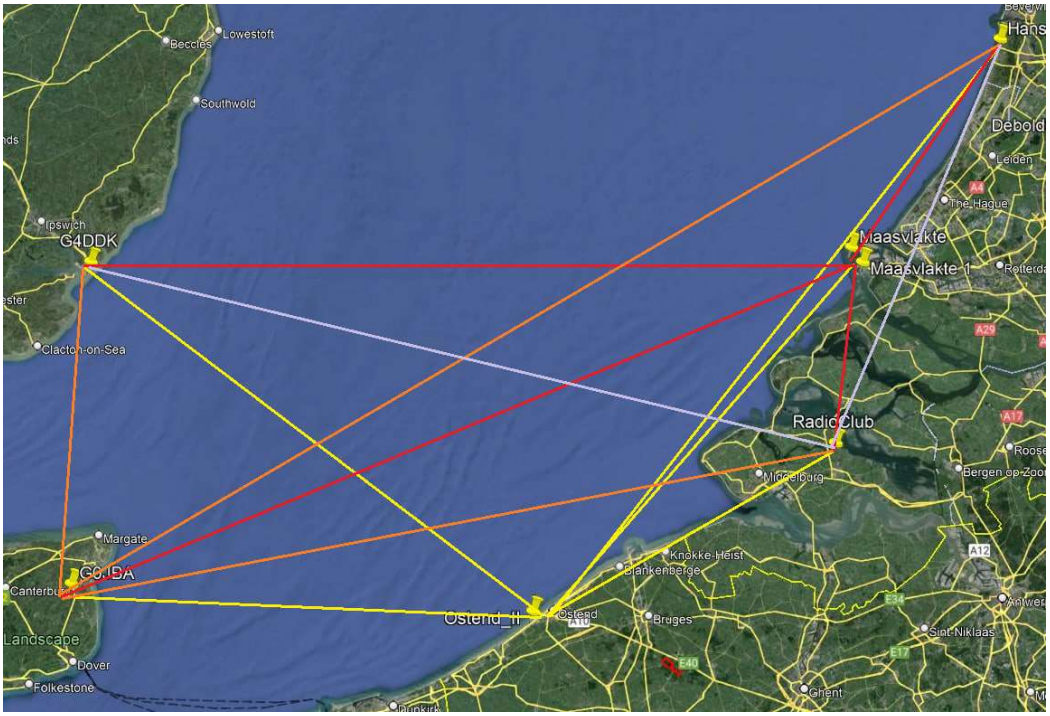
On the Sunday after my return I worked Clive G4MBS/P at the three counties showground, Malvern on 10GHz SSB with open waveguide!

24GHz North Sea tests

A group of Belgian and Dutch Amateurs set up to do tests from the North Sea coast on Friday 1st June. The weather was windy and rainy, but several QSO's were made with strong signals over 100km. involved were Rens PA3AXA, John PA7JB Phil G0JBA John G3XDY Denis G0OLX Sam G4DDK Ed PE9GHZ Walter ON4BCB
Eddy ON7UN Hans PE1CKK Jac PA0JCA and Maarten PA0MHE
No reports of UK-EU contacts were mentioned but G0OLX from at JO01KK36 in the rain and wind had one contact with G0JBA over a 37 Km obstructed path. GB3PKT was 599 after putting a small amount of vertical tilt on the dish.
Sam G4DDK set up a receiver on the seafront at Felixstowe.

