



An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

January 2016

Published by the UK Microwave Group

**OT5A/P operation in the IARU
R1 UHF and up contest
(3 & 4 October 2015)**

Gert ON3SWY and Jan ON4CO



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Editor's bit

A short January edition.

New Year Greetings to you all!

73 de Martin G8BHC (notoriously QRT)

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](#) and/or Dropbox.

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

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!)

Articles for Scatterpoint

News, views and articles for this newsletter are always welcome.

Please send them to

editor@microwavers.org

**The CLOSING date is
the FIRST day of the month**

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

Please submit your articles in any of the following formats:

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

Spreadsheets: Excel, OpenOffice,
Numbers

Images: tiff, png, jpg

Schematics: sch (Eagle preferred)

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 your co-operation.

Martin G8BHC

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You may not reproduce articles for profit or other commercial purpose.

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UKμG Chip Bank – A free service for members

The catalogue is now on the UKμG web site at www.microwavers.org/?chipbank.htm Latest Stock Update was September 2015 – so do take a look!

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 a component on the site will not be a guarantee of availability of that component. The service is run as a free benefit to all members and the UK Microwave Group will pick up the cost of packaging and postage.

Minimum quantity of small components supplied is 10. Some people have ordered a single smd resistor!

The service may be withdrawn at the discretion of the committee if abuse such as reselling of components is suspected.

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 mislabelled. G4HUP's [Inductance/capacitance meter](#) with SM probes is ideal for this (Unsolicited testimonial!)

The chipbank catalogue has been updated (September) to reflect donations received at the various RTs this year.

Quite a few resistors and inductors have been added as well as a few other bits and pieces. Have a look at the website and stock up for your winter projects!

Don't forget it is completely free, you don't even have to pay postage!

Mike G3LYP

The Chip Bank was mentioned at a recent Codgers breakfast and was new to one of the non-microwavers so he Googled it. It turns out "The Chip Bank" is a takeaway in Kilmarnock. Hat tip to Bob Barrett G3YCY for the picture. Ed.

UKμG Project support

The UK Microwave Group is pleased to encourage and support microwave projects such as Beacons, Synthesiser development, etc. Collectively UKμG 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 (eg Beacon on air)
- We regret we are unable to support running costs

Application forms below should be submitted to the UKμG 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 UKμG 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 email john@g4bao.com The current list is available at

www.microwavers.org/tech-support.htm

Still Wanted: Trophies Manager

Dave Powis G4HUP retired as Trophies manager at the last AGM and we thank him for all his work in discharging this task. We still need a replacement.

Please contact the Chairman or Secretary if you would like to help with this duty.

Loan Equipment

Don't forget, UKμG has loan kit in the form of portable transceivers available to members for use on the following bands:

5.7GHz

10GHz

76GHz

Contact John G4BAO for more information.

G4HUP update

Happy New Year to all.

I've just completed a [website](#) update which introduces some new items that may be of interest here.

Firstly, from 1 Mar I will be delivering aligned DG8 2m masthead preamp kits, and from 1 Feb I will be taking over (by mutual agreement!) the supply of the DG8 Short Kits from Sam, G4DDK. Orders for the aligned DG8 module attract a discount during February.

Secondly, I've just introduced a Buffer for the K3 IF out port, to deal with some issues that arise when using it with an external SDR.

Best 73, Dave Powis

This month I 'ave mostly been building...

A column (idea borrowed from the [SBMS Newsletter](#) and with a hat tip to Mark Williams' character [Jesse](#) of the Fast Show) designed for those of you who don't want to write a full technical article – but also those of you who do but only have a snippet to contribute such as a new project or a progress report.

John Worsnop G4BAO ... a 47GHz transverter.

I've completed a DB6NT PCB / Dubus based 47GHz transverter module including doing my own milled boxes to put the PCBs in. Hand milling can be a real labour of love, and you nearly always make a mistake on the last few cuts. I screwed up one attempt where a channel meant to be a waveguide high pass filter became a slot, so it was back to the beginning. It's now done and all the PCBs are glued in with Silver loaded Epoxy (at £40 for two small tubes!). Thanks to G8CUB for fitting the, almost invisible, beam lead diode to the mixer PCB. All I need to do now is make some test equipment to test it. That will have to be another DB6NT PCB - based mixer as a downconverter for my Spectrum analyser.

