An Amateur Radio publication for the Microwave Enthusiast

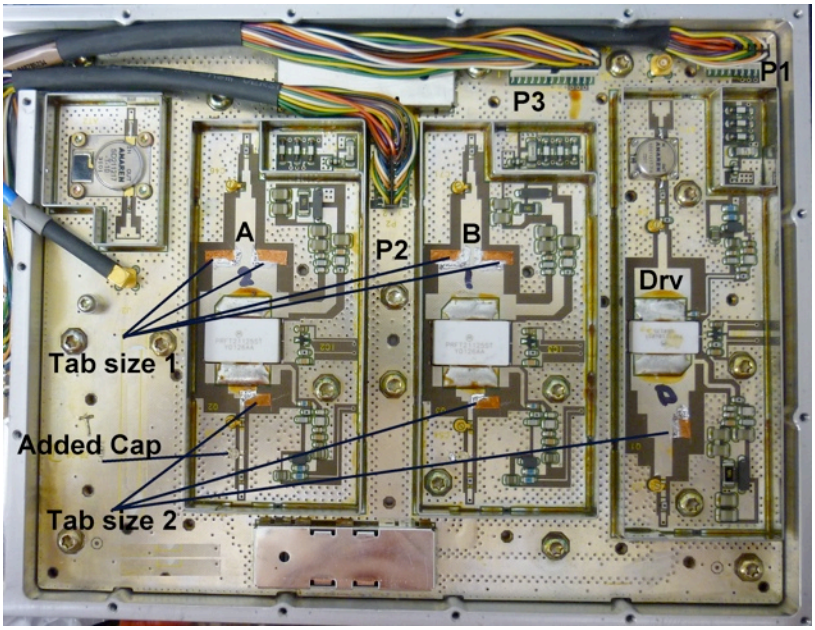
scatterpoint

March 2013

Published by the UK Microwave Group

Bodger's Guide #8
Modifying the 2.1GHz ILAM SSPA for 2320MHz

by John Worsnop G4BAO



In this Issue

STOP PRESS!

RAL

We have opened the bookings for this year's round table.
See www.g3pia.org.uk/ for details.
I am still looking for talks. G7DOE has offered a talk on his comparisons of 6 free RF simulator tools, which should be very interesting. There is space for up to 3 more. Sorry, but I can't afford to pay expenses, we charge nothing to get in and we do not charge for tables.

Mike Willis G0MJW

UK Microwave Group Contact Information

Chairman: G4BAO Dr. John C. Worsnop Email: chairman @microwavers.org Located: Cambridgeshire JO02CG Address: 20 Lode Avenue Waterbeach Cambs CB25 9PX Home Tel: +44 (0)1223 862480	General Secretary: G8BHC Martin Richmond-Hardy Email: secretary @microwavers.org Located: Suffolk JO02PA Address: 45 Burnt House Lane Kirton Ipswich Suffolk IP10 0PZ Home Tel: +44 (0)1394 448213	Membership Secretary: G8DKK Bryan Harber Email: membership @microwavers.org Located: Hertfordshire IO91VX Address: 45 Brandles Road Letchworth Hertfordshire SG6 2JA Home Tel: n/a	Treasurer: G4FSG Graham Murchie Email: treasurer @microwavers.org Located: Suffolk JO02PC Address: 42 Catherine Road Woodbridge Suffolk IP12 4JP Home Tel: +44 (0)7860 356775
Scatterpoint Editor: G8BHC Martin Richmond-Hardy Email: editor @microwavers.org See above for other contact details NB editor & scatterpoint email addresses go to both Bob and myself	Scatterpoint Activity News: G8DTF Bob Price Email: scatterpoint @microwavers.org	Contest & Awards Manager: G3XDY John Quarmby Email: g3xdy @btinternet.com Located: Suffolk (JO02OB) Address: 12 Chestnut Close Rushmere St. Andrew Ipswich Suffolk IP5 1ED Home Tel: +44 (0)1473 717 830	RSGB Microwave Manager: G6JYB Murray Niman Email: g6jyb @microwavers.org Located: Essex (JO01) Address: 55 Harrow Way Great Baddow Chelmsford Essex CM2 7AU Home Tel: +44 (0)1245 474969

UK Regional Reps

Ray James	Scotland	GM4CXM	gm4cxm@yahoo.co.uk
Gordon Curry	NI	GI6ATZ	gi6atz@qsl.net
Tony Pugh	Wales	GW8ASD	gw8asd@gw8asd.co.uk

Assistants

Kent Britain	USA	WA5VJB/G8EMY	wa5vjb@flash.net
Dave Powis	Trophies	G4HUP	g4hup@btinternet.com

Editor's corner

The calling Notice for the UK Microwave Group AGM is on page 26 (again!)

Two officers are standing down so there are vacancies on the committee.

Beacon Managers – please tell Scatterpoint about your beacon (e.g. design, usage, running costs) and be the Featured Beacon of the month. We hope this might help the hosting group to solicit support from UKμG members. Perhaps members might consider adopting a beacon, particularly where the beacon is remote and is not supported locally by a large, well-funded group? If you don't ask…

I'm preparing an index of Scatterpoint from 2004 (and some earlier editions), which I hope to publish shortly.

73 de Martin G8BHC

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)

I can extract text and pictures from pdf files but tables can be a bit of a problem so please send these as separate files in one of the above formats.

Thank you for you co-operation.

Martin G8BHC

UK MICROWAVE GROUP

SUBSCRIPTION INFORMATION

The following subscription rates apply.

UK £6.00 US $12.00 Europe €10.00

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

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

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

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

QUOTE YOUR CALLSIGN PLEASE!

Payment can be made by: PayPal to

ukug@microwavers.org

or

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

Colour codes

Editorial & Events

Activity & Contests

Technical

Nanowaves (optical)

Commentary

Reproducing articles from Scatterpoint

If you plan to reproduce an article exactly as per 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.

UKµG Chip Bank

A new free service for members

The catalogue is now on the UKµG web site See www.microwavers.org/?chipbank.htm

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

The service will be run as a free benefit to all members and the UK Microwave Group will pick up the cost of packaging and postage, that is, Jiffy bags, small plastic bags for individual component values, and Large letter 2nd class postage, currently 69p.

The service may be withdrawn at the discretion of the committee if abuse such as reselling of components is suspected. We have asked Mike to check with the Chairman (or designated officer) if any individual is making excessive requests, and we will ensure that the service is only available to members.

John Worsnop G4BAO Chairman UKuG

First order received today [5 Feb]! There is an order form on the website with an address label which will slightly reduce what I have to do in dealing with orders so please could you use it.

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

73, Mike, G3LYP

Addendum to the 2.5W Amplifier article

John Worsnop G4BAO

The PHOTO of the prototype board in the article shows capacitors C8 and C9 offset from the narrow gaps between the tuning line and ground. My original calculations did not match reality, so the board layout diagram used in the article is the Mk2 layout, an update on the original where the narrow gaps DO determine the capacitor positions.

Photo shows the old board, but with capacitors in the correct position as per the PCB mask!

Silent Keys

"Radio amateurs around the world will be saddened to learn of the death of **Pat Hawker MBE, G3VA**, on 21 February 2013. He was 90 years old. His son and daughter, Philip and Virginia, were with him at the time. Pat was first licensed in 1936 as 2BUH, becoming G3VA in 1938. We send our deepest condolences to Pat's family and close friends. Amateur radio has lost one of its legends."

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

Russ G8BHH/G4PBP died 15 Feb 2013 at the age of 63.

G4DDK writes:

I have just returned from the funeral of Russ, G4PBP.

Amateur radio was really well represented. I counted at least 20 radio amateurs in attendance and there were close to 200 family and friends overall. A really good turn out to see Russ off in style!

It was a cold, cold, day at the Bushbury Crematorium, Wolverhampton, but the reception back at the church was a fine affair with excellent food and really great chat with friends, old and new. It really was good to see so many faces from the past; Amateurs I had not seen for many years.

It would appear from comments heard that the QSL pin board was a great success and even non-amateurs asked a lot of questions about what it was and how nice and colourful it was. Picture will be in the May Radcom.

Some comments from the Microwave reflector

From Jonathan G4KLX

I met Russ in the mid-80s at the Midlands VHF convention when he joined the G4LIP table while we were feeding our faces. I worked him many times before and after on all V/U/SHF that I was active on. He was always a huge signal.

From Richard Bown

Russ was a true friend, I had worked him many times when I lived in Swindon as G8BHH, and when I moved to Telford 18 years ago we became very good friends. He helped me a lot and I'd like to think it was reciprocated. It was Russ who introduced me to 10 GHz, I had no intention of going above 13 cms, but was persuaded. I shall always remember him as the jovial, must have a daily fix of Dx, guy he was. I will miss "his enormity" dearly.

RIP Russ

From Ralph G4ALY

I am really shocked and saddened by this news. He will be greatly missed I am sure. Russ always put a good signal on SHF down into Cornwall.

From John G4EAT

Shockingly sad news. Russ will be sorely missed by many.

From Chris GW4DGU

I have lots of happy memories of Russ, both on the air and in person.

From early QSOs with GW8BHH/P on 2m AM, by way of the Wolverhampton VHF Conventions of the '80s, to a very happy afternoon spent on a tour, hosted by G4ASR, of the Madely earth station. More recently a 3cm contact by scatter off a rain cell over the Mendips sticks in my mind.

I never quite managed to think of Russ under his 'new' call, and when he resurrected 'BHH it brought a broad smile to my face. RIP Russ.

Bodger's Guide #8

Modifying the 2.1GHz ILAM SSPA for 2320MHz

By John Worsnop G4BAO

Introduction

My EME2012 paper (1) described my approach to modifying 1900MHz modules for 2320MHz and included an excellent guide from Doug G4DZU on modification of the IPAM 2.1GHz PA. The ILAM, described here is also a 2.1GHz amplifier, that has been available on the surplus market in mainland Europe and sometimes seen in the UK. While looking very similar on the outside to the IPAM it is completely different in design. To complicate the issue further, there are variants within the amplifier range called ILAM! This article describes the older style amplifier and it can be recognised, once opened, by two blue power modules on the driver/ control board and an output module consisting of PRFT21060 driving a pair of PRF21125ST referred to as output stages A and B in this paper. These white ceramic devices I believe to be similar to their MRF21XX equivalents.

