



*An Amateur Radio publication for the Microwave Enthusiast*

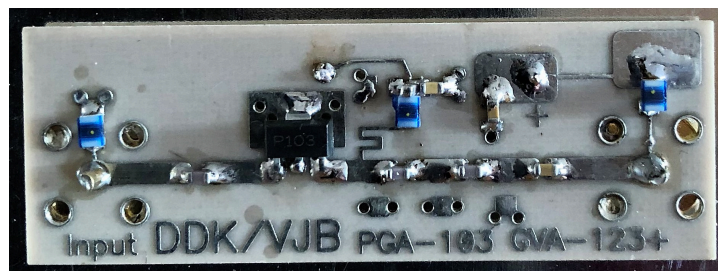
# scatterpoint

**February 2018**

Published by the UK Microwave Group

**A wideband, low noise, amplifier for use with the SDRPlay RSP1, 2 and Pro**

**By G4DDK and WA5VJB**



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## WIKI

New UKμG wiki - <https://wiki.microwavers.org.uk/>

## 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

<https://groups.io/g/Scatterpoint/files> and/or Dropbox. Also, **free access to the Chip Bank**.

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

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

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

## PLEASE QUOTE YOUR CALLSIGN!

Payment can be made by: PayPal to

[ukug@microwavers.org](mailto: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](mailto:editor@microwavers.org)

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

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

Please submit your articles in any of the following formats:

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

**Spreadsheets:** Excel, OpenOffice,  
**Numbers**

**Images:** tiff, png, jpg

**Schematics:** sch (Eagle preferred)

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**

## Reproducing articles from Scatterpoint

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

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

You may not publish Scatterpoint on a website or other document server.

## UKμG Project support

The UK Microwave Group is pleased to encourage and support microwave projects such as Beacons, Synthesiser development, etc. Collectively UKuG has a considerable pool of knowledge and experience available, and now we can financially support worthy projects to a modest degree.

Note that this is essentially a small scale grant scheme, based on 'cash-on-results'. We are unable to provide ongoing financial support for running costs – it is important that such issues are understood at the early stages along with site clearances/licensing, etc.

The application form has a number of guidance tips on it – or just ask us if in doubt! In summary:-

- **Please apply in advance of your project**
- **We effectively reimburse costs - cash on results (eg Beacon on air)**
- **We regret we are unable to support running costs**

Application forms below should be submitted to the UKuG Secretary, after which they are reviewed/agreed by the committee

[www.microwavers.org/proj-support.htm](http://www.microwavers.org/proj-support.htm)

## UKμG Technical support

One of the great things about our hobby is the idea that we give our time freely to help and encourage others, and within the UKuG there are a number of people who are prepared to (within sensible limits!) share their knowledge and, what is more important, test equipment. Our friends in America refer to such amateurs as “Elmers” but that term tends to remind me too much of that rather bumbling nemesis of Bugs Bunny, Elmer Fudd, so let's call them Tech Support volunteers.

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

Please understand that you, as a user of this service, must expect to fit in with the timetable and lives of

the volunteers. Without a doubt, the best way to make people withdraw the service is to hassle them and complain if they cannot fit in with YOUR timetable!

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

If anyone would like to step forward and volunteer, especially in the regions where we have no representative, please email [john@g4bao.com](mailto:john@g4bao.com)

The current list is available at

[www.microwavers.org/tech-support.htm](http://www.microwavers.org/tech-support.htm)

## UKμG Chip Bank – A free service for members

**By Mike Scott, G3LYP**

Non members can join the 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 is 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 76p.

Minimum quantity of small components supplied is 10.

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.

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. **Or come to the Martlesham Round Table!**

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.

The catalogue is on the UKμG web site at [www.microwavers.org/chipbank.htm](http://www.microwavers.org/chipbank.htm)

# Chairman's thoughts on Martlesham Microwave Round Table

**Sam Jewell G4DDK**

With the Microwave Round Table season about to kick off for 2018, the Martlesham event is the first that I attend. As one of the organisers I have to!

Each year we try to find interesting subjects for the talks. this year the talks include John, G3XDY, talking about Airscout, John, G4BAO, talking about 'Digifest' and either Dave G8GKQ, or Noel, G8GTZ, talking about 5.7GHz ATV. At this time we are still seeking confirmation about the fourth talk.

You may have heard that the Bawdsey Radar transmitter museum has been extensively refurbished and is now a really excellent exhibition about wartime radar. many of the exhibits and sound effects are outstanding. We have been granted a special visit by the trustees as a results of several G4MRS members being involved in the refurbishment. The visit is arranged for the Saturday afternoon. For those who do not wish to visit Bawdsey the usual attractions of flea market, measurements and chat area will be available. As a passing comment, you will see where the Anglian 1 wind turbine electricity cables come ashore and then wind their way under the river Deben on their 37km cross-country journey to Bramford grid interconnect.

Saturday evening's dinner is at the Holiday Inn, Copdock. We have been there before, when the usual hotel has not been available.

Full details of the Martlesham Microwave Round Table, together with registration, can be found by following the events link from [UK Microwave Group - UKuG](#)

## Backscatter is now online

Backscatter, our classic 400+ page publication of technical articles for microwave amateur radio enthusiasts, is now available as a set of free pdfs at <http://www.microwavers.org/?backscatter.htm> - I broke the master pdf into smaller chapter chunks

It derives from 1999-2006 Scatterpoint articles, so there could be scope for a follow-on from subsequent ones.

## Backscatter 2

I'm (slowly) working on Backscatter 2, which will cover technical articles from 2007 to ~2014 (depending on the resulting pdf file size!). Breath-holding is not recommended.

**Martin G8BHC**

## UK Microwave Group Loan Equipment

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

5.7GHz

10GHz

24GHz

76GHz

**Contact John G4BAO for more information. Articles coming soon!**

## Silent Key: Peter Horbaczewskyj G4ZXO

**From Denis Stanton G0OLX**

Peter passed away on Monday 5th February 2018.