Not easy this mm wave stuff, but I have to convince the mm brigade to come West of the meridian so I can have a 24GHz QSO with them!

At the same time I've rebuilt my old DB6NT 24GHz Mk2 transverter, mainly mechanical "invisible mending" as I'd stripped nearly all the threads in the Aluminium box. Cleaned up the PCB, fitted new diodes and used the Silver epoxy to ground them. It's good to go in to a second 24GHz transverter for portable use that's also on the cards.

Lower down I've built a new 23cm masthead preamp unit with a brand new, multi-hundred Watt rated, 3GHz relay that I picked up for £25 on eBay!! ... read it and weep!

Even lower I finally finished my Harris - Module based 400W 144MHz PA but I doubt it'll get use at home as, due to the appalling racket here on 144, I don't hear the stations that call me when I'm running 100W!

Who needs 144 talkback anyway?

Silent Key: Peter Blakeborough G3PYB



G3PYB pictured here operating 47GHz equipment

Photo by G8ACE from <http://www.microwaves.dsl.pipex.com/76gdx/g3pyb.htm>

From Noel - G8GTZ

It is with great sadness that I have just heard that, following a heart attack on Boxing day, Peter G3PYB passed away at about 2pm on 8th January.

He was a dear friend, an inspiration to us all and will be sadly missed.

Our thoughts are with Sandy his wife and family at this time.

From Bryan, G8DKK

I was fortunate to be able to visit Peter on New Year's eve in hospital where he was being monitored following a heart problem on Boxing Day. He was his usual positive self but said he would no longer be able to engage in microwave or ATV /P activities but would concentrate on his home station.

I have been in touch with Sandy, his wife and she will keep us posted.

Our thoughts are with Sandy and the family at this time.

From John (G0VDU)

Thank you for the sad news. He will be missed in the ATV and Microwave Groups. May he RIP

From Mike, G3LYP.

Very sad news Noel. I have known Peter for many years going back to the time when he organized one or more Roundtables at Yorkshire Television. He will be greatly missed.

From Barry, G8AGN

I was very sad to hear of Peter's death. When he was at Yorkshire TV in Leeds I often visited him and he was always generous of his time and knowledge to say nothing of microwave goodies.

He will be sorely missed.

Having just lost my wife over the Christmas period, I know how Sandy and the family will miss Peter. RIP

**From Bob Price G8DTF
Chairman UK Microwave Group.**

This is very sad news, particularly at this time of year. Peter will be missed by both the Microwave and ATV communities in the UK.

From Murray G6JYB

Noel - that is very sad to hear - Peter was always very helpful and a real good'un

From Mans. 9H1GB

Sorry to hear of the passing away of my, our, dear friend Peter.

I had the pleasure to meet him here in 9H during a short cruise liner who had a short stop here in Malta.

He was also helping me with RB ATV and, as you well know Noel, was helping me with the parts for this project.

Please be so kind as to convey my most sincere condolences to his wife Sandy and family. Our thoughts and prayers are with them.

RIP Peter

From Peter, G3PHO

Devastating and totally unexpected news!

Peter was one of my very best friends and the most helpful radio amateur you could hope to meet. I first met him in the early 70s, at a small gathering of microwavers at YTV in Leeds and we became good friends from that very moment.

While he was at YTV he became the catalyst for the growing microwave activity in the Yorkshire region and saw to it that we all had an excellent 10GHz beacon, GB3MLE, installed at Emley Moor. He and I would go up the Emley mast on occasions to service the beacon and on one occasion he even did a 10GHz cumulative contest from the room at the top! He had the enviable ability to pick up a strange piece of microwave gear and, after a brief look at it, proceed to tell you everything about it! Though not

really a died-in-the wool contester, he often came out in the cumulatives, especially the 24/47/76GHz ones but less so after his illness some years ago, preferring instead to develop his millimetre bands gear and experiment with it over interesting new paths outside of the contests. All of us up here in the North were sad to see him leave the area for a new job in Hertfordshire, where once again he inspired others to take up microwaves. After yet another move to Portsmouth for a job with Wood & Douglas, he became even more active in the ATV field.