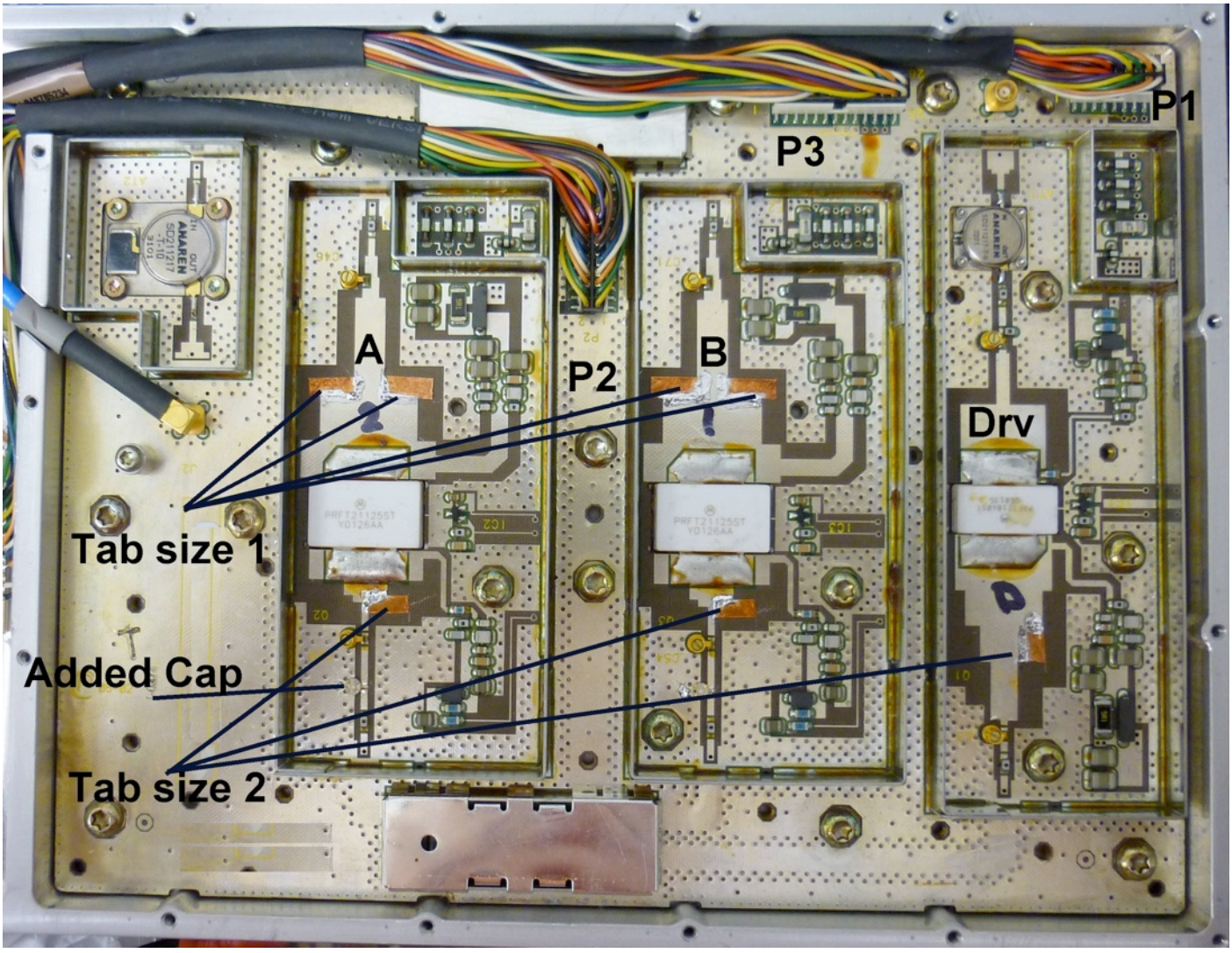


Figure 1 The ILAM output board (after modification)

Like most of these amplifiers, the bias circuitry is normally under the control of an on board processor requiring control signals to configure it. I decided to take the simple option and remove the control and driver board completely and put in a small fixed bias supply to the three devices on the output board and did not use the driver stages. This produces an amplifier requiring around 2 watts drive, ideal for DB6NT transverters and similar. While the blue modules on the driver board do work at 2320 the efficiency and gain is poor so I decided not to use them.

Modifications

Bias

Unplug the three cableforms from the bias board remove the driver board completely, making sure that you remove the screw locks on the front panel D connector and the screws holding the 48-28V converter that are accessible through the PCB.

The three cableforms carry the bias and monitoring signals and the main high current drain supply uses multiple pins on the PCB connectors. **Make sure you connect ALL the wires for each drain supply or the plugs and wires will not take the current!** With hindsight I should have made a PCB with a connector that the existing cableforms plugged straight in to, but I cut off the plugs at the control board end and soldered each one individually. A big mistake, as stripping and soldering each individual wire took longer than designing the PCB would have!

Tables 1-3 show the connections on each cableform plug, marked P1, P2 and P3 on the output board. Pin number references are printed on the board close to the connectors.

Connect up the bias supplies based on the tables and start with 0 volts on the gates, and monitor the current to the whole amplifier. The quiescent bias to the stages (no RF drive) should be 1 Amp, for the driver stage and 1.6 A each for output stages A and B. The easiest way to do this is to start with no bias when the amplifier should take no current. Then carefully increase the bias to the driver until the whole amplifier takes 1A. Then turn up the bias to output stage A until the whole amplifier takes 2.6A. Finally turn up the bias to output stage B until the whole amplifier takes 4.2A.

RF modifications

The retuning of the amplifier is achieved by “tabbing” the amplifier with copper tape, and adding a low value RF trimmer on the input lines to the output stage. I used a Gigatrim, to make it easy to tweak, but those with more patience could experiment with fixed ATC microwave capacitors. Figure 1 shows the positioning of the tabs and the added capacitor on each output stage. Size 1 tabs are 10 x 4mm and size 2 tabs 8 x 4mm

The Bias board

The bias board consists of any simple 5V linear regulator feeding potential dividers for gate supplies, (only 3 used from my circuit) to allow the setting of the quiescent drain current of each device. Each drain can be fed by a suitably rated 0.03 ohm resistor to allow current monitoring if required.

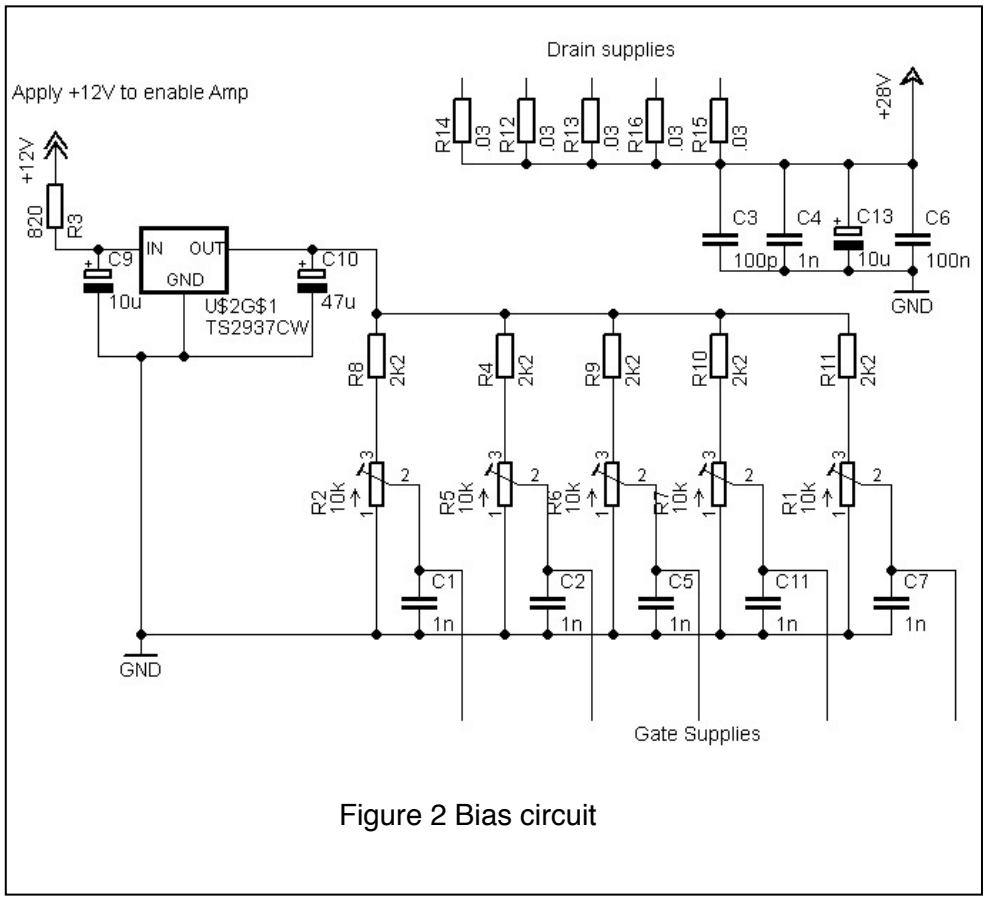


Figure 2 Bias circuit

Table 1

P1, Driver stage connector

Pin	Function
1	Ground
2	Ground
3	Ground
4	Ground
5	Ground
6	Drain supply +28V
7	Ground
8	Drain supply +28V
9	N/C (locating pin missing)
10	Drain supply +28V
11	Gate bias supply
12	Drain supply +28V
13	sensor
14	Drain supply +28V
15	sensor
16	Drain supply +28V

Table 2

P2, Output stage A connector

Pin	Function
1	Ground `
2	N/C
3	Ground
4	Ground
5	Ground
6	Ground
7	Ground
8	Ground
9	Ground
10	Ground
11	Ground
12	Ground
13	Drain supply +28V
14	Drain supply +28V
15	Drain supply +28V
16	Drain supply +28V
17	Drain supply +28V
18	Drain supply +28V
19	Drain supply +28V
20	Drain supply +28V
21	Drain supply +28V
22	Gate bias supply
23	Drain supply +28V
24	sensor
25	Drain supply +28V
26	sensor

Table 3

P3, Output stage B connector

Pin	Function
1	N/C
2	Drain supply +28V
3	Drain supply +28V
4	Drain supply +28V
5	Drain supply +28V
6	Drain supply +28V
7	Drain supply +28V
8	Drain supply +28V
9	Drain supply +28V
10	Drain supply +28V
11	Drain supply +28V
12	Drain supply +28V
13	Ground
14	Ground
15	Ground
16	Ground
17	Ground
18	Ground
19	sensor
20	Ground
21	sensor
22	Ground
23	Gate bias supply
24	Ground
25	Ground
26	Ground

Applying a +12V supply to the regulator enables the Amplifier I used a small surface mount PCB (Fig. 3) but any form of construction can be used

Results achieved

Without removing the isolators or changing the combiners to ones that are designed for 2320MHz I managed to achieve around 100Watts out for 2 Watts in. The efficiency is poor, the amplifier taking some 14Amps at 100 Watts out from a 28V supply, but this is probably due to the devices being operated out of their deigned frequency range and the poor performance of the hybrid couplers.

Further improvement could be achieved by bypassing output isolator and combining the output staged using more effective combiners designed for 2.3GHz.

References

1. Worsnop J. C. Modifying 1900MHz High Power Solid State Amplifiers for 13cm. EME2012 Conference papers
2. www.g4bao.com