Peter has suffered from Neurological incidences for some time, the most recent in January 2017 which left him in a coma, and although he regained some minimal level of consciousness, he never really recovered.

He was active on 5.7 10 and 24 GHz and enjoyed participating in the cumulative contests for many years with Jim G4WYJ and other helpers who were always on hand to get the equipment and tent onto Ditchling Beacon.

His construction of microwave equipment was envied by many, including myself.

Funeral was on 20 Feb. Peter G4ZXO RIP

# A wideband, low noise, amplifier for use with the SDRPlay RSP1, 2 and Pro

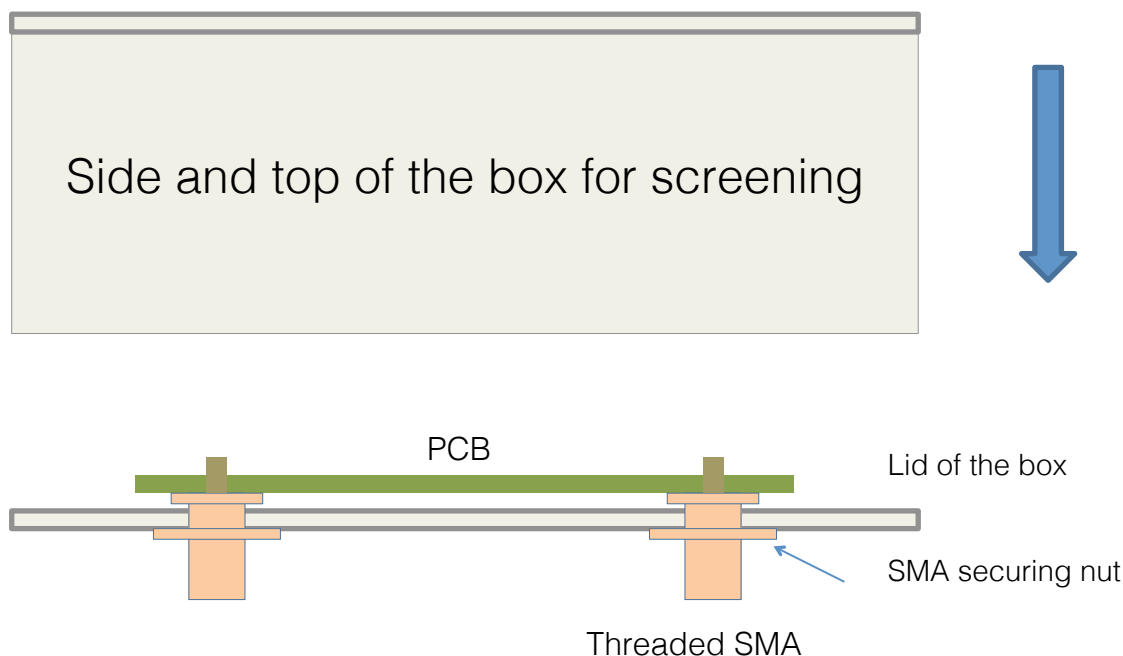
by G4DDK and WA5VJB

## Introduction

Recently I upgraded from an SDRPlay RSP1 to an RSP2A. One of the attractive features of the new SDR is that it has three switchable antenna inputs. One of these features a software-enabled bias tee for powering an LNA or small relay. The output voltage from the bias tee is 4.7V at up to 100mA.

Since my WA5VJB wideband log periodic yagi (325MHz to >2GHz) is located on a tripod in the loft I have a fairly long antenna connection back to the RSP2A in the shack. The RSP2 4.7V is meant to power a low noise amplifier (LNA) that has sufficient gain to overcome the coax feeder loss. But, which LNA to use?

Since I have a fairly large range of LNAs to choose from, most of which require 4.5 - 5V, I tried a few different ones. The one I chose is based on one of the PGA103 amplifier PCBs from WA5VJB. The board material is Arlon or fibre glass and it accepts O603 size components. One of the (several different) PGA amplifier boards has two SMA connectors. It seemed obvious to use the same arrangement as I use for the PGA144 and 432 preamps ([www.g4ddk.com/products/](http://www.g4ddk.com/products/)), i.e. mount the SMA connectors through the box lid and use the remaining part of the box for screening. This arrangement gives a strong, screened and stable LNA.



## Circuit

This is straightforward and consists of a PGA103+ MMIC with a well decoupled drain bias choke, broadband capacitor decoupling. A leaded  $4.7\Omega$  resistor provides a degree of short circuit protect in the event that the MMIC fails short circuit, whilst minimising the volts drop to the MMIC. An SMD choke (inductor) taps the coax supply off to the bias supply line.

Another choke across the input rolls off the gain below 100MHz.

The gain of the LNA measures 24dB at 144MHz, 22dB at 432MHz, and 13dB at 23cm, with measured noise figures of 0.5dB, 0.55dB and 0.75dB respectively. Although the LNA still has acceptable gain at 13cm, the bias component values are not optimum above about 1GHz and the RSP2A is limited to 2GHz anyway!

You will notice that the PCB is marked as suitable for the similarly packaged (89 package) GVA123. This device is available from Minicircuits and is specified to over 8GHz and in fact still gives effective gain at 10GHz. This device has not been tried at this time. It should only be used on the Arlon board if the best performance is to be obtained.

The PGA LNA schematic diagram and component overlay (not to scale) are shown in figures 1 & 2.