Many of you living down there will appreciate his great enthusiasm and willingness to help others.

He and Sandy visited us many times, as we did them, though since he moved to Portsmouth it was a less frequent occasion. My wife and his became cycling buddies and did several long distance routes together.

After his illness and later retirement, he and Sandy made the most of life together, travelling widely and enjoying the company of his many friends. In recent years he became a loving grandfather. He was immensely proud to be chosen as President of BATC.

We will both miss him very much indeed and our hearts go out to Sandy and their family.

It was a privilege to have had Peter as a personal friend.

From Gordon, G0EWN

Just picked up the devastating news regarding Peter.

Peter, G3PYB, was a charming and considerate person as well as a technically well versed radio amateur. Last August, whilst on holiday on the south coast, we visited Peter and enjoyed a meal and pleasant evening with Peter and his wife. Peter was full of plans for life...holidays, social events and radio,, which makes the news very difficult to take.

Rest easy Peter,

Chip Bank Polyphase

John Seager G0UCP

For a long time I have wanted a polyphase network for use as a passive stand-alone module to compare with software or op-amp audio phase shifters. Problem was I never had the bits. Ideally a polyphase network uses resistors of 0.1-1% tolerance and capacitors of 1-5%. The original schemes by Gingell and others offered the option of keeping all 24 or 28 capacitors the same value and achieving the shift with graded resistors, or less commonly and less conveniently by having all the resistors the same and grading the capacitors. Actual values are not critical, so long as the components in each stage match closely with each other. This makes it a little easier to source components but the snag is that these schemes result in a network with a good deal of loss.

A more attractive approach was devised by JA1KO and used by the QRP2004 Design Team (<http://myweb.tiscali.co.uk/qrp2004/QRP2004.pdf>). This grades the capacitors and resistors to produce a circuit with negligible loss. However it needs 7 sets of 4 matched capacitors and the same number of matched resistors. Quite a lot of bits, and if you order them from a commercial supplier it is difficult to get them in the small quantities required. Thanks to the generous Chip Bank scheme I was able to get the parts I needed in batches of 20. This turned out to be enough to provide 4 components within 1% for resistors and 5% for capacitors for each value. A multi-meter was adequate for the resistors and the G4HUP L/C meter and 'calliper' probe sorted out the capacitors with no fuss. Some needed a small value capacitor from the junk box in parallel to trim them to the required tolerance.

The picture shows how it all went together:

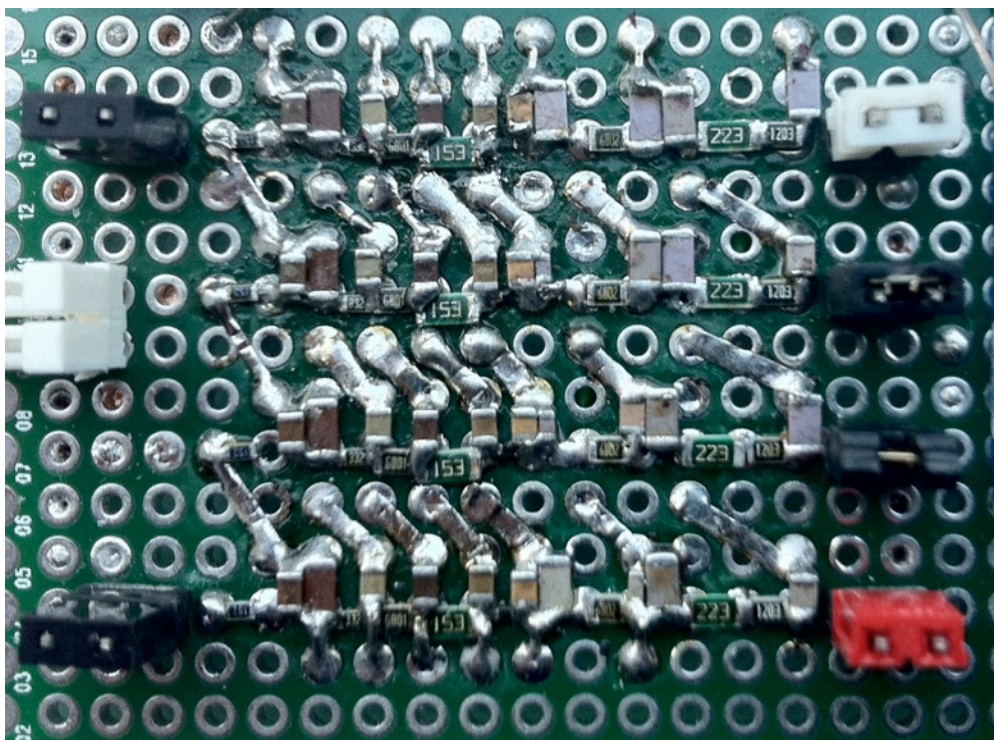
The green through-hole plated dot matrix board is ideal for surface mount. A (40 piece!) set of boards was obtained from Banggood of HK for a modest £7.95 inclusive of air mail postage. A x10 binocular dissecting microscope was used. Connections that did not cross were made with narrow strips of copper 'slug tape' taking care to avoid hard-to-see dry joints. Crossing connections were done with single strand insulated copper telephone wire.

The network was configured so that at the input (above, left) channels 1 and 4 were earthed via the black jumper connectors, the 'I' and 'Q' signals being fed in to channels 2 and 3.

At the output end channels 1 and 2 and channels 3 and 4 were each connected together via the white and red jumpers and the signal was passed to a TLO72 (thank you Chip Bank) buffer amplifier via the two black jumpers at that end. Most of this can be seen in the photo, though several interconnections, including those between stages of channels 1 and 4 were made on the underside of the board.

At initial testing with a 2 kHz signal it appears that all is working as intended.

I am most grateful to Dr Mike Scott for his care in sorting out the components and for running the Chip Bank, a really practical help for homebrewers.



OT5A/P operation in the IARU R1 UHF and up contest (3 & 4 October 2015)

Gert ON3SWY and Jan ON4CO

The OT5A/P party, which participated in the IARU R1 UHF and up contest, consisted of a number of operators previously active as ON4HRT/P in similar contests. During the 2015 October edition, other microwave enthusiasts joined the ranks as well to participate in what probably became an unprecedented and unique microwave experience in Belgium. OT5A is the contest call sign of the UBA section LIR of the city of Lier near Antwerp.

The objective was to assemble a contest team operating on all 'modest' UHF- and microwave bands operating up to 24 GHz, operating out of 5 portable shacks and using 5 different mast/rotor combinations. Bands represented included 70 cm, 23 cm, 13 cm, 6 cm, 3cm and 1,2 cm. Our portable contest station was located on the summit of the scenic Baraque Michel, 674 m ASL, which finds itself in grid square JO30AM (50:30:45 North, 6:4:27 East).

432 MHz:

On 70cm, a Yaesu FT-847 was used driving a tube based ON7UN home brew PA transmitting 400 Watts of power to the antenna. The antenna itself consisted of 4 yagi's in a box configuration at approximately 10m above ground level. Conditions on 70 cm were remarkably better on Saturday than on the second day of the contest. On top of that, we had to shut down several hours prior to the end of the contest due to Pre-Amp failure. In total 4 operators covered our first band and made some 95 QSO's. We scored 19.279 points in the contest. Best ODX during the contest was OL9W in JN99CL which represented 877 km. We worked 7 DXCC entities and 28 squares.