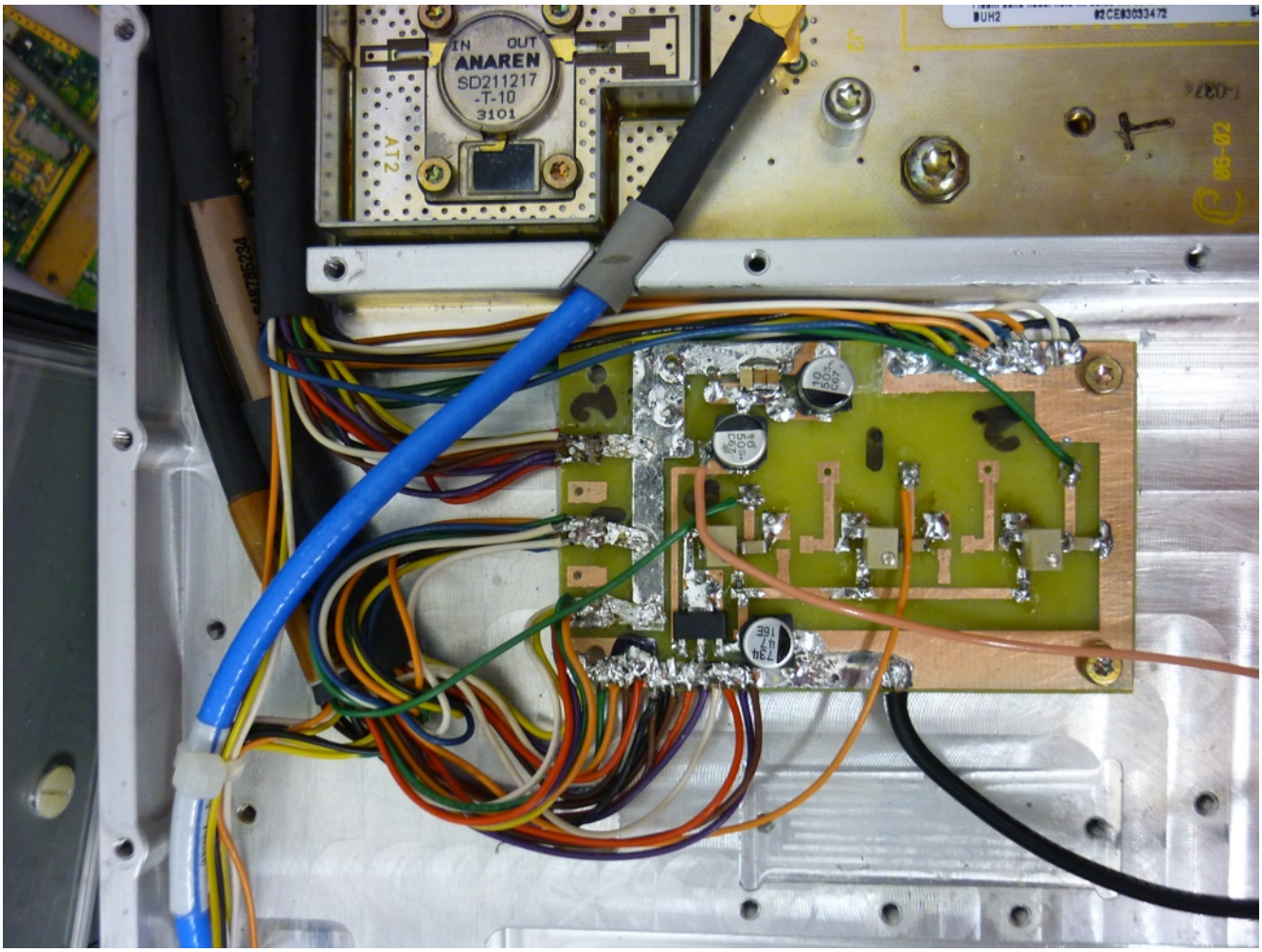


Figure 3 Bias PCB

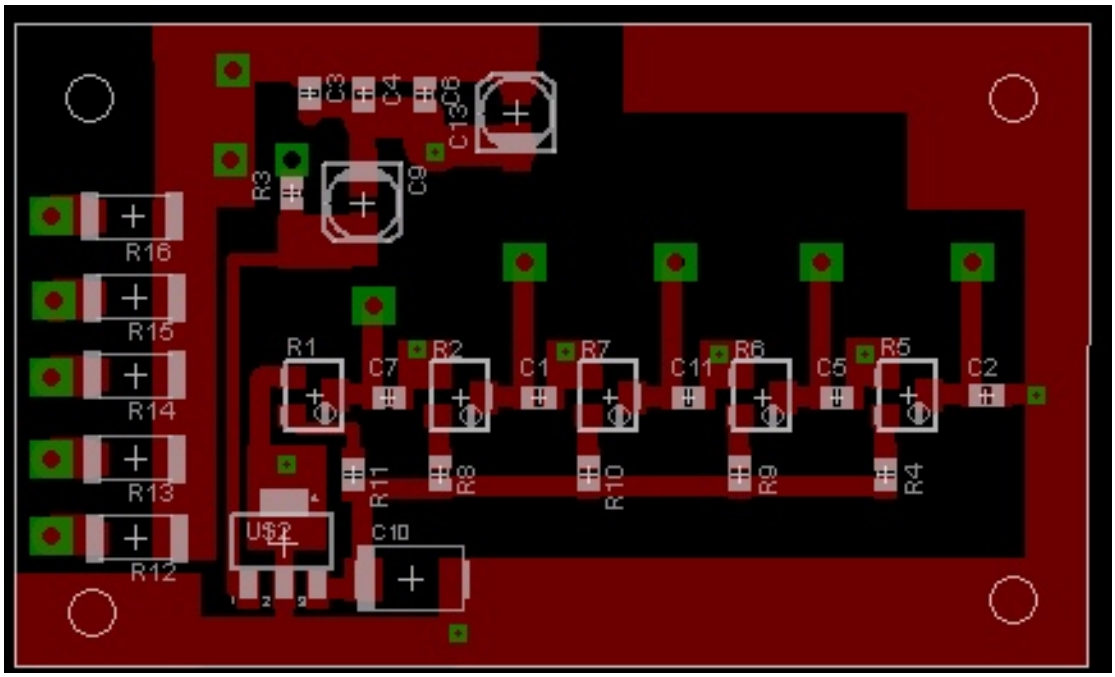


Figure 4 The bias PCB Layout

Modifying surplus 13cm linear amplifiers

– a team effort

By Stuart Wisher, G8CYW

Most of the NE Optical Communications group are also keen microwavers and over the past two years we've obtained between us no less than five of the commonly available surplus 13cm ex-telecoms amplifiers and 50V switch mode power supplies. Whilst we have had some success in getting some power out of them we have been plagued with problems of low output power and with them abruptly switching off as power increases.

None of us has had a direct involvement with these in the relevant industry and so we have searched the web, asked around and attended talks on their modification. Gradually, we have pieced together enough information to get these amplifiers running at useful power levels. I thought it might be of use to others if I were to share this information, and describe how we have done it. My apologies if I am trying to teach old dogs new tricks, but if you have already solved this problem you are probably not reading this!

We have two different types of amplifier, Eddie, (G0EHV) and I have the REMEC type (**photo 1**) which is instantly recognisable by the uniform milled heatsink (and the name REMEC on the back panel!) whereas Brian, (G8KPD) and Gordon, (G8PNN) have the Andrews version (Gordon has two!) that are characterised by the diecast heatsink (**photo 2**). These two types are quite different inside, there are two output devices in the Andrews unit and four in the REMEC, both complete with plenty of power splitters/combiners and a circulator feeding the N-type output socket. Both types have very complex signal processing circuits necessary for their original use, and equally complex monitoring and protection

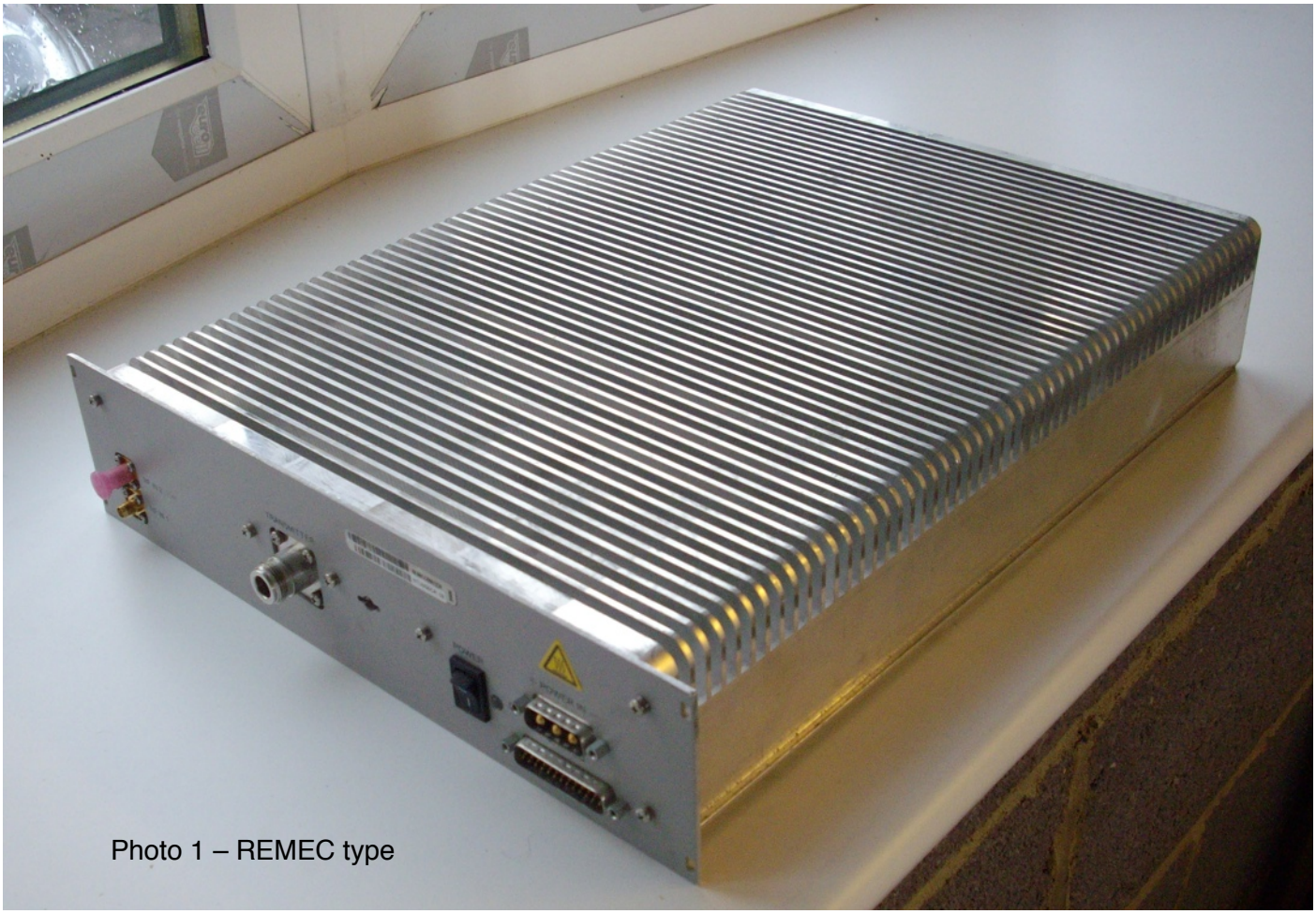


Photo 1 – REMEC type

Photo 2 – Andrews type

circuitry, it seems to me that it is this circuitry that may have been causing the problems.

Both types also have an efficient 50V to 28V switch mode PSU included, as the power devices (output and driver stages) operate off 28V but the common supply to these modules seems to be 50V. One observation is that this could be removed and the whole amplifier run off a 28V supply, but since we obtained the 50V supplies (capable of 22A maximum output current no less) with the amplifiers, and the fact that the low power stages and the monitoring and protection circuits seem to run from a stabilised 9V output available from the switch mode PSU, which you would have to provide separately if you used a 28V power supply. For us then, the 50V PSU is staying!

On to the REMEC first; because this was solved earlier by Eddie, working with Gordon. See **photo 3** for a general view of the circuit once the base plate and screening enclosure have been removed. No less than six power MOSFETs are visible on the board. The REMEC has milliwatt input sensitivity but grounding the PTT pin (pin1) on the 25 pin data I/O socket on the front panel as advised, results in low output power. Eddie was getting 16W output for a few mW input and mine was even worse at 10W output. In my case, that was achieved with 8A input current at 50V, the small matter of 400W input power! I had reduced the drive down to 1mW from my homebrew transverter since any more drive increased the input current up to 10A (yes half a kilowatt!) where the protection circuit unsurprisingly cut in and switched the thing off. It has been quite stable for some time at the 10W output power level and it has enabled me to join in on the microwave activity nights and work those GM stations QRV on 13cm (my take-off south is poor). I just had quite a large extra contribution to shack heating as well!

Recently Eddie has acquired a low power 13cm transverter and he was keen to use his REMEC amplifier on SSB rather than his previous TV application where he was using a different PTT method with no trouble and getting 60W or so output. There's a clue then.

To cut a long story short, using the pin 1 input as PTT control, he found just 16W output power available on SSB when Gordon measured it. When he switched to the alternative PTT method for SSB, his measured output jumped up from 16W to an acceptable 60W+ as again measured by Gordon. This is achieved by a simple mod shown in **photo 4**; the small green insulated wire on the PSU board hard switches the amplifier on and I think it must defeat the power reducing function. I have yet to do this since much of my time recently has been spent on a different approach to the Andrews amplifier, but I am looking forward to the extra output power!