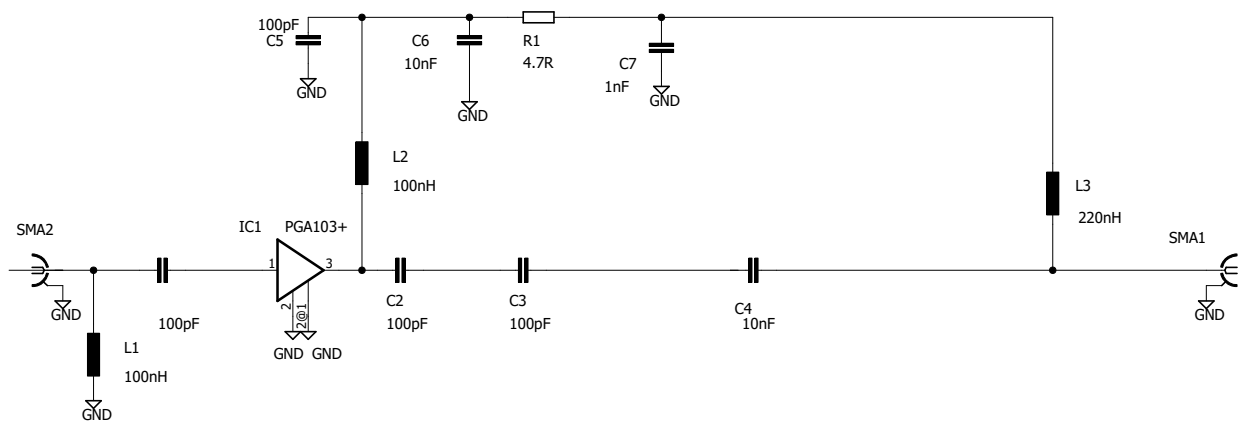


Figure 1: PGA LNA schematic diagram

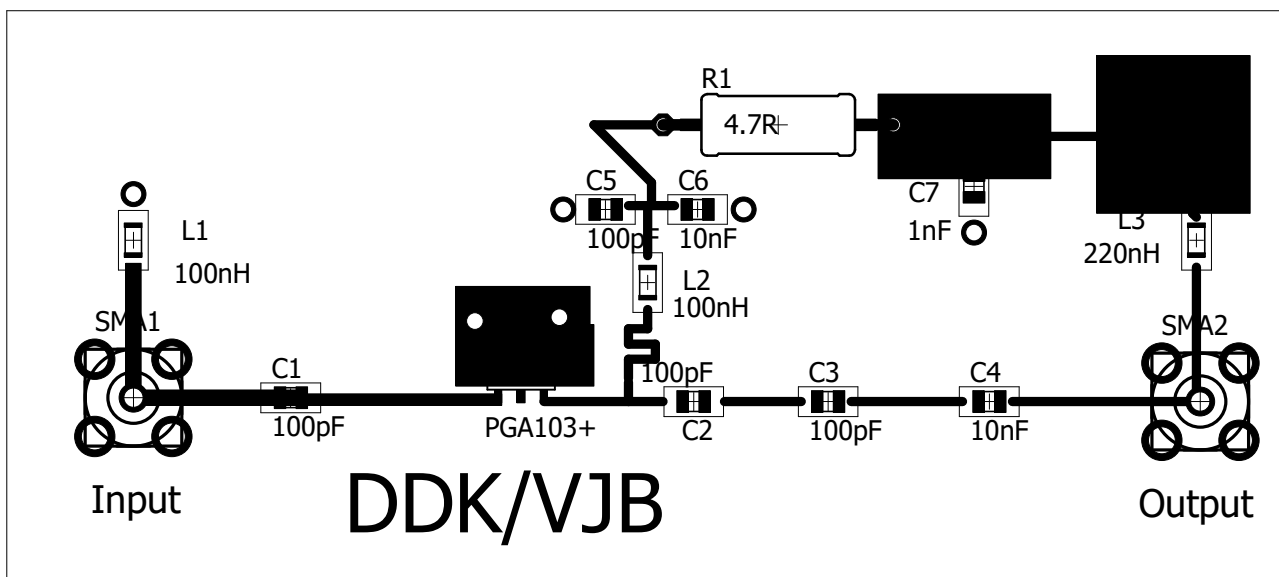


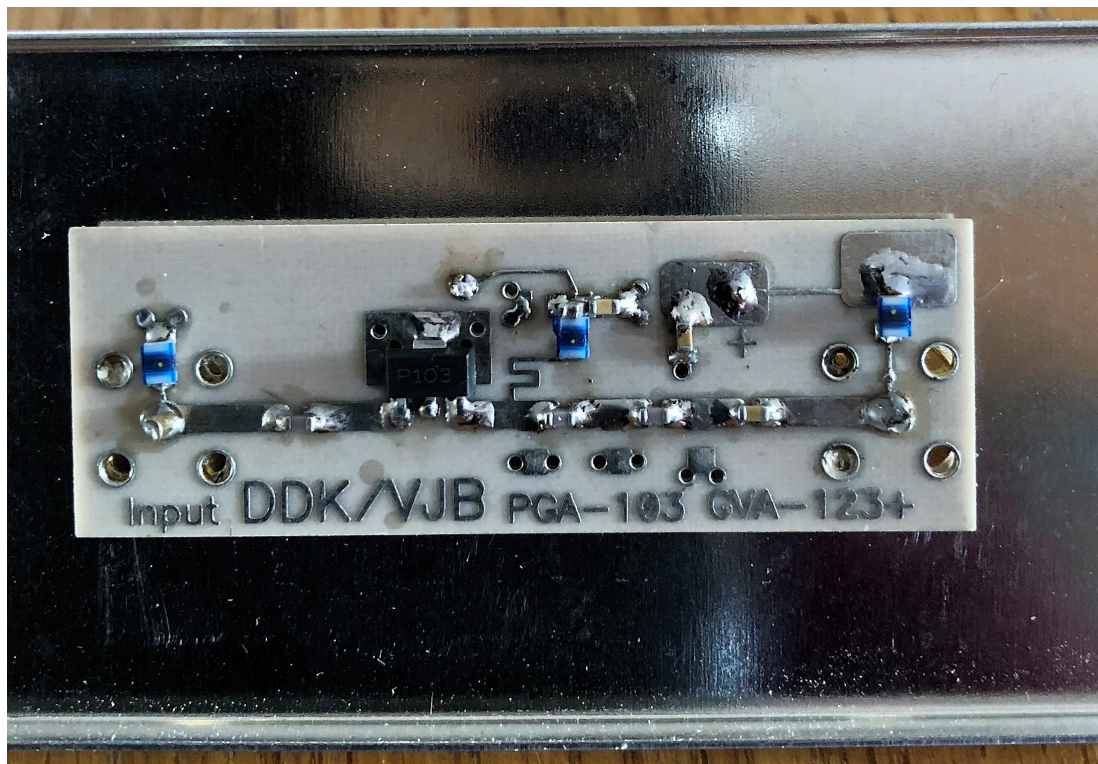
Figure 2: The component overlay (not to scale)

No kits are being offered for the LNA, as all parts are easily obtained from Farnell , MCL and a number of other component distributors.