1,3 GHz:

On 23cm, a Yaesu FT-897D was put in action in combination with a DB6NT transverter. Output power was 100 Watt into a 1,8 meter dish antenna. 3 operators covered 64 QSO's in total reaching 13.181 points in the contest. Best ODX was G4CLA in IO92JL which was located 547 km from us. We worked 6 DXCC entities and 18 grid squares.

2,3 GHz:

On 13cm, a Yaesu FT-897D was used as well together with a DB6NT MKU 23G3 transverter. 200 Watt was produced by a modified ex-UMTS Mosfet PA feeding a 1m80 dish antenna with DIY ring feed and located 15m above ground level. 2 operators covered 24 QSO's in total and scored 4.566 points in the contest. Best ODX during the contest was G3XDY in JO02OB at 378 km from Baraque Michel. We worked 5 DXCC entities and 11 squares which got us to National first place. This was not so difficult as we had no Belgian competitors on this band, HI.

5,7 GHz:

6cm used an Elecraft KX3 with a DB6NT transverter and 10 Watt of output power. A 65cm diameter antenna was raised on the same mast as the 1,2cm dish next to a backup 3cm dish. All antennas are prime focus dishes on this tower. 2 operators in a shack mutually covering 6cm and 1,2cm made 16 QSO's on 6cm. Best ODX during the contest was DK0NA in JO50TI which represented 396 km. We worked 4 DXCC entities and 10 squares resulting in a score of 3.495 points. We also reached first place on this band in Belgium were there was only one participant. This gives one an idea of overall participations, which was actually quite low...



10 GHz:

On 3cm, a YaesuFT-817 was used in combination with a DB6NT MKII transverter using 144MHz IF. Our 3cm signal was amplified to 10 Watt. The antenna in the contest was an ex-tvro 1m FIBO Gregorian offset antenna approximately 9m AGL. A DB6NT EME WR-75 waveguide preamp and waveguide switch completed the core setup. In light of experimentation purposes, we had a dual SDR setup RX only. Listening through a SDR-RTL dongle at 144MHz and a Flex1500 at 44MHz, all this audio was connected to an audio mix table. 31 QSO's were put in the log throughout the contest. Points in the contest: 6.554. Best ODX during the contest was G4CBW in IO83UB which was 639 km away.

There were some real good tropo openings into the UK on Saturday evening. After the contest we learned that we missed GW4DGU which really was a pity. That would have been the (ON4CO) operator's all time DX at 707 KM...

We did manage to work 5 DXCC entities and 15 squares. We just could not get a hold (Nationally) on the first place with only minor difference in points as opposed to second place.

24-10-5.7 GHz Antenna Mast



10GHz Shack

24 GHz:

On 1,2cm we used the same Elecraft KX3 as on 6cm with a DB6NT transverter and 4 Watts of output power into a 40cm antenna. In total 5 QSO's were made. For the uninitiated, make no mistakes, a QSO on 1,2cm might take 15 minutes to successfully land it in the log. Points in the contest: 490.

Best ODX during the contest was PE1MMP in JO21VT which was located 145 km away. We worked 2 DXCC entities and 2 squares. Also first place on this band.

QSL Card:

The QSL card, which was drafted for the occasion, shows our line-up on top of the Baraque Michel. We will automatically send our QSL card to all worked stations (collector's item, HI).



An inherent aspect of microwave contesting is the absolute necessity of appropriate talk-back channels be it inter-shack or with your potential counter station. During the contest, we were available on KST, Skype (search for OT5A bands) and RF frequencies on 144.175 MHz & 432.350 MHz. The latter probably will be phased out next time as no QSO leads were generated this way. We had both horizontal and vertical yagi's for 70cm as well as 2m with dedicated equipment permanently on-line, but all to no avail. Decommissioning it will save us on weight and shack space.

Besides some real good tropo scatter into the UK on Saturday evening (mainly on 10 GHz) there were, unfortunately, no other exotic propagation conditions experienced. We would have welcomed some rain scatter (for once, it DID NOT rain during the contest...) or even tropospheric ducting would have been top! There was this 1.000 km champagne bottle (sponsored) on stake, but we had to take it back home...