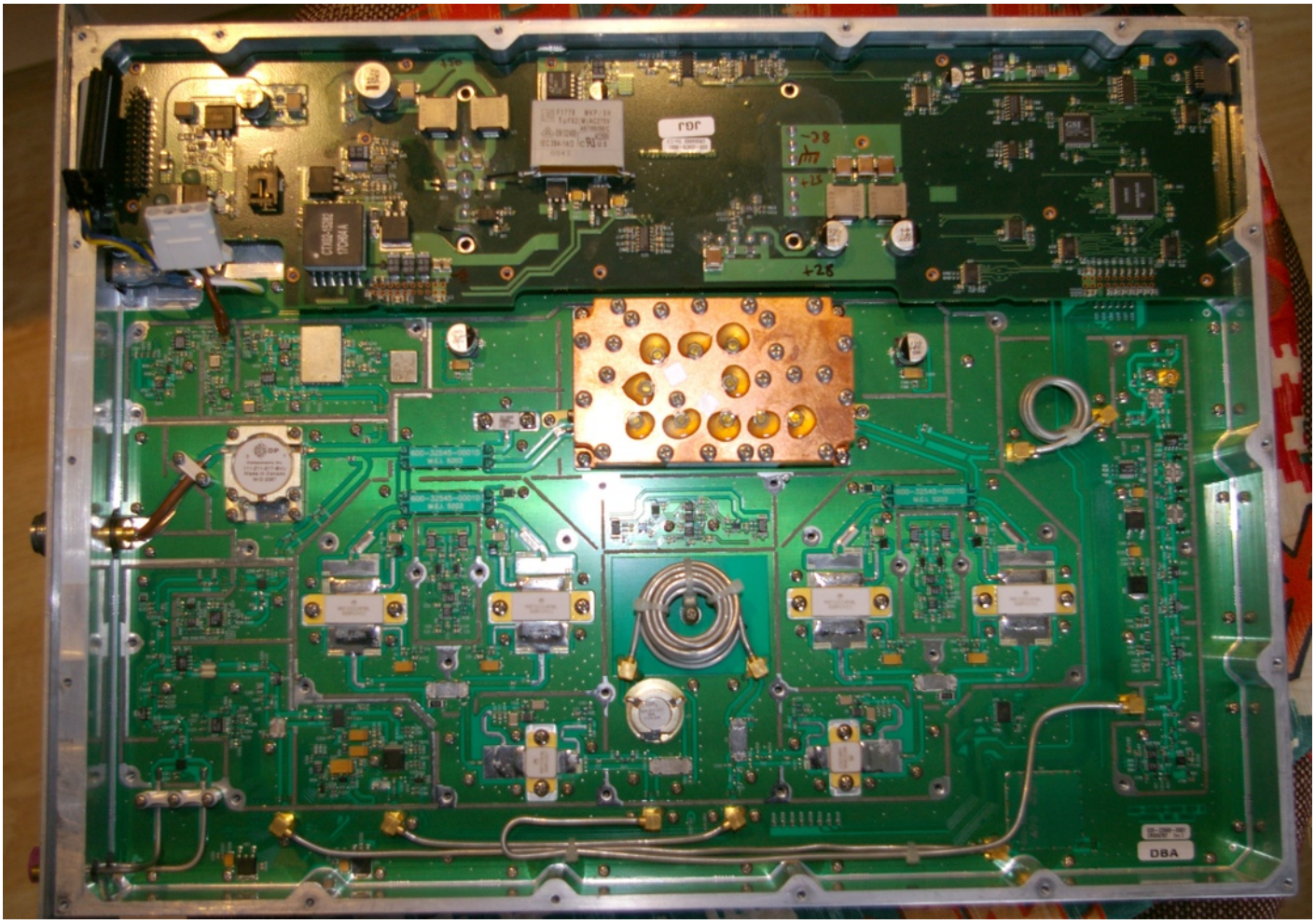


Photo 3 – General view of the circuit once the base plate and screening enclosure have been removed

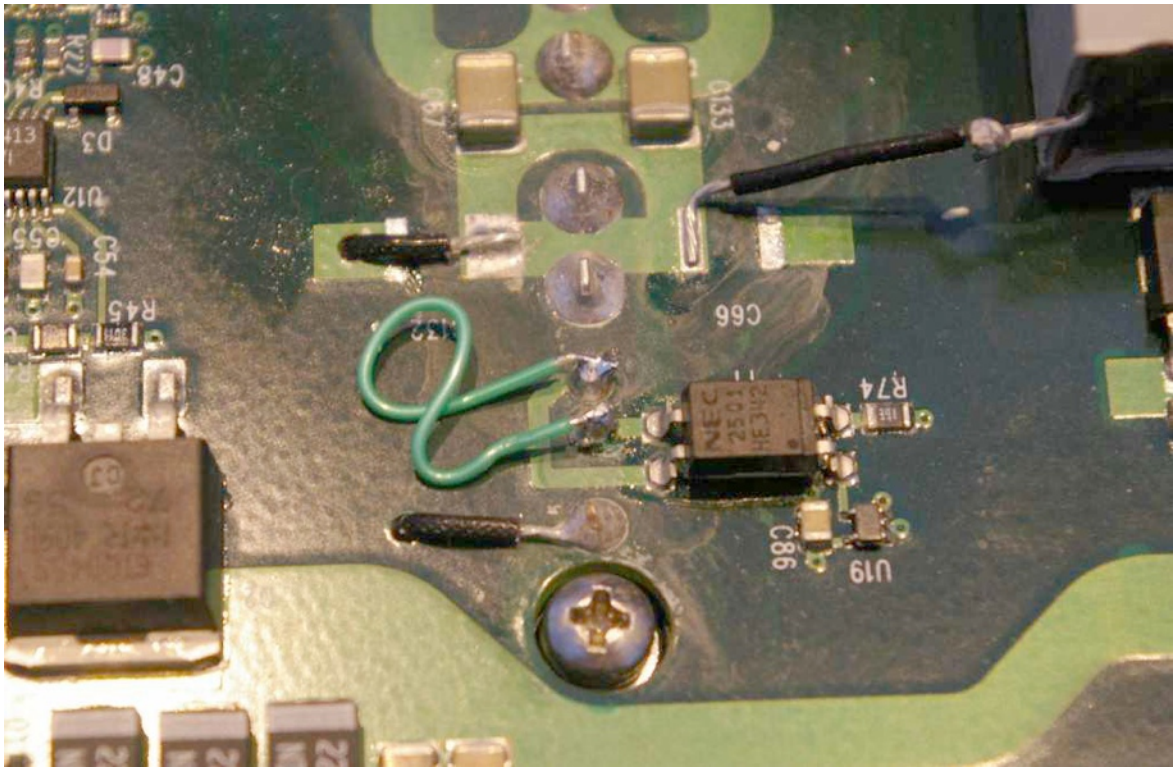


Photo 4 – Modification the small green insulated wire on the PSU board hard switches the amplifier on

The Andrews amplifier is a different story. We all spent quite some time with one of Gordon's amplifiers opened up, placed on the kitchen table and us all sat round it, trying to find our way around the circuits and discussing how we might make it work. Eddie's recent success with the REMEC spurred us on, circuit diagrams were emailed around the group and a solution dreamed up. The Andrews amplifier also has the ability to be driven with milliwatt power levels, but Gordon didn't need this, having a DB6NT transverter with an output power of a watt or so. Gordon had attenuated the drive when he originally tested his amplifier, but he was plagued with the amplifier repeatedly cutting off as soon as he was getting any useful power out of it. He passed it over to me with the instruction "do whatever you want with the ******* thing!

I then realised that if I were building a 13cm amplifier from scratch as an amateur radio project, I would be building just the amplifier stages and a simple bias network, to hell with all the protection etc! (oops!). By then we had reached the conclusion that much of what we had bought inside the box should be thrown away! So here's what I did…….

With the amplifier upside down on the bench, it's time to get the screwdriver out for a lot of exercise! Make sure you have the correct bit in the screwdriver as the screws have quite a hold on the aluminium and damage to a screw head will cause obvious problems. Quite a bit of effort is required to "crack" them open. Taking off the base plate is only the start. You will be met by the sight of yards of solid coax and three printed circuit boards. Unplug as much of the coax as you can, and leave enough from one of the input sockets to reach to the back of the box for later use. Don't touch the printed circuit board at the very back of the box, it is the power supply board; you want this one! Remove the other two boards, unplugging and disconnecting as you go. The long board at the side of the diecast screening enclosure seems to be the signal conditioning board, and the one on the top of the screen seems to house the monitoring/protection functions. The 25 way data connector on the front panel should be removed as that is the easier option than wrecking the cable, you never know, someone might want one of these boards in the future. It doesn't matter if I have got the descriptions of the board functions slightly incorrect as you don't need either of them! Finally, for the last of the demolition moves, get that screwdriver out again to remove the many screws securing the diecast screening enclosure, the manufacturers have even numbered the screws on this one on the moulding if you look! Lift the screen off vertically, as it plugs into the rf board below. Don't weigh the screening enclosure in for scrap just yet, you will need to remove the connector that goes down to the rf board for future use. Fortunately it comes off easily with yet more screws, be careful here.

You should now be down to the two boards you actually need, the PSU at the back and the rf board in front with all those lovely high power MOSFETs on! It might be worth noting at this point that the 3-pin power input socket on the front panel is wired to the PSU board at the back with some appropriately thick wire, keep this and the power switch with its thinner wire going along in the same direction. The crazy thing here (to me) is that the RED thick wire is NEGATIVE and the BLACK one is POSITIVE! You will have pulled out the spade connector for the 28V power wire (blue on Gordon's version) that goes from the PSU to the rf board in order to remove the screening enclosure, you need this later so keep it dangling from the PSU. You can see what I was left with on **photo 5**.

It doesn't take long to figure out the signal path on the rf board, in at the mW level at the gold coax socket on the rf board near the PSU and progressively through four stages of amplification, power splitters and combiners to the output. There must be some 50dB of gain in all. I reasoned that I didn't need the first two stages as the driver MOSFET must need something of the order of one Watt, and the DB6NT transverter could be connected in at this point. This is why you don't need the screening enclosure either (I'm sure someone will tell me off about this!). My reasoning is based on about 10 dB of driver gain and the same for the pair of output MOSFETs, I wasn't far out as it turned out. The coax input cable you left from the input socket can be soldered in to the driver input by removing the coupling capacitor from the combiner just before the driver stage and taking the centre of the coax to the end of the track vacated by the capacitor connected to the gate. I didn't bother with a coupling capacitor as the output of the transverter already has a coupling capacitor in it! I don't mind living dangerously, no monitoring, no protection no screening enclosure and now no coupling capacitor!