However, the PCB will be available. at the time of writing WA5VJB is having a new batch of boards made and these should be available at the Martlesham Microwave Round Table and from G4DDK afterwards. PGA103+ devices may also be available. The tin plate boxes are 37x55x30mm and available from G3NYK.

## Components and suppliers

Component	value	Package	Supplier
R1	4.7Ω	1/4W leaded	Farnell
C1, 2, 3	100pF	0603	Farnell
C4, 6	10nF	0603	Farnell
C7	1nF	0603	Farnell
L1, 2	100nH	0603	Farnell
L3	220nH	0603	Farnell
IC1	PGA103+	89	MiniCircuits Ltd
SMA1, 2		Bulkhead mounted, threaded	Farnell, G4DDK
PCB			G4DDK
Box			G3NYK



## SDRuno

The 'native' software for the RSP range is SDRuno. Although I found the initial SDRuno software somewhat clunky, the latest version is a great improvement. The ability to select either a lower VHF band antenna on Ant A or the wideband antenna on Ant B, together with control of bias tee on or off is really useful and highly recommended for band monitoring.





# From the Archives: Use of reflectors on 10GHz

C D Higgins G3NAQ

7th Microwave Newsletter 0181

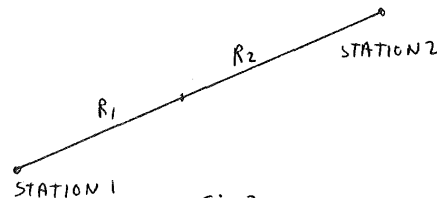
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## USE OF REFLECTORS ON 10 GHz

The short wavelengths, narrow beam widths, and increasingly sensitive narrowband equipment at 10 GHz makes reflection from objects to span difficult paths a viable proposition. Examples were quoted at the Martlesham Microwave Round Table (19 October 1980) by G3WDG, viz. successful contacts being made via Didcot power station cooling towers and via Fawley oil tanks. Successful tests have also been reported by F1AQS, who also attempts to estimate the field strengths to be expected (DUBUS 4-79 pp.260-2). I hope that the following observations are of interest.

Contrary to what one might guess, the optimum position for a reflector is near one station or the other, and the worst place is midway along the path. This follows firstly from the inverse square law of signal strength; consider the direct path over a distance  $D=R_1 + R_2$ , where  $R_1$  and  $R_2$  are the distances from each station to the reflector (fig. 2). Then the received power is proportional to:

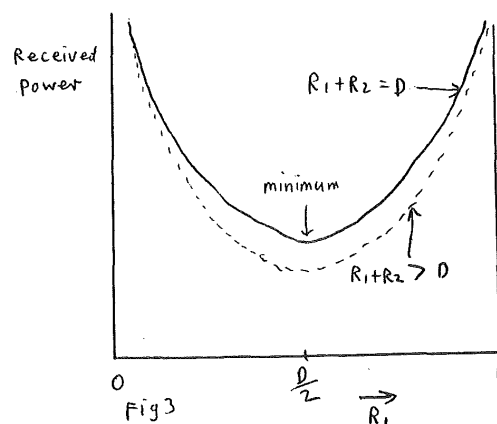
$$\frac{W \cdot r}{R_1^2 \cdot R_2^2} \\ = \frac{W \cdot r}{R_1^2 \cdot D^2 + R_1^4 + 2 R_1^3 \cdot D}$$



where  $W$  is the ERP of the transmitting station and  $r$  is the reflection coefficient of the reflector in the appropriate direction. One can show that this function has a minimum at  $R_1=R_2$ . Obviously if the reflection point is away from the direct path,  $R_1 + R_2 > D$ , and the received signal strength is even weaker (fig. 3).

A second consideration is the "aspect" of the reflector, i.e. the greatest possible area must be visible from both stations. For a cylindrical reflector, assuming that the reflection coefficient does not change with angle, the reflected power falls off as cosine (reflected angle/2), merely from the aspect (fig. 4). Obviously objects irregular in shape will have a much more complicated field pattern, but will also be less likely to give useable signal strengths.

In conclusion, therefore, objects to look for as candidate reflectors should be nearby one of the stations, and preferably away from or in the opposite direction of the direct path, to reflect the strongest signal and present the largest aspect to both stations. Of course, to some extent



these considerations will conflict with the requirement that the reflection spans some intermediate obstacle - and often there will be no choice in the matter! To demonstrate that these considerations do, in fact, hold, I will finally quote two examples; first, the flyswatter antenna is just such a nearby reflector which involves no loss (if it is big enough); secondly, it is common experience that the ghost images on TV sets arise from local buildings, not ones many miles away.

PS. Remember polarization can be modified on reflection - it may be worth rotating one of the antennas to optimise signal strengths.