There is enough enthusiasm and energy for the current group to go on and we are really looking into setting up a joint effort such as this one, once a year and preferably in October. Nevertheless, it is well possible that some single band stations can participate in one-off contests throughout the year for testing purposes or simply for the fun of it (consistent call sign not guaranteed during the course of the year, but OT5A/P will be used for the October contest). Our modular approach to our multi-station certainly supports it. One thing's for sure, there will be some renewed activities from OT5A on these bands!



OT5A Sunset



Power Generation



Portable Contesting – 10GHz

To whom it might interest, participants included: ON8WR, ON8PZ, ON8PTZ, ON7UN, ON6VJ, ON5DM, ON4SH, ON4CO, ON4CCM, ON4CCL, ON4BCB, ON4AML and ON3SWY. Of course, there were many more helping hands before and during the contest, listed are only OM's participating in the contest itself.

We would be most happy and thrilled to work your station during the next October contest on UHF or up. We encourage and challenge you... If you are a novice to the microwave space or have questions please feel free to reach out.

73 from the OT5A/P Contest Team.

Heelweg Microwave Meeting 2016

NB The location for the "Heelweg Treffen" will change in 2016 – we are going back to Heelweg city.

Map <https://goo.gl/maps/nT8Q5ovRNrQ2>

De Radstake <http://www.radstake.nl>

HEELWEG MICROWAVE MEETING 2016

**SATURDAY
JANUARY 23rd 2016**

NEW LOCATION:

ZALENCENTRUM "DE RADSTAKE"
TWENTE-ROUTE 8
7055 BE HEELWEG

INFO@PAMICROWAVES.NL

PE1FOT/PA7JB/PA3CEG/PA0BAT

GW4DGU Ceases Making 10GHz Transverter System Components

For some time my range of system components for a high performance 10GHz Transverter has been available only by 'special order'. Sadly, I've recently had to take the decision to completely stop their production. The reasons for this can be resolved into three basic factors: component availability, insufficient interest, and a lack of time.

One of the problems making equipment for our bands above 5.6GHz is that there are few large quantity applications, such as mobile communications, which provide a source of suitable components which can be mined for our purposes. That means that suitable modern devices like power amplifiers, and even low-power gain-block MMICs suitable for our purposes tend to be very expensive. It requires a certain amount of engineering cunning to find ways around this. The use of surplus NOS parts isn't really an option. Even current components can disappear overnight. The major blow to the transverter system components came when the manufacturer suddenly discontinued the 2W PA device. There was, and is, no direct replacement for this part, and a work-around would have required a major revision of two boards which couldn't be justified.

Although the project originally generated quite a lot of interest, that wasn't reflected in sales. I designed the range for automated assembly, as that was the only way of reducing the costs to a sensible level, however, in practice, the interest simply didn't justify the investment.

This was a hobby project which I did primarily because it provided some interesting technical challenges. It hasn't, contrary to rumour, made me rich! Quite the opposite. There is a limit to the amount I can afford to spend on effectively subsidising other people's projects. For the next three years, I'll support those boards I've already sold, but I won't be making any more. Although in the future I may consider other microwave equipment as 'commercial' projects, for now I've decided to spend what little spare time I have working on my own equipment!

Chris Bartram GW4DGU. 12 January 2016.

UKμG on Social media

Murray Niman G6JYB

A fresh reload of the [UKμG website](#) will show a Media link has been added to the left menu as we now have full Twitter and Youtube channels



PS Our Youtube channels has 47, 76 and 134 GHz videos - I need a decent 24 GHz one please to complete the mmwave set.