"The weather was atrocious! I was under cover, so didn't get very wet, exactly. The air was very humid.
The sea was fairly calm with some swell at one stage. The rain was continuous; heavy at times, with poor visibility out to sea, where it was obviously still raining.
No sign of any of the beacons from PA or ON or from the guys over there. However, I did receive Phil, G0JBA, at around 80km. His signal was very scattery with some rain scatter doppler. The level was 52 Scatter. I observed a noticeable dip in signal level as a ferry crossed the path at about 2km from my location. As this was my first trip out with 24GHz portable gear (or any other microwave band) in over 25 years, I can see I have forgotten some of the basics! and copied G0JBA"

The photos show the paths and John PA7JB making adjustments



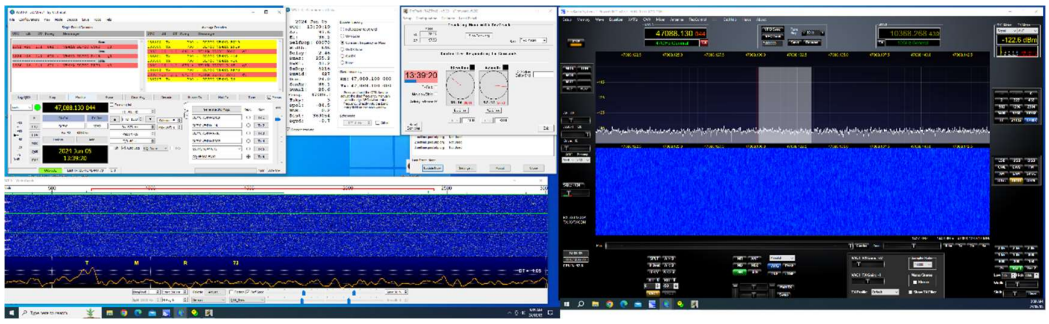
The intention is to plan this event again, hopefully with better weather. A full report of the activity will be in and Upcoming Radcom

06-06-2024

From Barry VE4MA

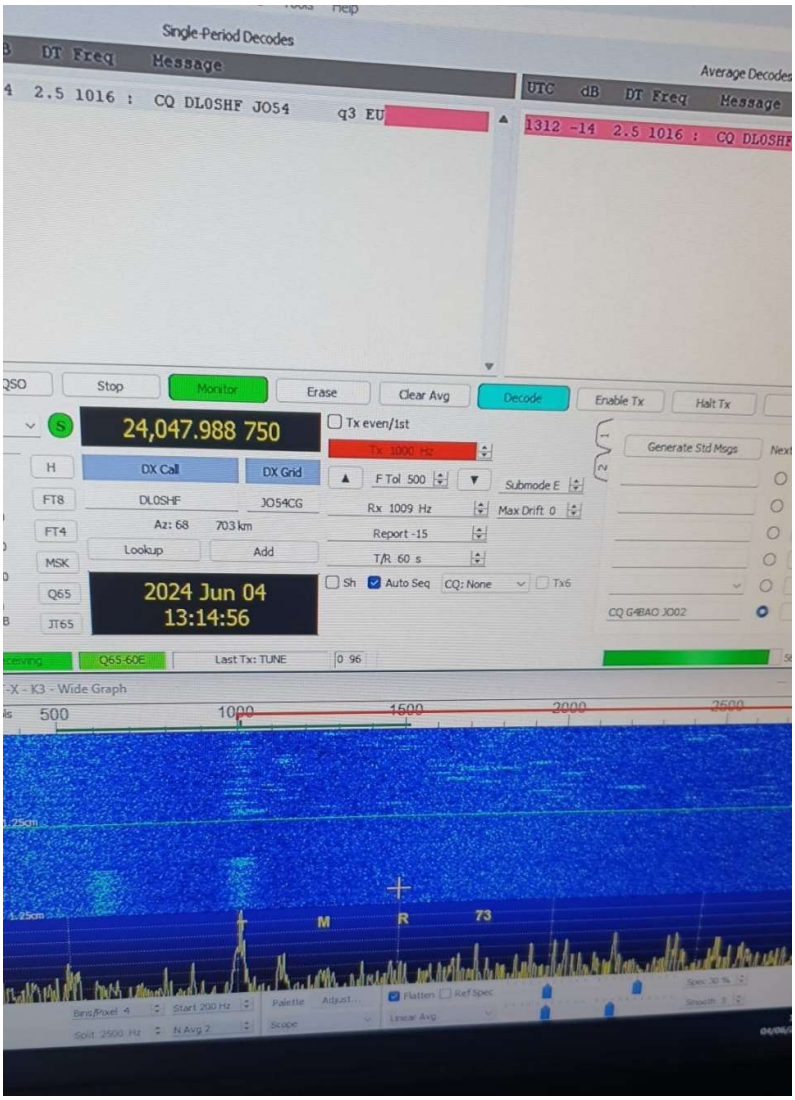
On the 5th June I had another QSO on 47GHz EME with Sergei RW3BP. Our first QSO was in May 2005! We were using Q65 -60E and signals were -16 he and -15 me We completed in the minimum time. In 2005 it took 10 minute transmission periods ...so the technology has come a long way. Sergei is using a 30 W SSPA and a 2.4 m dish ! I have