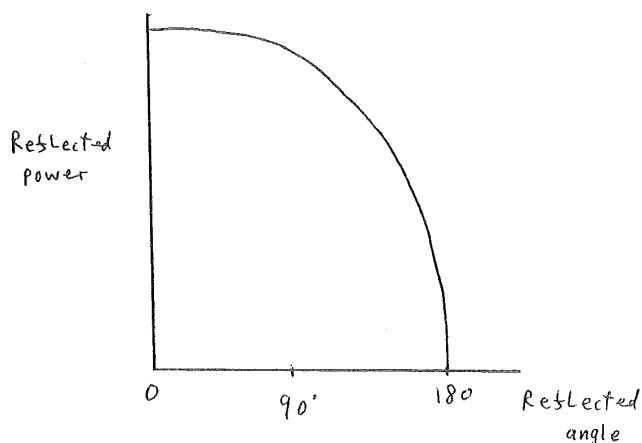


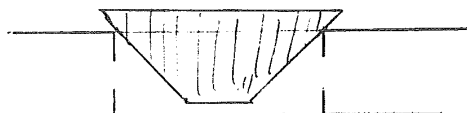
Fig 4

1) Tapered block inserted in waveguide before soldering



2) Tapered block inserted (top face of guide removed.)

top of guide



3) (Avoids machined block)



shaped notch cut in waveguide (Through both side walls, and the top face removed. Copper foil is then laid along the trough, to form the top wall of the tapered waveguide section.

Fig 1b

# Martlesham Microwave Round Table 2018 & UKμG AGM

The event will open at lunch time on Saturday 14th April and close at 16:00 on Sunday 15th April.

## Saturday 14th April 2018

- 10:00 Breakfast at Orwell Truck Stop, A14.
- 12:00 Doors Open  
Refreshments available from 12:00 (drinks, biscuits & sandwiches)
- 13:00 Welcome & opening
- 13:15 Measurements lab
- 13:45 Depart for Bawdsey\*
- 14:30 Bawdsey Radar Museum Visit
- 16:00 Depart Bawdsey
- 16:30 Measurement lab closes
- 19:30 Meet for Dinner at 20:00

\* Details of access to Bawdsey on Saturday will be posted later for those who indicate that they are attending

## Sunday 15th April 2018

- 09:00 Doors Open
- 09:50 Welcome and Opening
- 10:00 UK Microwave Group AGM, Trophy Presentations
- 10:45 Refreshments & Judging of the Construction Contest
- 11:00 Talk 1: John, G3XDY, talking about Airscout
- 11:45 Talk 2: John, G4BAO, talking about 'Digifest'
- 12:30 Lunch Break
- 13:30 Talk 3: Dave G8GKQ, or Noel, G8GTZ, talking about 5.7GHz ATV
- 14:15 Talk 4: TBA
- 15:00 Refreshments
- 15:15 UKuG Contest Forum – John G3XDY
- 16:00 Close

NB Order of talks may change.

## Visit

Some 12 years ago there was a visit to Bawdsey Radar by attendees of the MMRT. Over the past two years over £1.5m has been spent refurbishing the site and the exhibition and we have a further opportunity for a private visit on the Saturday afternoon. To quote from the web site, the exhibition now includes

- The story of radar – stroll between interactive exhibits that bring the history of radar to life
- Keeping the secret – introducing the people who made Bawdsey radar possible.
- Timeline wall – radar from 1935 to the present day
- Aircraft tracking with WW2 radar – a simulation experience
- A history of the Bawdsey Estate over the last 130 years
- Air traffic control – a real-time illustration of the power of radar
- Radar today – from the exploration of Saturn's rings, to satellites and medical scanners
- Independent research – a dedicated focus space in which you can explore our extensive technical archive

The web site is at <https://www.bawdseyradar.org.uk/>

We have negotiated a small discount on the entry charge which will be payable on the day. We are currently scheduling to be at the site at 2.30pm. Details of access to Bawdsey on Saturday will be posted later for those who indicate that they are attending.

Please book for this visit on the Registration Page.

## Accommodation

Accommodation has been arranged at the Holiday Inn Ipswich, London Road, Ipswich IP2 0UA. Double or twin rooms are available for £65 per room per night, including full English breakfast. Please contact the hotel direct to reserve a room on +44 (0) 1473 786700 quoting reference MG1.

## Location

The talks will take place at the BT Adastral Park site at Martlesham, Ipswich, in the Antares Building Foyer and Crucible lecture theatre.

Test gear will be located in a nearby room, and the flea market will take place in the Foyer.

Refreshments will be served on the first floor balcony.

Adastral Park is just off the A12 to Lowestoft to the East of Ipswich. From the Holiday Inn Ipswich follow signs for Felixstowe initially and then take the A12 signposted to Lowestoft at Junction 58. Adastral Park is right at the second roundabout on the A12.

Postcode to follow is IP5 3RF

Details of access to Bawdsey on Saturday will be posted later for those that indicate that they are attending.

## Test Gear

A range of test gear will be available including:

- Noise figure to 10GHz

- Network Analysis (scalar) to 6GHz

- Power measurement to 18GHz

- Spectrum analysis to 22GHz

Further capability may be added later – watch the website.

## Chip Bank

Mike will be there with his stock.

## Dinner

An informal dinner will take place at the Holiday Inn Ipswich at 1930 for 2000 in the Wolsey Room. The cost will be £25 per person, please book and select your menu choices on the booking page.

### Starters

- Honey Roasted Carrot and Parsnip Soup

- Prawn and Crayfish Cocktail with Marie Rose Sauce

- Brussels Pate with Onion Chutney and Toasted Ciabatta

### Main Courses

- Pan Fried Breast of Chicken with a Red Wine Jus, with roasted potatoes and roasted root vegetables

- Grilled Smoked Cod Loin with Beetroot, Sauteed New Potatoes and Samphire

- Spinach and Ricotta Cannelloni with Garlic Ciabatta and Roquette and Parmesan Salad

### Desserts

- Homemade Chocolate Brownie with Chocolate Sauce and Vanilla Ice Cream

- Sticky Toffee Pudding with Toffee Sauce and Caramel Ice Cream

- Vanilla Bean Panna cotta with Coffee Syrup and Chantilly Cream

- Tea and Coffee

## Book here

<http://mmrt.homedns.org/index.php/book-here/>

## Contact

Please contact John Quarmby G3XDY for all queries.