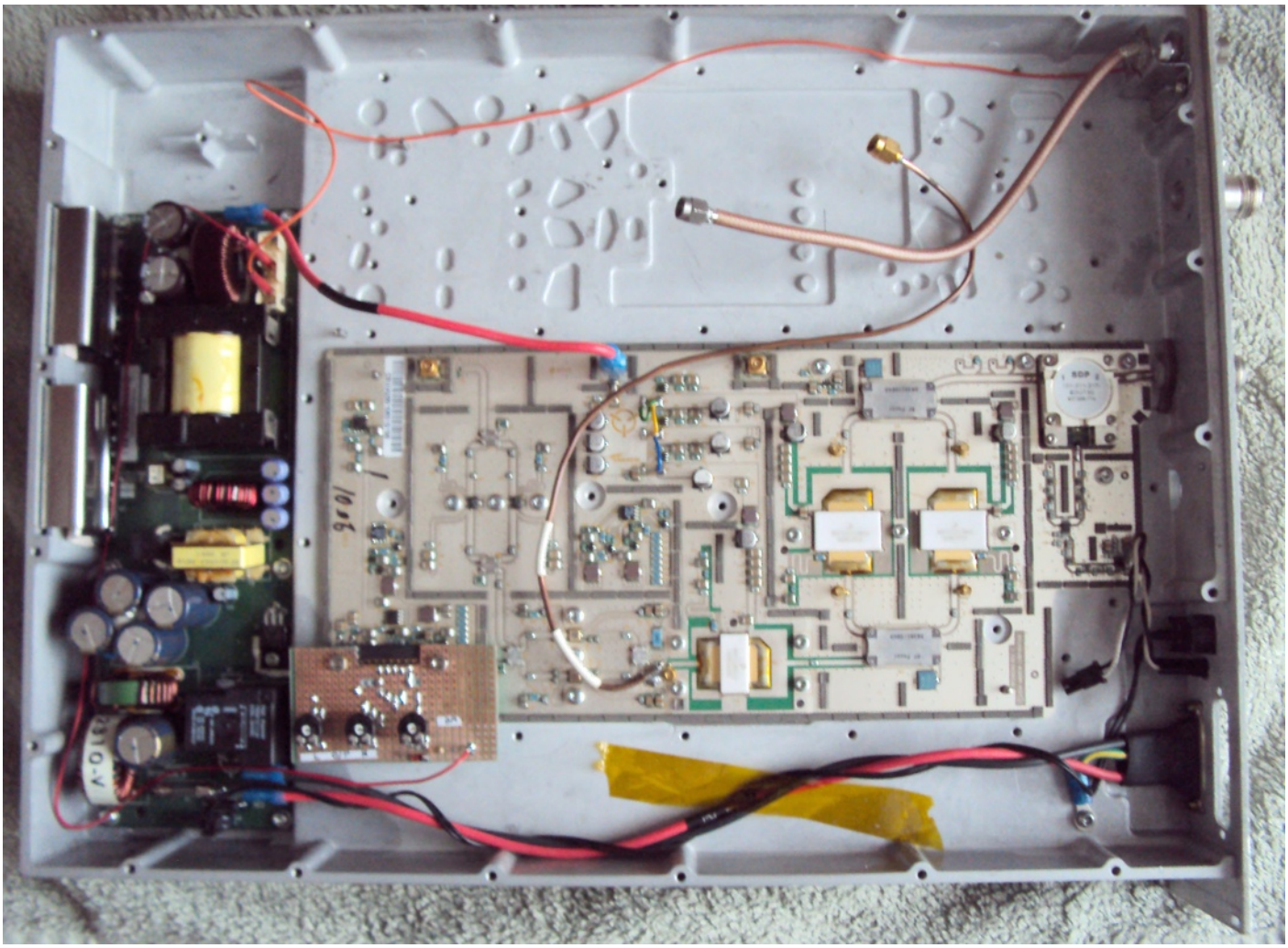


Photo 5 – Innards after modification

The outer of the coax cable can easily be soldered to the adjacent earthed area on the board; this can be seen on **photo 6**.

Now for the power and bias connections to get the now two-stage 13cm linear working. Wiring the 28V power drain supplies is easy; it is where you took the spade connector off earlier to get the screening enclosure off, and is already done for you if you simply plug the spade connector back on to the rf board. Look at this area and you will see three similar sections each with a large surface mount 0.01 ohm SMD resistor, with three sets of over-current sensors that will now forever remain silent! With no gate bias, the amplifier will draw

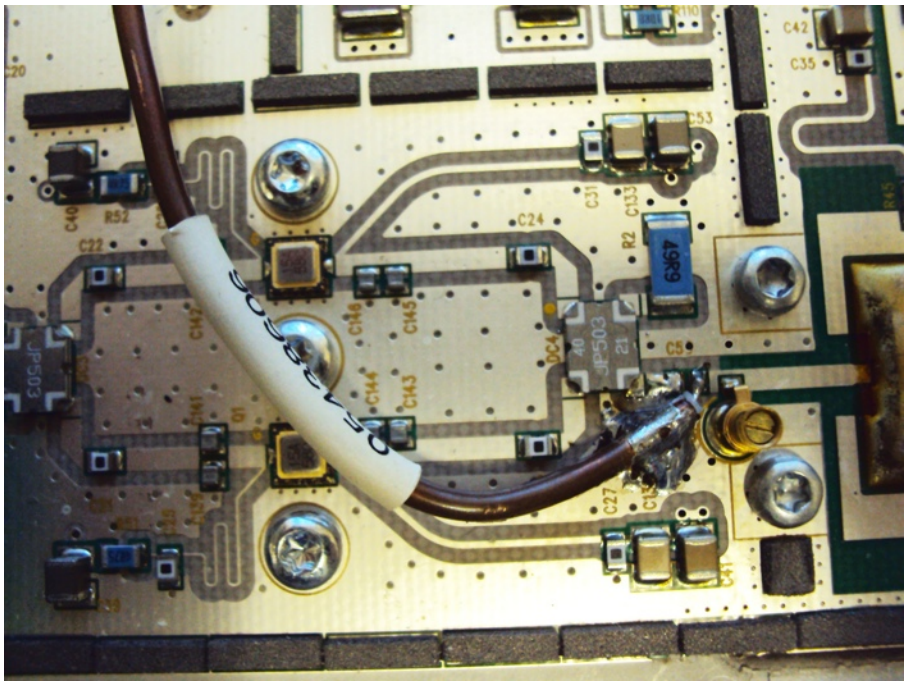


Photo 6 – Coax soldered to driver

virtually no current at 28V, all the gate bias circuits are tied down to 0V with 10k resistors so all gates are held at 0V and their respective MOSFETs are off until further notice. You might want to put a multimeter on its 10A range from the PSU to the 28V input on the board when you set up the bias instead of using the blue lead and test the amplifier in its new life. You might even put a 10A fuse here later if you are more cautious (I nearly said chicken!).

The gate bias was a little more problematic at first, I thought I was going to have to cut tracks and run wires over the board to the ends of the gate bias decoupling for each of the three MOSFETs (all clearly visible on the board, but then it all disappears under the board on a plated through hole in each case). Luckily, I avoided this because I identified three pins on the connector socket that were simply gate bias pins, you can "ring" them through with a continuity tester, I did. Not only that, but the two adjacent pins either side on the socket are at 0V. See fig 1 for details of the 16 pin socket and the connections I found. The simple gate bias circuit is shown in fig 2. The stabilised 9V output on the PSU is used and further brought down to 5.6V by the zener diode. Three 10kΩ pots then tap off this to provide the necessary gate bias for each MOSFET. These outputs are somewhat loaded down by the 10kΩ resistors on the bias lines so the pots end up near the top of their tracks to get the required bias voltage, but it works!

I built the gate bias board on a piece of stripboard due to the simplicity of it, and the fact that the connector for the socket recovered from the screening enclosure and the three pots are all on a 0.1" pitch. You can see this on photo 7, I have bolted the connector to the stripboard and only soldered to the five pins used for this bias board (two 0V pins for some reason, perhaps to try and make sure it is always earthed?) This makes the new bias board a plug-in module. The 9V supply comes from the socket on the PSU near the 28V output connection. See fig 3 for details of the PSU socket connections. Because of this bias board and the coax cable tapped in to the rf board, you can't

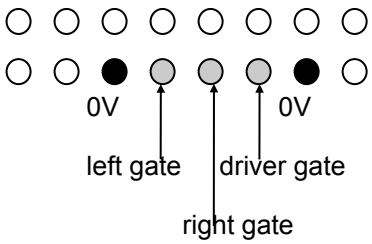


Fig 1: the rf board bias connector

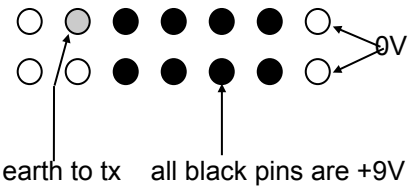


Fig3: the PSU connector

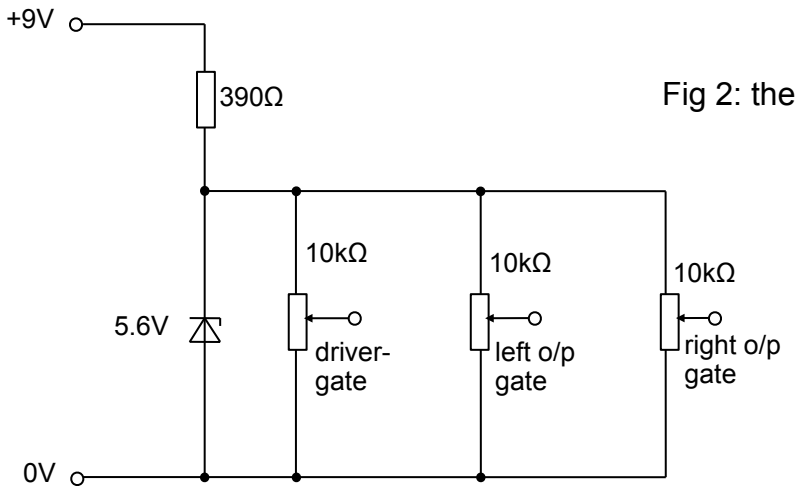


Fig 2: the simple bias circuit

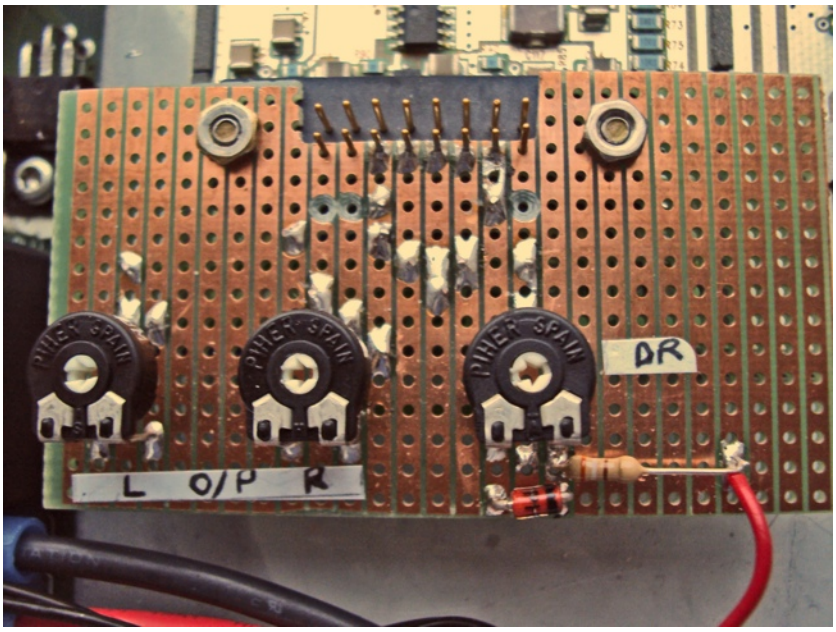


Photo 7b – Stripboard and bias pots

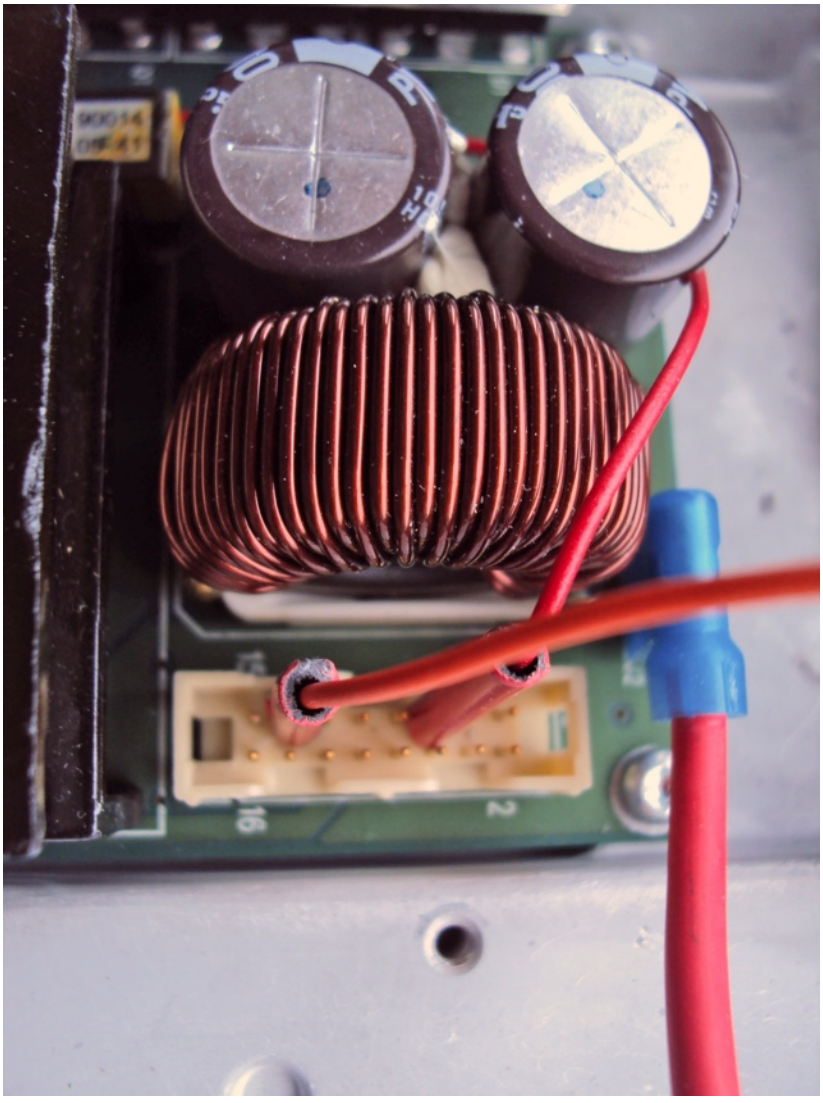


Photo 8 – PSU socket

fit the screening enclosure back on, but there again, I don't think you need it, I have never experienced any instability in the remaining two active stages. If you do need the original mW sensitivity and you can get the two previous stages working (they run off the 9V supply), you would need to reinstate the screening enclosure. In this case, the bias board would be still mounted on the connector, but with the connector still attached to the screening enclosure.