~30 W with a TWT PA and a 2.4 m dish. Please see the attached screenshot. You can see his signal in the Flex waterfall on the Right screen
Then I had a second QSO with Manfred DL7YC with -16 he and -13 m reports.



From John G4BAO

My 24GHz EME system takes one step forward and one back. I now have the new 32GHz rated dish set up and have received the DL0SHF beacon on QRO See photo.



Encouraged, I decided to connect up the fully tested TWT and try TX. Only to find no helix or cathode current! Heaters OK. So I need to check out the PSU

Finally the GB3CAM beacon move is progressing and we are just awaiting site owner G4NPH to return from holiday to rig the antennas at Haddenham.

From Pete MW0PJE

During the June low band contest, I managed 4 contacts and tried to work a few others but didn't get through due to topography. Was nice to get a few new calls in the log.
I stayed up there for a while longer - didn't get many on 2m FM but it was getting a bit close to teatime/beer garden time.
It was hard work lugging an IC9700 and an FT891 plus batteries up to the summit, and I managed to step into a rather deep hole in the peat bog on the way back down.

From Luis EA5DOM

Dave, VK5KK is enjoying summer in Italy and brought his 10GHz portable gear with him
Very nice and compact station using a 25dBi flat panel antenna, 4W PA and FT817+Maxicom

Actually located in I-1 zone. He will follow his trip through south France and EA3 at the end of August

Made an RS QSO yesterday with France and uploaded a nice video from I1TEX beacon received via RS

https://www.youtube.com/watch?v=emi842zyDnQ

Good chance to work a VK in 3cm not via EME !

Beacon News……..

Brian Flynn GM8BJF reports that after being off for two weeks GB3EDN is now back on the air. Frequency is 1296.990. A slow upward drift in frequency has been cured. Reports in Beaconspot appreciated.

GB3DUN on 1296.890 is back on the air since 12th May. General reports suggest that it is stronger than before. Probably due to the increase in height. Thanks to Bryan G8DKK and the team, for making this happen.

This Month I have been…..

Not a lot apparently……..