Email: [g3xdy@btinternet.com](mailto:g3xdy@btinternet.com)

Phone: +44 (0)1473 717830



## UKμG Notice: 2018 Annual General Meeting

Notice is hereby given that the 2018 Annual General Meeting of the UK Microwave Group will be held at 10:00am on Sunday, 15 April 2018 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.

All Committee officers/members are prepared to stand again, however, new members would be very welcome.

Any UKμG member wishing to stand should notify the UKμG Secretary, John Quarmby G3XDY, by 11th March 2018.

If you have any agenda or AOB items for the AGM then please contact the UKμG Secretary, John Quarmby G3XDY by 11th March 2018, email: [secretary@microwavers.org](mailto:secretary@microwavers.org)

## UKμG Microwave Contest Calendar 2018

Dates 2018	Time UTC	Contest name	Certificates
4-Mar	1000 - 1600	1st Low band 1.3/2.3/3.4GHz	F, P,L
8-Apr	1000 - 1600	2nd Low band 1.3/2.3/3.4GHz	F, P,L
6-May	0800 - 1400	3rd Low band 1.3/2.3/3.4GHz	F, P,L
20-May	0900 – 1700	1st 24GHz Contest	
20-May	0900 – 1700	1st 47GHz Contest	
20-May	0900 – 1700	1st 76GHz Contest	
27-May	0600 - 1800	1st 5.7GHz Contest	F, P,L
27-May	0600 - 1800	1st 10GHz Contest	F, P,L
3-Jun	1000 - 1600	4th Low band 1.3/2.3/3.4GHz	F, P,L
10-Jun	0900 - 1700	24/47GHz Trophy / 76/122-248 GHz	
24-Jun	0600 - 1800	2nd 5.7GHz Contest	F, P,L
24-Jun	0600 - 1800	2nd 10GHz Contest	F, P,L
29 -Jul	0600 - 1800	3rd 5.7GHz Contest	F, P,L
29 -Jul	0600 - 1800	3rd 10GHz Contest	F, P,L
26-Aug	0600 - 1800	4th 5.7GHz Contest	F, P,L
26-Aug	0600 - 1800	4th 10GHz Contest	F, P,L
16- Sep	0900 - 1700	3rd 24GHz Contest	
16- Sep	0900 - 1700	3rd 47GHz Contest	
16- Sep	0900 – 1700	3rd 76GHz Contest	
30 -Sep	0600 - 1800	5th 5.7GHz Contest	F, P,L
30 -Sep	0600 - 1800	5th 10GHz Contest	F, P,L
21 -Oct	0900 - 1700	4th 24GHz Contest	
21 -Oct	0900 - 1700	4th 47GHz Contest	
21 -Oct	0900 – 1700	4th 76GHz Contest	
18 -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)	



# Activity News : January 2018

By Neil Underwood G4LDR

**Please send your activity news to:**

[scatterpoint@microwavers.org](mailto:scatterpoint@microwavers.org)

## Introduction

Band conditions during January appear to have been very poor judging by the comments in the 'claimed scores' section of the RSGB contest entry system for the series of UKAC Tuesday evening contests. I also found conditions poor on most of the times I operated including during the UK microwave Monday evening activity periods. For example my regular contacts with Ralph, G4ALY in Cornwall resulted in very low signal levels. On average the signals on 10GHz are between S7 to S9 on the 200km path. In January however, we were usually scratching around in the noise to make the contact. Despite the poor conditions some DX was worked by tropo and if you want to be immune to tropospheric conditions, DX can be worked via EME as reported below.

## EME Beacon

**Per Dudek DK7LJ**

The beacon will be out of work from today for the next weeks. Charlie G3WDG has donated a 50W PA (tga2312) for the beacon. For that reason I will build up a new 10GHz station. I will inform you when the beacon is up again.

## EME activity

**From John Worsnop G4BAO**

Here's my 23cm log for January including the best of the January contest. 11 DXCCs worked

Date	Time	Call Sign	Mode	Propag.	Dist.(km)
27/01/2018	17:26	UA9FA	JT65	EME	3570
27/01/2018	18:33	LZ4OC	JT65	EME	2212
23/01/2018	17:59	SM7SJR	JT65	EME	1560
24/01/2018	19:35	SP5GDM	JT65	EME	1408
30/01/2018	21:29	IK1FJI	JT65	EME	1079
27/01/2018	17:32	DL7UDA	JT65	EME	910
27/01/2018	22:11	HB9Q	JT65	EME	798
16/01/2018	21:43	DF9IC	CW	AS	704
23/01/2018	17:40	DLØSHF	CW	EME	696
16/01/2018	20:54	DF2VJ	SSB	AS	574
16/01/2018	21:24	GI6ATZ	SSB	TR	472
16/01/2018	20:49	DK2MN	SSB	TR	466
23/01/2018	18:45	PA3FXB	JT65	EME	458
10/01/2018	20:02	PA2GP	JT9F	AS	441
30/01/2018	21:52	F1RJ	JT65	EME	406
16/01/2018	21:13	PAØS	SSB	TR	390
16/01/2018	21:04	PA5Y	SSB	TR	390
16/01/2018	22:10	GD8EXI	SSB		386

The DX is there, you just have to be active and have the right station to work it!

All the EME QSOs were random.

## .....and finally

The deadline for activity reports to be included in the next issue is Thursday 1st March 2018.

# Wimo 23cm antenna problem

**Richard Bown**

I've found a flaw in the driven element used on the Wimo 23 cm antennas.

This uses a solid copper folded dipole which is enamel coated.

When the UT141 balun is attached to the dipole it looks as if a small groove is cut in the enamel coated copper of the dipole and the inner of the UT141 is wrapped around and soldered.

I found, after 10 maybe 15 years of being up in the air getting vibrated by the wind, the dipole cracks at this point.

It's not obvious to look at – the area is covered by silicone sealant and doesn't alter the return loss, which it should. That maybe due to capacitive coupling.