With regard to the socket on the PSU, providing the front panel power switch is on, the 9V output is always available but the 28V output remains off until another of the pins on this socket is grounded, this is a good place to use for PTT control. Leave the gate bias on all the time and key the amplifier on by enabling the 28V output on the PSU with this pin. The pin only sinks some 4mA or so to 0V which has a few volts on it when not grounded. The PSU pin details are also shown on fig 3 and photo 8.

Setting up the amplifier is straightforward, just make sure all three bias pots are at 0V, connect the 10A meter in the 28V line and have a low power 13cm signal available for the input. Don't forget to connect the amplifier output to a load and some sort of power meter! Connect the 50V power supply; operate the front panel power switch, and earth the PTT line. After an initial small pulse of current as the decoupling capacitors charge up, the meter should read zero. My digital meter reads down to 0.01A on its 10A range and shows nothing at this point. Slowly turn up the driver bias pot until 200mA is registered on the meter as I have settled for this level of quiescent current for the driver. Now turn your attention to the left output MOSFET bias pot and turn it up until the total current drain is now 600mA, ie 400mA standing current for the MOSFET- it is bigger after all! Now complete the bias set-up by turning the right output MOSFET bias pot until you finally hit 1A in total. Then apply a small input signal, I found that a

1mW input signal increased the total current drain by 50mA or so and the output power from the amplifier was in the region of 100mW, so small signal amplification is of the order of 20dB as hoped for. Over then to Gordon who applied his nominal 1W drive, the current drawn then hits 10A on a good “G8PNN tuning up whistle” and he measured the output power as 80W, job done! We have not even thought about tuning it up yet, there are a few variable capacitors on the tracks around the MOSFETs that might yield a little more output, much less putting the base plate back on and spoiling the view of all those nice rf components!

I have notes from my research that indicate that more than double this output power is available with more drive, but since the circulator rating is 125W maximum, it would have to be bypassed and the current drawn by the amplifier would possibly rise to the region of 30A at 28V, ouch! Actually, Gordon has now realised that there is so much space vacated inside the main box that there is room for his transverter inside as well, which will shorten the length of the cable between transverter and amplifier to good effect. All you need now is a suitable coaxial relay for the amplifier output that will carry all this power, and a sequencer that will control the amplifier is a safe way from your rig and transverter. Now, where’s that 10A fuse?

Stuart Wisher, G8CYW

Codgers

Now we are 6 (but we haven’t been 6 now for ages and ages)

Back row: Nigel G8GCO, Graham G4FSG, Sam Jewell G4DDK, Steve M1ACB, Kevin G8MXV, Dave G4HUP, Roy G0RRC, Peter G8BLS, Michael 2E0MCY, John G1HSL, aspiring Codger with Dad Jason G7OCD

Front row: John M0ELS, Colin G8LBS, Alan 2E0IPT, Andy G3ZYP, “Ed” G8BHC, Murray G6JYB, John G4SWX, Robin G8DQX, John G8ONH, Alan G3NYK

If you are in the Ipswich area on the last Saturday of the month join us for breakfast.www.codger.org.uk

November 2012 Lowband Contest Results

Again there was an increase in the number of entries for this year on all bands, and for the first time the majority of entrants were active on all three bands. Scores were somewhat lower than in 2011, although the numbers of contacts made were fairly comparable. Conditions were described as poor by most. Only G4SJH/P (The Combe Gibberlets) braved the winds to go portable this year. The vast majority of the logs were error free, and as the majority of those active had submitted an entry a good cross-check was achieved. There were no entries in the radio talkback section on any band.

On 1.3GHz Nick G4KUX had the leading score from a single band entry, with G4SJH/P as runner-up, and Bob G8DTF as the sole low-power entrant. Neil G4BRK won a closely fought 2.3GHz section just pipping G4SJH/P to the post, with Neil G4LDR as leading low power station. G4LDR won 3.4GHz by a substantial margin, with Pete 2E0NEY as runner up and leading low power station.

In the overall table, the Combe Gibberlets (G4SJH/P) came out on top, operated by G3TCU, G4SJH and G1EHF. Runner up and leading fixed station is Neil G4LDR. The above mentioned will receive certificates.

John G3XDY

UKuG Contest Adjudicator

EME2014

at Pleumeur-Bodou, France

The Board of the French National Society (REF) met in January, their minutes are online and Google's translation gives:-

Conference EME2014:

EME2012 conference held in Cambridge (UK). A group of French OM present proposed for the next conference site Pleumeur-Bodou, a symbolic place in the history of space telecommunications. This proposal has received a majority of votes of the speakers facing the Italian proposal for Venice.

The Board approved the principle of logistical support and participation at this conference became prestigious and brings together experts from around the world. Other decisions will be taken based on the project's progress and specific requests made by the organizers.

Meeting adjourned at 15 h 30.

Lucien Serrano, F1TE
Secretary of REF-Union.

Jean-Paul Louis, F6BYJ
President of REF-Union

The latest EME calendar is available from DL7APV's website

November 2012 Low Band Contest Results

Overall

Pos	Callsign	1.3GHz	2.3GHz	3.4GHz	Total
1	G4SJH/P	808	991	578	2377
2	G4LDR	419	890	1000	2309
3	G4BRK	505	1000	538	2043
4	G8KQW	652	673	513	1838
5	GW3TKH	312	895	503	1710
6	2E0NEY	439	537	613	1589
7	G4KUX	1000	0	0	1000
8	G3VKV	182	230	114	526
9	G8DOH	288	0	0	288
10	G3TCT	185	0	0	185
11	G8DTF	125	0	0	125
12	G6GVI	0	19	0	19

1.3GHz

Pos	Callsign	Locator	QSOs	Best DX	Points
1	G4KUX	IO94BP	15	G8KQW 401km	3972
2	G4SJH/P	IO91RF	16	GM4CXM 582km	3209
3	G8KQW	IO91OC	16	G4KUX 401km	2591
4	G4BRK	IO91HP	13	GM4CXM 517km	2006
5	2E0NEY	IO81VK	13	G4KUX 358km	1743
6	G4LDR	IO91EC	11	G4KUX 395km	1663
7	GW3TKH	IO81JM	8	G4KUX 359km	1238
8	G8DOH	IO92FA	12	G1SWH 191km	1145
9	G3TCT	IO81QC	6	GW8ASD 220km	733
10	G3VKV	IO91XV	7	G4KUX 307km	722
11	G8DTF	IO83SM	4	G4SJH/P 287km	498

2.3GHz

Pos	Callsign	Locator	QSOs	Best DX	Points
1	G4BRK	IO91HP	6	G4ALY 237km	639
2	G4SJH/P	IO91RF	6	GW3TKH 188km	633
3	GW3TKH	IO81JM	4	G4SJH/P 188km	572
4	G4LDR	IO91EC	6	G4ALY 195km	569
5	G8KQW	IO91RF	5	G4KIY 169km	430
6	2E0NEY	IO81VK	4	G4SJH/P 119km	343
7	G3VKV	IO81XV	2	G8JVM 89km	147
8	G6GVI	IO83SN	1	G1SWH 12km	12

3.4GHz

Pos	Callsign	Locator	QSOs	Best DX	Points
1	G4LDR	IO91EC	6	G4ALY 195km	509
2	2E0NEY	IO81VK	4	G4SJH/P 119km	312
3	G4SJH/P	IO91RF	4	2E0NEY 119km	294
4	G4BRK	IO91HP	4	G4SJH/P 75km	274
5	G8KQW	IO91OC	4	2E0NEY 106km	261
6	GW3TKH	IO81JM	2	G4ALY 136km	256
7	G3VKV	IO81XV	1	G8AIM 58km	58

UKµG Technical support

Another free service for members!

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

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

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

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

I have emailed the people currently listed on the web site and checked if they can continue in the role. The people listed have confirmed that they are happy to continue in/take up the role. If anyone would like to step forward and volunteer, especially in the regions where we have no representative, please email john@g4bao.com

Region	Tech support volunteer	Facilities
NW England, N Wales Wales	David Wrigley G6GXK 07811776432 Chris Bartram GW4DGU	Spectrum Analysis to 24GHz Power measurement to 76GHz Freq Measurement to 26GHz Freq sources to 47GHz NF Measurement to 10GHz Antenna Test range to 24GHz
NE England Yorks and Humberside	Peter Day G3PHO microwaves@blueyonder.co.uk	Available from Spring 2013 Spec Analyser to 24GHz Power measurement to 24GHz (up to 5W on 24GHz), RF sources to 24GHz, direct freq measurement to 3GHz. Setting up/tuning up transverters, etc + general advice.
S and SW England	Brian Coleman G4NNS Paul Marsh M0EYT pjmarsh@uhf-satcom.com	Spectrum analyser to 24GHz Power measurement to 26 GHz Scalar Network analyser and sweeper 2 to 15GHz Antenna test range 2.3, 3.4, 5.7, 10 and 24GHz Wavegide directional couplers for 10GHz and 24GHz Coax couplers 1.3 – 26GHz. Power measurement to 12GHz High power dummy load @ 10GHz (500W) Frequency measurement to 22GHz Spectrum analysers to 6 and 18GHz Frequency generation to 18GHz.
SE England and London	Allan Wyatt G8LSD allan@virtual-museums.org	not known
East Anglia, Essex & Suffolk Herts.	Sam Jewell G4DDK sam@g4ddk.com Bryan Harber G8DKK Letchworth, Herts	Spectrum analysis to 24GHz Power measurement to 24GHz Direct frequency measurement up to 3GHz VNA to 3GHz RF sources to 24GHz
West Anglia East Midlands	John Worsnop G4BAO john@g4bao.com	Spectrum analysis to 24GHz Power measurement to 24GHz Direct frequency measurement up to 18GHz VNA to 1.3GHz RF sources to 24GHz High current PSUs at 12, 28 and 48V
W Midlands	Vacancy	
N Scotland	Vacancy	
S Scotland	Vacancy	
N Ireland	Vacancy	

The current list of technical support volunteers is kept at www.microwavers.org/tech-support.htm

27 – 28 April 2013

Martlesham Microwave and UK Microwave Group AGM

http://mmrt.homedns.org/

Draft Programme

Saturday 27th April 2013

10:00	Truck Stop Breakfast
12:00	Doors Open
13:00	Welcome & opening G4BAO
13:15	Talk
14:00	Refreshments
14:30	Trophy Presentations TBD
14:45	Talk
16:55	Close
19:30	Meet for Dinner at 20:00 at the Cameo Hotel Ipswich

Sunday 28th April 2013

09:00	Doors Open
09:50	Welcome & Opening G4BAO
10:00	UKuG AGM (details page 26)
10:30	Refreshments
11:00	Talk
12:30	Lunch break
13:30	Talk
15:00	UKuG Contest Forum G3XDY
15:45	Close

Please let Sam G4DDK have topics of interest and offers of talks/presentations.