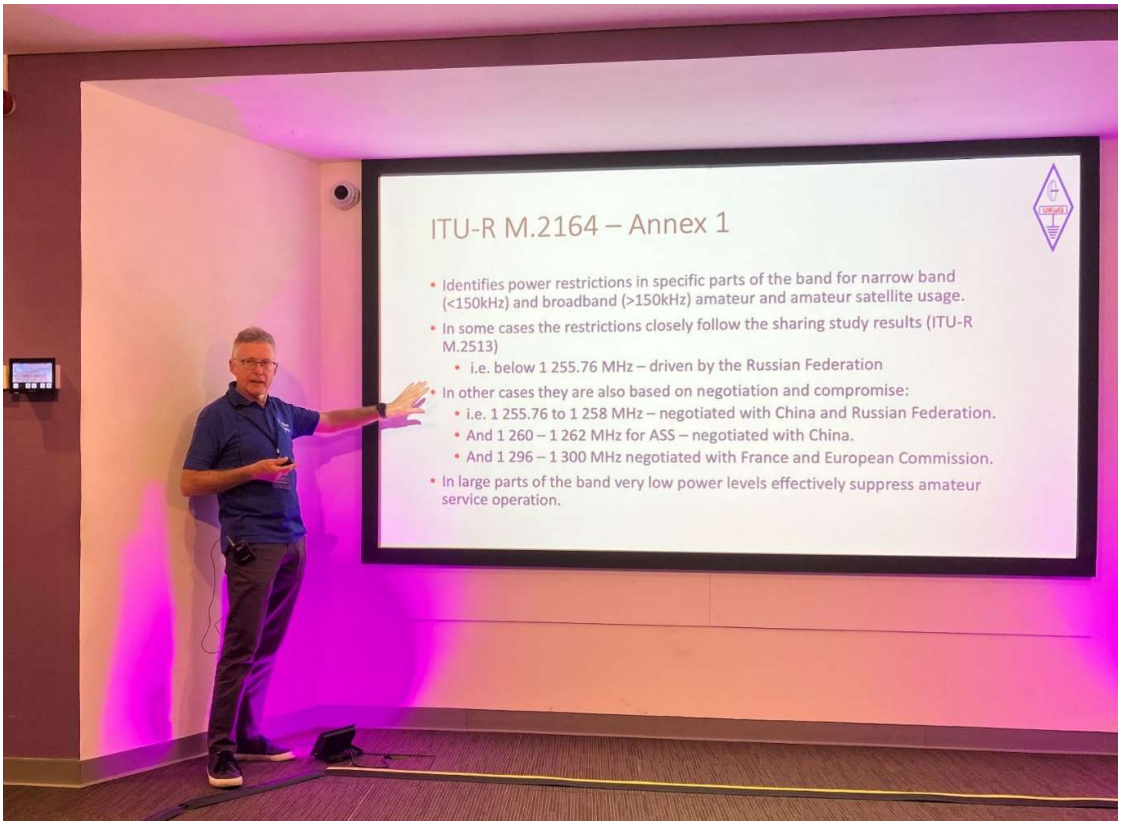
Talks
Evolution of VK 122/134GHz systems and future possibilities – Lehane Kellett G8KMH

This talk was very well received, with a near full audience. It showed a way forward as described in Scatterpoint, of updating to the new dual band chip. It was good to see that it was not difficult once the change in device was made. Certainly an alternative to buying a new dual band board.

This all bodes well for the future on these millimetre bands. With the reduced atmospheric loss on 134GHz, the potential of working enhanced distances on both bands, is now available.


The RNSS systems within the scope


23cm Band and Radio Navigation Satellite Services



The outcome of the 23cm band after WRC-23 – Barry Lewis G4SJH

Barry explained very well the now current situation on 23cm. All his hard work, up to and including during WRC-23 is greatly appreciated.

Biasing and Fettling Solid State Power Amplifiers – John Worsnop

John again explained the do's and don'ts of sorting power amplifiers. It was really good to get a clear understanding of the matching requirements.