It does alter the performance of the antenna, which is very noticeable. It is a pig to find.

Easy to fix, just clean up all the surfaces and re-solder

## EME 2018: FINAL CALL FOR PAPERS



With 6 months to go until EME 2018 I want to invite you to submit papers and presentations for the conference.

This time we will have three ways of sharing your information with the participants.

1. The classical presentation of about 30 minutes in the main conference room. Slides, small movies and sound examples can be presented during such a presentation.
2. Poster presentations. This is a way of presenting your story/information on a big piece of paper (the poster). Those posters will be on the wall of the conference room during the whole conference so everybody can have a look and read your information anytime they like.
3. Table top presentations. You are behind a table, presenting your information, showing your stuff on the table before a relatively small but highly interactive audience.

You choose when, for how long or how many times you want to do such a presentation. It's all up to you.

We would like to try these three ways of communication because not all subjects are suited for a full size classical presentation. Yet they might be very interesting for a poster or a table top presentation. And not everybody is happy to tell his story for a big audience. Using these three ways of communication gives you the opportunity to choose the way that suits you and your subject the best.

For now it's good enough to send me an abstract.

The deadline for abstracts is April 2018. The deadline for the full presentations is June 2018

Please send your contributions to [jvm\(at\)netvisit.nl](mailto:jvm(at)netvisit.nl) or [janvmu\(at\)gmail.com](mailto:janvmu(at)gmail.com)

See you in the Netherlands at EME 2018!

**73! Jan PA3FXB (team PI9CAM)** [www.eme2018.nl](http://www.eme2018.nl)

## OK EME seminar

On 6th to 8th of April 2018 will be the 28th OK EME and MW seminar at hotel ASKINO– Horník (between Prague and Brno). If you have any question about, please send me direct email.

<http://www.vhf.cz/seminar-2018-eng/>

Zdenek - OK1DFC [ok1dfc@seznam.cz](mailto:ok1dfc@seznam.cz) [www.ok1dfc.com](http://www.ok1dfc.com)

## Laugharne Amateur Radio Rally

10:00 Saturday 24 March 2018

Laugharne Memorial Hall, Carmarthenshire SA33 4QH

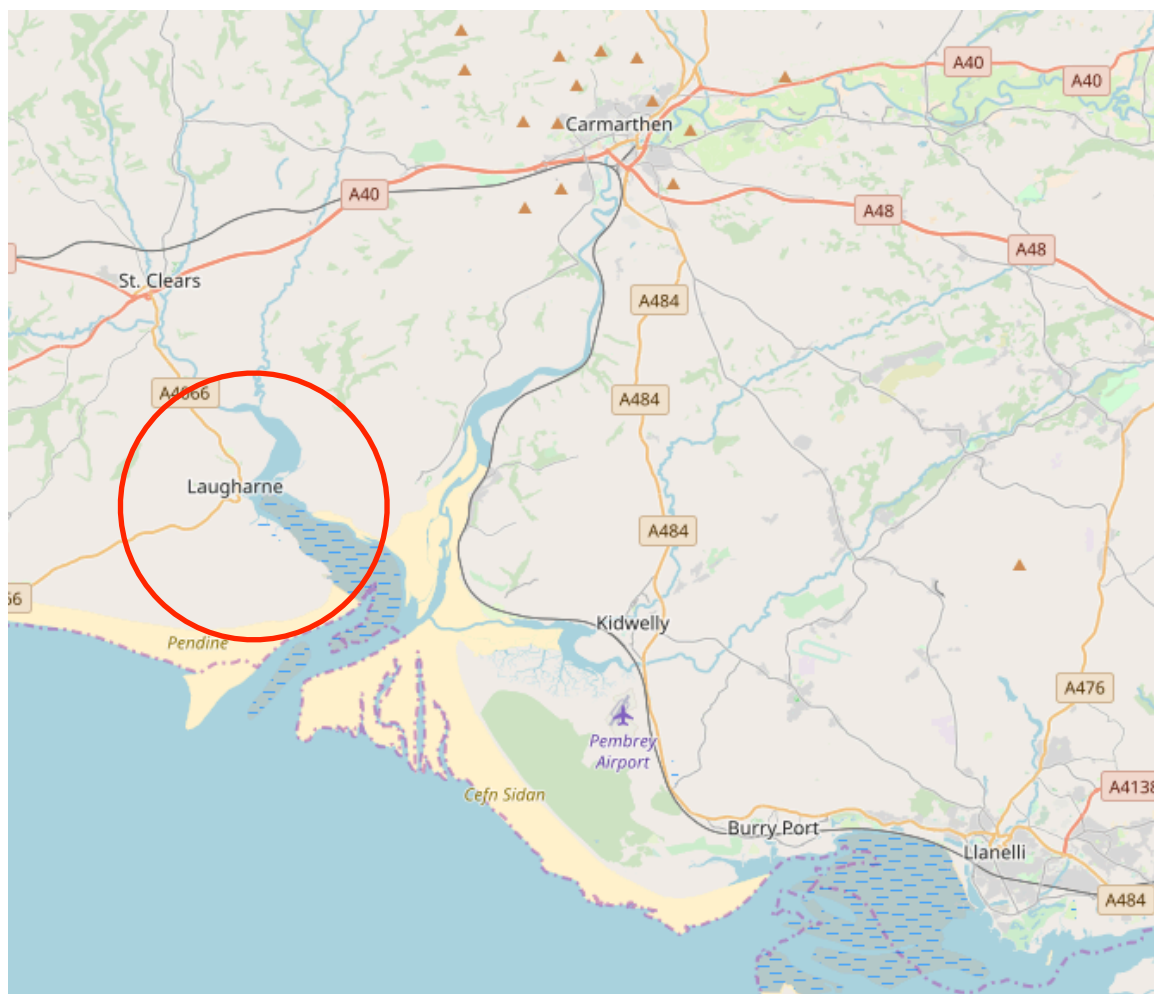
This year includes a series of short talks entitled

“Getting started on 10GHz...”