Testing

Test equipment will be available throughout the day subject to qualified personnel to operate the test and measurement equipment (yes, staff would like to attend the talks too!).

Noise figure testing on many bands.

Travel & Accommodation

The talks and testing will be held at:

BT Adastral Park, Martlesham Heath, Suffolk, IP5 3RE. This is located a few yards off the A12, just east of Ipswich. CLICK for map.

The evening meal and accommodation will be at:

Cameo Hotel Copdock, London Road,

Ipswich, Suffolk, IP8 3JD, England.

Accommodation costs are £61 for single occupancy and £67 for double/twins, including breakfast.

Please phone the hotel direct on 01473 209988 to book and quote reference BK55466.

Payment for the meals: Payment for the dinner should be made at the time of booking, by Paypal, at least 1 week before the event. Please send £24 to Martlesham Radio Society (g4mrs@btinternet.com).

Visitors from abroad may pay cash at the dinner by previous arrangement with John G3XDY

MMRT Dinner Menu Saturday 27 April

Price £24.00 per person

Starters

Duck & port parfait served with toasted brioche & red onion marmalade

Strips of beef marinated in Thai spices served with a salad

Poached pear, blue cheese & walnut salad

Main Courses

Choice of Beef, Pork, or Turkey Carvery with a selection of vegetables

Please select which meat you would prefer

Vegetarian option:

Mushroom and chestnut Wellington with a tomato & red pepper sauce, served with new potatoes and vegetables

Desserts

Double chocolate & praline torte and chocolate sauce

Bramley apple slice with cream

Lemon & ginger cheesecake

Coffee and Mints

Activity News

By Bob Price G8DTF

Please send your activity news to:

scatterpoint@microwavers.org

This month we have a couple of interesting EME reports, as well as reports from the 23cm and SHF UKACs/NACs. There is also a report on some 6cm wideband activity, using video senders.

I was also pleasantly surprised to hear the G3ZME beacon from home, for the first time, on the last day of the month.

EME

From Moonnet (RW3BP)

Last weekend (February 17th) I tried my first echo test on 77.5 GHz. The weather was good for the test. No clouds, temperature -7C, humidity 85%.

Transmitted signal was simple "E" - 25% on and 75% off with 0.7s period. Three periods to transmit and five periods pause to switch TX/RX and to receive. Echo signal was -20...-22 dB under noise in ref to 3 kHz BW. To detect echo signal I used my MWCW program. The signal was well seen after 1 min averaging. Test was at elevation from 30 to 50 deg. Moon noise was about 0.4 dB.

Antenna is 2.4m aluminium offset dish. Output power of TWTA is about 60W. Noise Figure of RX is about 6dB.

From Tony G4CBW

I heard HB9Q really loud off the moon on 23cm SSB. (Tony sent a .wav file of the SSB QSO which followed with HB9Q).

My system for 23cm EME is a 3m dish, small by the standard of many others. The power output is 400w at the feed and the preamp is by G4DDK, 0.3dB NF I think.

I've been busy trying to improve the EME system, so have not done much microwaves recently. 9cm is QRT at the minute due to a cable fault. The 3cm system should be working, but not used that or 13cm at all this year. Sad, I know but we'll be sorting it out soon, as Alan GM0USI will be taking 3 & 9cm on holiday to SW GM soon, so I must get it sorted for then.

February 23cm UKAC

From Eddie G0EHV

I was out /P as usual, a disaster event for me. A stuck mast head relay meant I had 100W on transmit, but no receive path to the antenna! People could hear me, but I was more than a little deaf! I pulled down the mast and after an hour attempting a fix (In the rain) I ended up with a straight through connection, back on with 10W and no preamp for the TS-2000.

Only 5 contacts and a disappointing evening, oh well there is always next time. The only good point was getting 'KST to work with the mobile phone on site.

From Kjeld OZ1FF

QSO worked by OZ1FF on 23 cm in the 19th February 23cm NAC via Aircraft Reflection

DF9IC	JN48IW	CW	742km
DJ5AR	JN49CV	CW	635km
SM0DFP	JP90JC	CW	804km
G8OHM	IO92AJ	SSB	748km
G3XDY	JO02OB	CW	600km

From Tony G4NBS

Regarding activity I realised at the end of last year that something wasn't as it should be on 70/23 so checked how much power was actually reaching the aerials. About 3db loss on 13 as expected but significantly more loss on the lower bands. So, what idiot decided it would be a good idea to replace the cables just before snow forecast? Result - off air throughout January.....

I took the "opportunity" to install a new preamp on

23 with a single feeder using a mix of ECO15 and 4-50 instead of my (25+ year old?) twin feed sytem. The 13cm preamp is now just under the 40 ele WIMO instead of at the end of 5M FSJ 4-50. Not sure if conditions have been rock bottom, but the hoped for improvement in Rx performance is yet to be seen!

Finally I had all bands operational again the night before 23cm UKAC. Quick check of beacons and SWR showed all OK. Comes the UKAC and the band seemed remarkably quiet. The few stations I heard all came back to my calls but it was obvious conditions were very poor. Until I realised how many contacts PYE was making that is! Another check on beacons showed all present if slightly weak, I could hear GI6ATZ and GM4CXM at usual weak levels and even worked G8PNN at near normal strength. Then I looked at SWR to find more than 60% coming back.....

I can only assume conditions were actually quite good, making up for my problem (which turned out to be water ingress to a connector on the 450 - something that had been watertight prior to changing things in sub zero conditions!). I will wait to see what the weekend activity brings to see if RX is actually working properly as the beacons still don't seem right to me.

Despite this I worked 22 stations. Nothing exciting obviously, G8PNN being the best Dx but unusually for me 2 contacts in IO82 with G8XYJ/P & M0RSD in what is often a black hole for QSO's for me.

From Bob G8DTF

I struggled a bit using low power (3.5W) with some stations, but not too bad overall. I managed twelve stations in IO83 (G3UVR, G4HGI, G1SWH, G0CDA, G4NTY, G8HXE/P, G4JLG, G8REQ, M0SDA, GW4EVX, G8ONK and G6GVI), plus three in IO91 (G4BRK, G8CUL and G4LDR), two in IO82 (GW4BVE/P and G3UKV), two in IO93 (G8EOP and G8BUN), with GD8EXI (IO74), G3PYE/P (JO02) and 2E0NEY (IO81).

February SHF UKAC

From Eddie G0EHV

13cms – my first go on 13cms /P. Station consists of FT-817, Kronotek “Scatter” transverter and a modified Remek power amplifier.

This gives me 60W which is fed through a 6 metre length of LMR400 cable to the 25 element Tonna. No preamp yet.

Conditions quite poor and difficult copy but picking up attempts on ‘KST resulted in some good distance QSO’s.

Best DX of the 11 QSO’s was G8CUL at 358 Km. Average point/QSO was 209 and I managed 8 mults. Always assuming no logging errors!

IO83 only produced a single QSO.

From Kjeld OZ1FF

Nothing special to report except three24 GHz contacts over 300 km in NAC
Microwave yesterday. On the other bands the monitoring of the air traffic
makes a lot of nice contacts possible every day.

QSO worked by OZ1FF on 13 cm NAC 26th February via Aircraft Reflection and Tropospheric propagation modes.

SM0DFP	JP90JC		CW 804km
DF9IC	JN48IW		CW 742km
GM3UAG	IO87XJ		CW 654km TR
G8OHM	IO92AJ		SSB 748km
GM4CXM	IO75TW	CW	781km
G3XDY	JO02OB		CW 600km

QSO worked by OZ1FF on 5.7 GHz in the 26th February 2013 NAC via tropospheric propagation.

SM7DTE	JO75CN		CW 382km
SM6AFV	JO67GQ	SSB	356km
SM6ESG	JO67CC		SSB 302km
SM7ECM	JO65NQ	CW	314km

QSO worked by OZ1FF on 10 GHz in the 26th February 2013 NAC via tropospheric propagation.

SM6AFV	JO67GQ	SSB	356km
SM6ESG	JO67CC		SSB 302km

SM7ECM	JO65NQ	CW	314km

QSO worked by OZ1FF on 24 GHz in the 26th February 2013 NAC via tropospheric propagation.

SM6HYG	JO58RG		CW 360km
SM6AFV	JO67GQ	CW	356km
SM6ESG	JO67CC		CW 302km

From Tony G4NBS

Good to work you again on 13cm last night. A struggle would be an understatement - literally on the noise floor most of the time here, just popping out enough to get the requisite info!

13cms last night was more successful - 16 QSOs in 9 Locators (7 multipliers). Lots of QSOs were weak, just under half I only gave 41 to 52 reports to but it was worth the effort to pull things through the noise. Only Beacon heard was GB3MHS in & out of noise so conditions were definitely flat with a little scatter/QSB assisting signals slightly. The only failure was G8PNN - usually can just make it with Gordon.

Best QSOs were GM4CXM(IO75), G0EHV/P(IO94), PA0S(JO21), PE9GHZ(JO11), G3UVR, GW8ASD and G8DTF(IO83). First time I'd had a chance to try with Tony and very surprised to hear his SSB straight away given the power. Only three QSOs were not as a result of KST, so hats off to those that make contacts without resorting to it!

Nothing else to report - radio was on this evening (Wednesday 27th Feb), but nil heard even though weather looked promising :(

From Ross G6GVI

In the February SHF UKAC session, Ross G6GVI and Dave G4JLG braved the cold conditions on Winter Hill to score some points on 9 & 6cm. The 9cm station was rather hampered by a missing microphone for the FT290 driver transceiver, so the QSOs eventually had to be made mixed-mode, receiving on SSB and transmitting on NBFM (from a 2m handie). And using simple WBFM gear (modified video-senders) on 6cm, Ross managed two QSOs, including a first-ever with John MW1FGQ, over a path of 62km – not bad for modules with a specified range of 100m!

Ross has also been experimenting with an Octagon PLL LNB mounted on the mast. Nothing heard of the local beacon GB3XGH yet, so waiting for some rain. The pictures show the LNB mounted on the mast at G6GVI.

From Bob G8DTF

This month the SHF UKAC was not blessed with particularly good conditions. In fact conditions seemed worse than flat, with serious QSB on some more distant stations.

On 13cm I managed to work seven stations in IO83 (G3UVR, GW8ASD, MW1FGQ, M0UFC/P, G4MVU, G1SWH and G6GVI), plus G8OHM (IO92), G4KIY (IO92), G3VKV (IO81), G4BRK (IO91) and G4NBS (JO02). I also heard G0EHV/P (IO94) at good strength, and Ray GM4CXM, but no QSOs this time.

On 9cm I still have a very deaf RX, and I am beginning to suspect a blown mixer diode, but still managed to work Dave G4MVU in IO83.

3cm was very challenging with the first attempt with Graham G3VKV (IO81) failing. Graham is usually stronger on 3cm than 13cm with me, but not this time. A second attempt with Graham did succeed, but with much weaker signals than normal. I also worked three more local stations in IO83 (G4MVU, MW1FGQ and a cross-band 3/13cm with M0UFC/P, using an LNB based RX)

...and finally

Sadly we have lost another active microwaver, Russ G4PBP/G8BHH, this month. I worked Russ a few times on 3cm and was lucky enough to have met him in person at the Martlesham MRT.

RIP Russ

It looks like several people are playing with Octagon PLL LNBs for use on 10GHz. It will be interesting to see how these experiments proceed.

I want to encourage you all to report your activity to clearly document use of the amateur microwave bands. This means not just DX, but also local activity with low power or WB equipment.

Please send your reports to Scatterpoint@ukmicrowaves.org and remember the deadline is the 1st of the month.