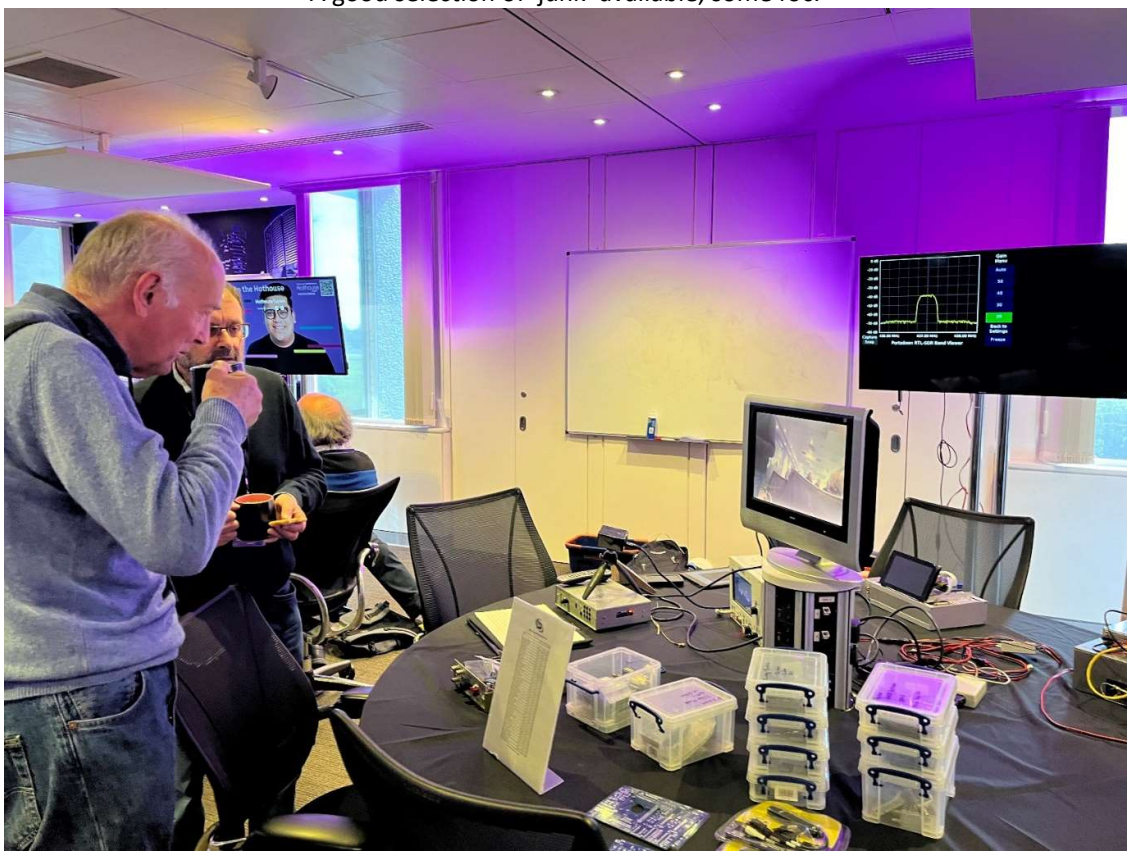
AGM

Major awards from 2023

Lehane receiving his trophy

Four of the five RSGB award winners

A good selection of ‘junk’ available, some foc.



Neil and Noel considering BATC projects over a coffee

Measurement area. A great facility for measuring Gain and Noise Figure

Microwave Meetings 2024

Next on the calendar – Finningley Saturday and Sunday June 15-16th

https://g0ghk.com/home/uwrt24/

Please visit the above website and complete the RSVP form

Trader tables
Test & demo areas across the site. Portable stations welcome
Test lab NF measurement
VNA HP 8510 -26Ghz
Power measurements
SMD soldering & practice areas.

If you've not visited us before, we're 10 minutes from either of the motorway junctions J1, and J2 of the M180, please look at the map below.
The closest postcode for us is DN8 5SX
https://g0ghk.com/home/visit/

Editors Comments

I hope to see many of you at Finningley RT. Please note the correct date above. I hope that the weather will be kind this weekend coming..
It was interesting to have a non-contest millimetre day last month. Thanks to Dave G4FRE and the others for making it a success. The number of potential operators on 24GHz must now be approaching that of 10GHz on days gone by!

It would be great to have some articles for forthcoming issues of Scatterpoint……

122GHz Contest February 2024

This event saw five stations active of which three submitted logs. Some stations roved between two sites. The weather was wet, windy and grey which was very unhelpful but perhaps to be expected in the middle of winter. Most contacts were made using the Opera digital mode, with one or two on CW.

Congratulations go to Dave G1EHF/P who roved between two locations and made four contacts to win the event.