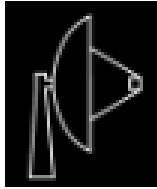
Starting at 1000 promptly featuring:

- Chris Bartram, GW4DGU, “...what you can work on 10GHz from SW Wales.”
- Derek Kozel, MW0LNA, “...bits to volts: transmitting and receiving with a software defined radio. An introduction to the GNU radio toolkit with over the air demos of transmit and receive.”
- Peter Harston GW4JQP, “...a low cost 10GHz receiver.”
- Plus an update on the GB3RPE beacon project and displays of equipment.

Places are strictly limited, so please register interest with Peter GW4JQP, [pharston@gmail.com](mailto:pharston@gmail.com)







# MICROWAVE UPDATE 2018

Fairborn, Ohio (near Dayton)

October 11-14, 2018

**An international conference dedicated to microwave  
equipment design, construction, and operation.**

The focus is on, but not limited to, amateur radio on the microwave bands.

The Midwest VHF/UHF Society is pleased to host this October 2018 event.

Registration & Conference Updates: [www.MicrowaveUpdate.org](http://www.MicrowaveUpdate.org)

(Check the website periodically for updates.)

Location: Holiday Inn Dayton/Fairborn I-675

Seminar Presentations

Antenna Gain Measurements

Door Prizes

Test & Measurement Lab

Flea Market

Banquet

Vendor Demo/Sales Area

Tour: Carillon Historical Park

Tour: Voice of America Museum

Tour: US Air Force Museum

**Microwave Update is an ARRL technical conference. ARRL publishes the  
conference proceedings.**

Save the Date, make plans to attend, and help spread the word to others  
who might be interested.

Further info: Tom Holmes (MUD 2018 General Chair) at [n8zm@mvus.org](mailto:n8zm@mvus.org).

Joe Burke, WA8OGS

Publicity

The Midwest VHF/UHF Society is looking forward to welcoming you to  
Dayton for MUD 2018.

# Events calendar

## 2018

January 13	Heelweg	<a href="mailto:info@pamicrowaves.nl">info@pamicrowaves.nl</a>
February 9–11	Hamcation, Orlando, Florida	<a href="http://www.hamcation.com">www.hamcation.com</a>
February 17	Tagung Dorsten	<a href="http://www.ghz-tagung.de/">www.ghz-tagung.de/</a>
March 24	Laugharne Rally ( <a href="#">see p15</a> )	Peter Harston GW4JQP, <a href="mailto:pharston@gmail.com">pharston@gmail.com</a>
April 6–8	OK EME and MW seminar	<a href="http://www.vhf.cz/seminar-2018-eng/">http://www.vhf.cz/seminar-2018-eng/</a>
April 7	CJ-2018, Seigy	<a href="http://cj.r-e-f.org">http://cj.r-e-f.org</a>
April 9–13	EuCAP 2018	
	European Conference on Antennas and Propagation, London	<a href="http://www.eucap2018.org">www.eucap2018.org</a>
April 14–15	Martlesham Round Table / AGM	<a href="http://mmrt.homedns.org/">http://mmrt.homedns.org/</a>
April 21	RSGB AGM, Birmingham	<a href="http://rsgb.org/agm">http://rsgb.org/agm</a>
May 18–20	Hamvention, Dayton	<a href="http://www.hamvention.org/">www.hamvention.org/</a>
June 1–3	Ham Radio, Friedrichshafen	<a href="http://www.hamradio-friedrichshafen.de/">www.hamradio-friedrichshafen.de/</a>
June 17 (tbc)	RAL	
July 7–8	Finningley RT	<a href="http://www.g0ghk.com/">www.g0ghk.com/</a>
August 17–19	EME2018, Egmond aan Zee, NL	<a href="https://www.eme2018.nl">https://www.eme2018.nl</a>
Sept 7–9	63.UKW Tagung Weinheim	<a href="http://www.ukw-tagung.de/">http://www.ukw-tagung.de/</a>
Sept 23–28	European Microwave Week, Madrid	<a href="http://www.eumweek.com/">www.eumweek.com/</a>
Sept 28–29	National Hamfest	<a href="http://www.nationalhamfest.org.uk/">www.nationalhamfest.org.uk/</a>
Oct 11–14	Microwave Update, Fairborn, Ohio USA	<a href="http://www.microwaveupdate.org/">http://www.microwaveupdate.org/</a>
Oct 12–14	RSGB Convention & AMSAT Colloquium	<a href="http://rsgb.org/convention/">http://rsgb.org/convention/</a>

## 2019

May 17–19	Hamvention, Dayton	<a href="http://www.hamvention.org/">www.hamvention.org/</a>
June TBA	Ham Radio, Friedrichshafen	<a href="http://www.hamradio-friedrichshafen.de/">www.hamradio-friedrichshafen.de/</a>
Sept 15–20	European Microwave Week, Utrecht	<a href="http://www.eumweek.com/">www.eumweek.com/</a>

*NB Some of the 2018/19 event links may not be working/updated yet.*

## 80m UK Microwavers net

**Tuesdays 08:30 local on 3626 kHz (+/- QRM)**

**73 Martyn Vincent G3UKV**

### EME 2018: Booking

The website <http://eme2018.nl/> is online. Booking now open! Email [info@eme2018.nl](mailto:info@eme2018.nl) to register interest and for updates.

There's also a Facebook page:

<https://www.facebook.com/EME2018/>

**73!**

**Jan PA3FXB (team PI9CAM) team EME 2018**

### Editor's note

The index to the 2017 volume of Scatterpoint is now available, plus the revised full index as an xlsx spreadsheet. Download from

<https://groups.io/g/Scatterpoint/files/>

Scatterpoint archive for 2016 has been released on the website at [www.scatterpoint.org](http://www.scatterpoint.org)

Please add the AGM and MMRT date (14-15 April) to your 2018 diary.

**73 de Martin RH G8BHC**