73, Bob Price G8DTF

Don't forget that

Every Monday evening is Microwave Activity Evening

JA DATES IN 2013

From Robin Lucas G8APZ

There will be nine fixed JA in 2013:

First JA - 24 GHz and above in March,

Seven JA - 1296 MHz and above in April, May, June, July, August, September and October,

a JA mid-July for reflection via Mt Blanc 1296 MHz and above.

JA March: W/E 30 and March 31

JA April: W/E 27 and 28

JA May: W/E 25 and 26 (UKMG contest)

JA June: W/E 22 and 23 (Activity "Big Blue")

JA July: W/E 27 and 28 (UKMG contest)

JA of August: W/E 24 and 25 (UKMG contest)

JA September: W/E 28 and 29 (UKMG contest)

October JA: W/E 26 and 27.

F6BSJ memorial JA: QSOs by reflection via Mt Blanc will take place on Sunday morning July 14.

Duration of JAs: Saturday 5:00 p.m. - Sunday 5:00 p.m.

RAL

We have opened the bookings for this years round table. See http://www.g3pia.org.uk/ for details.

I am still looking for talks. G7DOE has offered a talk on his comparisons of 6 simulator free RF simulator tools, which should be very interesting. There is space for up to 3 more. Sorry but I can't afford to pay expanses, we charge nothing to get in and we do not charge for tables.

Mike

UK MICROWAVE GROUP
ANNUAL GENERAL MEETING – SUNDAY 28th April 2013

Notice is hereby given that the 2013 Annual General Meeting of the UK Microwave Group will be held at 10:00am on Sunday, 28 April 2013 as part of the Martlesham Microwave Round Table event which takes place over that weekend.

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. We are looking for enthusiastic volunteers to join our committee and help shape the future of UKuG.

This year the following Committee officers/members are standing down.

John Worsnop G4BAO is standing down as UKuG Chairman

Graham Murchie G4FSG is standing down as UKuG Treasurer

so we are interested to hear from anyone who would be willing to take on these vital UKuG officer positions. If any UKuG member is interested in the office then please submit your name (and the name of your seconder) to the UKµG Chairman G4BAO as soon as possible.

Note: the Secretary's task is made less onerous by the fact that there is a separate post of Membership Secretary, currently held by Bryan Harber G8DKK which deals with all day-to- day membership issues.

On behalf of the UKuG Committee and the UKuG membership I would like to formally thank John and Graham for their dedication and efforts during their years as Chairman and Treasurer respectively.

If you are interested in joining the committee, have any agenda or AOB items for the AGM please contact the UKuG Secretary, Martin Richmond-Hardy G8BHC by 31 March 2013 by email to secretary@microwavers.org.

73 Martin Richmond-Hardy G8BHC
General Secretary UK Microwave Group

RSGB Contests 2013

Month	Contest name	Certificates	Date 2013	Time GMT	Notes
Mar	Low band 1.3/2.3/3.4GHz	F, P,U,R,L	3-Mar	1000 - 1600	First 4 hours coincide with IARU event
Mar	1.3GHz Activity Contest	*Arranged by RSGB*	19-Mar	2000 - 2230	RSGB Contest
Mar	2.3GHz+ Activity Contest	*Arranged by RSGB*	26-Mar	2000 - 2230	RSGB Contest
Apr	10GHz & Up EME	*Arranged by DUBUS*	*13–14-Apr*	0000-2359	DUBUS EME Contest
Apr	1.3GHz Activity Contest	*Arranged by RSGB*	16-Apr	1900 - 2130	RSGB Contest
Apr	Low band 1.3/2.3/3.4GHz 2	F, P,U,R,L	21-Apr	1000 - 1600	
Apr	2.3GHz+ Activity Contest	*Arranged by RSGB*	23-Apr	1900 - 2100	RSGB Contest
May	*10GHz Trophy*	*Arranged by RSGB*	*4-May*	*1400 - 2200*	Saturday, to coincide with IARU
May	*432MHz & up*	*Arranged by RSGB*	*4–5-May*	*1400 -1400*	RSGB Contest
May	1.3GHz EME	*Arranged by DUBUS*	*11–12-May*	0000-2359	DUBUS EME Contest
May	5.7GHz EME	*Arranged by DUBUS*	*18–19-May*	0000-2359	DUBUS EME Contest
May	1.3GHz Activity Contest	*Arranged by RSGB*	21-May	1900 - 2130	RSGB Contest
May	5.7GHz/10GHz/24GHz	F, P,U,R,L	26-May	0600-1800	
May	2.3GHz+ Activity Contest	*Arranged by RSGB*	28-May	1900 - 2130	RSGB Contest
Jun	Low band 1.3/2.3/3.4GHz 3	F, P,U,R,L	2-Jun	1000 - 1600	Aligned with some Eu events
Jun	2.3GHz EME	*Arranged by DUBUS*	*15–16-Jun*	0000-2359	DUBUS EME Contest
Jun	1.3GHz Activity Contest	*Arranged by RSGB*	18-Jun	1900 - 2130	RSGB Contest
Jun	2.3GHz+ Activity Contest	*Arranged by RSGB*	25-Jun	1900 - 2130	RSGB Contest
Jun	3.4GHz EME	*Arranged by DUBUS*	*29–30-Jun*	0000-2359	DUBUS EME Contest
Jun	5.7GHz/10GHz/24GHz	F, P,U,R,L	30-Jun	0600-1800	
Jul	VHF NFD (1.3GHz)	*Arranged by RSGB*	6– 7-Jul	1400 - 1400	RSGB Contest
Jul	1.3GHz Activity Contest	*Arranged by RSGB*	16-Jul	1900 - 2130	RSGB Contest
Jul	24GHz - 1THz Contest	O	21-Jul	0900 - 1700	New Format
Jul	2.3GHz+ Activity Contest	*Arranged by RSGB*	23-Jul	1900 - 2130	RSGB Contest
Jul	5.7GHz/10GHz/24GHz	F, P,U,R,L	28-Jul	0600-1800	
Aug	Microwave Field Day	O,L	4-Aug	0900 - 1700	
Aug	1.3GHz Activity Contest	*Arranged by RSGB*	20-Aug	1900 - 2130	RSGB Contest
Aug	5.7GHz/10GHz/24GHz	F, P,U,R,L	25-Aug	0600-1800	
Aug	2.3GHz+ Activity Contest	*Arranged by RSGB*	27-Aug	1900 - 2130	RSGB Contest
Sep	1.3GHz Activity Contest	*Arranged by RSGB*	17-Sep	1900 - 2130	RSGB Contest
Sep	2.3GHz+ Activity Contest	*Arranged by RSGB*	24-Sep	1900 - 2130	RSGB Contest
Sep	ARRL Microwave EME	*Arranged by ARRL*	28–29-Sep	0000 - 2359	
Sep	5.7GHz/10GHz/24GHz	F, P,U,R,L	29-Sep	0600-1800	
Oct	*1.3 & 2.3GHz Trophies*	*Arranged by RSGB*	*5-Oct*	*1400 - 2200*	RSGB Contest
Oct	*432MHz & up*	*Arranged by RSGB*	*5–6-Oct*	*1400 - 1400*	IARU/RSGB Contest
Oct	1.3GHz Activity Contest	*Arranged by RSGB*	15-Oct	1900 - 2130	RSGB Contest
Oct	2.3GHz+ Activity Contest	*Arranged by RSGB*	22-Oct	1900 - 2130	RSGB Contest
Oct	ARRL EME 50-1296MHz	*Arranged by ARRL*	26–27-Oct	0000 - 2359	
Nov	ARRL EME 50-1296MHz	*Arranged by ARRL*	16–17-Nov	0000 - 2359	
Nov	1.3GHz Activity Contest	*Arranged by RSGB*	19-Nov	2000 - 2230	RSGB Contest
Nov	Low band 1.3/2.3/3.4GHz 4	F, P,U,R,L	24-Nov	1000 - 1400	
Nov	2.3GHz+ Activity Contest	*Arranged by RSGB*	26-Nov	2000 - 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)
	R	Radio talkback
	U	Unlimited Talkback

Main changes from 2012 calendar	
1	ARRL/DUBUS EME updated
2	Lightwave event deleted
3	5.7/10/24GHz Cumulatives replaced with individual events

UKµG Microwave Contest Calendar 2013

Dates, 2013		Time UTC	Contest name		Certificates
3	Mar	1000 – 1600	Low band 1.3/2.3/3.4GHz	1	F, P,U,R,L
21	Apr	1000 - 1600	Low band 1.3/2.3/3.4GHz	2	F, P,U,R,L
26	May	0600 - 1800	1st 5.7GHz Contest		F, P,U,R,L
26	May	0600 - 1800	1st 10GHz Contest		F, P,U,R,L
26	May	0600 - 1800	1st 24GHz Contest		F, P,U,R
2	Jun	1000 - 1600	Low band 1.3/2.3/3.4GHz	3	F, P,U,R,L
30	Jun	0600 - 1800	2nd 5.7GHz Contest		F, P,U,R,L
30	Jun	0600 - 1800	2nd 10GHz Contest		F, P,U,R,L
30	Jun	0600 - 1800	2nd 24GHz Contest		F, P,U,R
21	Jul	0900 - 1700	24GHz Trophy / 47 / 76-1000 GHz		
28	Jul	0600 - 1800	3rd 5.7GHz Cumulative		F, P,U,R,L
28	Jul	0600 - 1800	3rd 10GHz Cumulative		F, P,U,R,L
28	Jul	0600 - 1800	3rd 24GHz Cumulative		F, P,U,R
4	Aug	0900 - 1700	Microwave Field Day		F, P,L
25	Aug	0600 - 1800	4th 5.7GHz Cumulative		F, P,U,R,L
25	Aug	0600 - 1800	4th 10GHz Cumulative		F, P,U,R,L
25	Aug	0600 - 1800	4th 24GHz Cumulative		F, P,U,R
29	Sep	0600 - 1800	5th 5.7GHz Cumulative		F, P,U,R,L
29	Sep	0600 - 1800	5th 10GHz Cumulative		F, P,U,R,L
29	Sep	0600 - 1800	5th 24GHz Cumulative		F, P,U,R
6	Oct	0800 - 1400	Low band 1.3/2.3/3.4GHz	4	F, P,U,R,L
24	Nov	1000 - 1400	Low band 1.3/2.3/3.4GHz	5	F, P,U,R,L

Key:

F Fixed / home station

P Portable

L Low-power (<10W on 1.3-3.4GHz, <1W on 5.7/10GHz)

R Radio talkback

U Unlimited talkback

73 John G3XDY, UKUG Contest Adjudicator

UKµG Contest Portal

Events calendar 2013/14

2013

April 6	CJ-2013, Seigy	cj.ref-union.org/
April 27-28	**Martlesham Microwave Roundtable and UK*µ*G AGM**	mmrt.homedns.org/
May 17-19	Hamvention, Dayton	www.hamvention.org/
June 9	**RAL Roundtable**	http://www.g3pia.org.uk/ I
June 28-30	Ham Radio, Friedrichshafen	www.hamradio-friedrichshafen.de/
July 13–14	**Finningley Roundtable**	detail tbc
July 19–21	Amsat-UK Colloquium, Holiday Inn, Guildford, Surrey	www.uk.amsat.org/Colloquium/
Sept 9	**Crawley Roundtable**	detail tbc
Sep 13-15	58.UKW Tagung Weinheim	www.ukw-tagung.de/
Sept 27-28	National Hamfest	www.nationalhamfest.org.uk/
Oct 6-11	European Microwave Week, Nuremberg	www.eumweek.com/
Oct 11-13	**RSGB Convention**	www.rsgb.org/rsgbconvention/
Oct 18–19	Microwave Update, Morehead, Kentucky	www.microwaveupdate.org/
Nov 2	**Scottish Roundtable**	www.rayjames.biz/microwavert/

2014

July 1	Scatterpoint 10th Anniversary
August	EME2014, Pleumeur-Bodou near Lannion
October 6-9	European Microwave Week, Rome