John G3XDY

122GHz Contest February 2024

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX kms	Power	Ant
1	G1EHF/P	IO91JH01	4	74	G8GTZ/P	25	0.0002	30cm Cassegrain
2	G8CUB/P	IO91GI25	2	54	G8GTZ/P	27	0.01	30cm Cassegrain
3	G4LDR/P	IO91GC68	1	27	G1EHF/P	27	0.0002	30cm Offset dish

24/47/76GHz Contest May 2024

The weather was not particularly helpful, with sun then wind then rain mentioned in the comments, forcing a rapid retreat for one or two entrants.

Roger G8CUB/P put in a commanding performance on all three bands to take the lead in the mm-wave Championship. Dave G4FRE/P was runner up on 24 and 47GHz, and in third place on 76GHz, with Pete GW4HQX/P taking the runner up slot on the highest band.

Thanks for all the entries, the next session in this event will take place on Sunday 14th July.
John G3XDY

24GHz Contest May 2024

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX kms	Power	Ant
1	G8CUB/P	IO91CL35	6	377	GW3TKH/P	94	1	30cm offset dish
2	G4FRE/P	IO81XW91	5	357	GW4HQX/P	79	2	10 inch dish
3	G1EHF/P	IO91GI44	6	199	G4FRE/P	74	0.25	60cm prime
4	GW3TKH/P	IO81KR73	2	173	G8CUB/P	94	0.6	50cm pf dish
5	G1DFL/P	IO91GI25	4	140	G4FRE/P	73	0.25	30cm PF Dish
6	GW4HQX/P	IO81KR73	1	79	G4FRE/P	79	0.6	30cm pf dish
7	G8ACE/P	IO91GC68	2	53	G1DFL/P	27	3	60cm dish
8	G4LDR	IO91EC02	1	32	G1EHF/P	32	1	30cm dish

47GHz Contest May 2024

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms	Power	Ant
1	G8CUB/P	IO91CL35	4	144	G4FRE/P	52	0.05	30cm offset dish
2	G4FRE/P	IO81XW91	2	131	GW4HQX/P	79	0.03	dual 21dbi horns
3	G1EHF/P	IO91GI44	5	125	G8GTZ/P	37	0.08	2 x 35mm horn
4	G8ACE/P	IO91GC68	3	80	G1DFL/P	27	0.03	30cm dish
5	GW4HQX/P	IO81KR73	1	79	G4FRE/P	79	0.001	30cm pf dish
6	G1DFL/P	IO91GI25	3	67	G8GTZ/P	38	0.004	25dB Horn
7	G4LDR	IO91EC02	1	32	G1EHF/P	32	0.001	30cm dish

76GHz Contest May 2024

Pos	Callsign	Locator	QSOs	Score	ODX Call	ODX Kms	Power	Ant
1	G8CUB/P	IO91CL35	3	183	GW4HQX/P	94	0.05	30cm dish
2	GW4HQX/P	IO81KR73	1	94	G8CUB/P	94	0.03	36dBi lens horn
3	G4FRE/P	IO81XW91	1	52	G8CUB/P	52	0.3	10 inch dish
4	G1DFL/P	IO91GI25	2	46	G8ACE/P	27	0.0025	2 x Flann Horns
5	G8ACE/P	IO91GC68	1	27	G1DFL/P	27	0.012	30cm dish

UKuG MICROWAVE CONTEST CALENDAR 2024

Dates, 2024	Time UTC	Contest name
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

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

June 15-16	Finningley Roundtable, Finningley	www.g0ghk.com
June 28-30	Ham Radio, Friedrichshafen	www.hamradio-friedrichshafen.de
August 4	BATC Convention, Midland Air Museum, Coventry	www.batc.org.uk
August 9-11	20th EME Conference, Ewing NJ, USA	EME2024Trenton.org
September 6-8	69.UKW Tagung Weinheim	www.ukw-tagung.de
September 22	Crawley Roundtable	https://carc.org.uk/
September 22-27	European Microwave week, Paris	www.eumweek.com
October 3-5	Microwave Update, Vancouver, Canada	microwaveupdate.org
November 9	Scottish Roundtable	www.gmroundtable.org.uk
November 30	Midlands Roundtable SY6 7DH	