UKμG Microwave Contest Calendar 2016

Dates	Time UTC	Contest name	Certificates
6-Mar	1000 - 1600	1st Low band 1.3/2.3/3.4GHz	F, P,L
10-Apr	1000 - 1600	2nd Low band 1.3/2.3/3.4GHz	F, P,L
8-May	0800 - 1400	3rd Low band 1.3/2.3/3.4GHz	F, P,L
29-May	0600 - 1800	1st 5.7GHz Contest	F, P,L
29-May	0600 - 1800	1st 10GHz Contest	F, P,L
5-Jun	1000 - 1600	4th Low band 1.3/2.3/3.4GHz	F, P,L
19-Jun	0900 - 1700	1st 24GHz Contest	
19-Jun	0900 - 1700	1st 47GHz Contest	
19-Jun	0900 - 1700	1st 76GHz Contest	
26-Jun	0600 - 1800	2nd 5.7GHz Contest	F, P,L
26-Jun	0600 - 1800	2nd 10GHz Contest	F, P,L
17-Jul	0900 - 1700	24GHz Trophy / 47 / 76/122-248 GHz	
31-Jul	0600 - 1800	3rd 5.7GHz Contest	F, P,L
31-Jul	0600 - 1800	3rd 10GHz Contest	F, P,L
14-Aug	0900 - 1700	3rd 24GHz Contest	
14-Aug	0900 - 1700	3rd 47GHz Contest	
14-Aug	0900 - 1700	3rd 76GHz Contest	
28-Aug	0600 - 1800	4th 5.7GHz Contest	F, P,L
28-Aug	0600 - 1800	4th 10GHz Contest	F, P,L
11-Sep	0900 - 1700	4th 24GHz Contest	
11-Sep	0900 - 1700	4th 47GHz Contest	
11-Sep	0900 - 1700	4th 76GHz Contest	
25-Sep	0600 - 1800	5th 5.7GHz Contest	F, P,L
25-Sep	0600 - 1800	5th 10GHz Contest	F, P,L
13-Nov	1000 - 1400	5th Low band 1.3/2.3/3.4GHz	F, P,L

Key: F Fixed / home station
 P Portable
 L Low-power (<10W on 1.3-3.4GHz, <1W on 5.7/10GHz)

Contest results are also published online – please follow the link from the UKuG Contests page at:

www.microwavers.org/?contesting.htm

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Events calendar

2016

Jan 23	Heelweg	www.pamicrowaves.nl/
Feb 13	Tagung Dorsten	www.ghz-tagung.de/
Apr 9	CJ-2016, Seigy	cj.ref-union.org/
Apr 16–17	Martlesham Microwave Round Table & UK μ G AGM	
Apr 16–17	IARU-R1, Vienna	
Apr 16–17	EUCARA (European Conference on Amateur Radio Astronomy)	https://www.eucara.nl
Apr 23	RSGB AGM, Scotland	rsgb.org/agm
May 20 – 22	Hamvention, Dayton	www.hamvention.org/
June ?	“RAL” Round Table	
Jun 24 – 26	Ham Radio, Friedrichshafen	www.hamradio-friedrichshafen.de/
July 9–10	Finningley Round Table	
Jul 29 – 31	Amsat-UK Colloquium, Holiday Inn, Guildford	www.amsat-uk.org/colloquium/
Aug 19–21	EME2016, Venice	www.eme2016.org/
Sept 9–11	61.UKW Tagung Weinheim	http://www.ukw-tagung.de/
Sept 18	Crawley Round Table	
Sept 30–Oct 1	National Hamfest	http://www.nationalhamfest.org.uk/
Oct 3 – 7	European Microwave Week, London	www.eumweek.com/
Oct 7 – 9	RSGB Convention	rsgb.org/convention/
Oct 14–15	Microwave Update, Saint Louis, Missouri	http://www.microwaveupdate.org/
Nov 12 (tbc)	Scottish Round Table	http://www.gmroundtable.org.uk/

2017

Jun 23 – 25	Ham Radio, Friedrichshafen	www.hamradio-friedrichshafen.de/
Oct 6 – 8	RSGB Convention	rsgb.org/convention/
Oct 8 – 13	European Microwave Week, Nurembourg	www.eumweek.com/

2018

June 22–24	Ham Radio, Friedrichshafen	http://www.hamradio-friedrichshafen.de/
Sept 23–28	European Microwave Week, Madrid	http://www.eumweek.com/

NB Some of the 2017/18 event links may not be working yet.