



An Amateur Radio publication for the Microwave Enthusiast

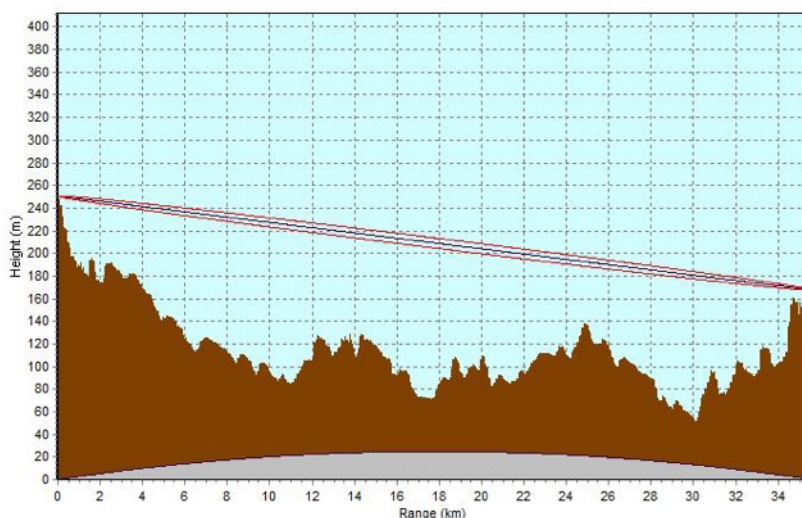
scatterpoint

February 2016

Published by the UK Microwave Group

**New 134GHz UK distance
record**

Ian Lamb G8KQW



In this Issue

UK Microwave Group Contact Information	2
Subscription Information.....	3
UK μ G Chip Bank – A free service for members	4
UK μ G Project support.....	4
UK μ G Technical support.....	4
AGM Notice	5
Martlesham Round Table and UK μ G AGM.....	6
This month I 'ave mostly been building... ..	7
Loan Equipment	7
ACPR measurements on G4BAO's 2.5W 23cm LDMOS driver amplifier	8
BATC 2016 Convention for Amateur TV (CAT 16).....	13
New 134GHz UK distance record	13
Activity News : January 2016.....	14
UK μ G Microwave Contest Calendar 2016.....	19
Events calendar.....	20

UK Microwave Group Contact Information

Chairman: G8DTF Robert E Price	General Secretary: G3XDY John Quarmby	Membership Secretary: G8DKK Bryan Harber	Treasurer: G4BAO Dr. John C. Worsnop
Email: chairman @microwavers.org	Email: secretary @microwavers.org	Email: membership @microwavers.org	Email: treasurer @microwavers.org
Located: Manchester IO83sm	Located: Suffolk JO02ob	Located: Hertfordshire IO91vx	Located: Cambridgeshire JO02cg
Address: Birchfield Drive Boothstown, Manchester M28 1ND	Address: 12 Chestnut Close, Rushmere St Andrew IPSWICH IP5 1ED	Address: 45 Brandles Road Letchworth Hertfordshire SG6 2JA	Address: 20 Lode Avenue Waterbeach Cambs CB25 9PX
Home Tel: n/a	Home Tel: +44 (0)1473 717830	Home Tel: n/a	Home Tel: +44 (0)1223 862480

Scatterpoint Editor: G8BHC Martin Richmond-Hardy	Scatterpoint Activity News: G8DTF Bob Price	Contest & Awards Manager: G3XDY John Quarmby	Beacon Coordinator: GW8ASD Tony Pugh
Email: editor @microwavers.org	Email: scatterpoint @microwavers.org	Email: g3xdy @btinternet.com	Email: beacons @microwavers.org
Located: Suffolk JO02pa		Located: Suffolk (JO02OB)	Located: Essex (JO01)
Address: 45 Burnt House Lane Kirkton Ipswich IP10 0PZ		Address: 12 Chestnut Close Rushmere St. Andrew Ipswich Suffolk IP5 1ED	Address: Gwersyllt WREXHAM LL11 4AF Wales
NB editor & scatterpoint email addresses go to both Bob and myself		Home Tel: +44 (0)1473 717 830	Home Tel: 01978 720183

UK Regional Reps

John Cooke	Scotland	GM8OTI	john@marwynandjohn.org.uk
Gordon Curry	NI	GI6ATZ	gi6atz@qsl.net
Chris Bartram	Wales	GW4DGU	

Assistants

Kent Britain	USA	WA5VJB/G8EMY	wa5vjb@flash.net
[Vacancy, p5]	Trophies		
Noel Matthews	ATV	G8GTZ	noel@noelandsally.net
Robin Lucas	www.beaconspot.eu	G8APZ	
Chris Whitmarsh	24GHz and up	G0FDZ	chris@g0fdz.com
Mike Scott	Chip Bank	G3LYP	
Tony Pugh	Beacon Coordinator	GW8ASD	gw8asd@gw8asd.co.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 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

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 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 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.

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 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

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 The current list is available at

www.microwavers.org/tech-support.htm

AGM Notice

Notice is hereby given that the 2016 Annual General Meeting of the UK Microwave Group will be held at 10:00am on Sunday, 17 April 2016 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.

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

- Bob Price G8DTF is retiring as Chairman and Activity Report editor for Scatterpoint
- Chris Whitmarsh G0FDZ is standing down from the committee

Other existing committee members are prepared to stand again, however new members would be very welcome.

Vacancies

- The position of Trophies Manager still needs to be filled.

The Trophies Manager

- i. is responsible for ensuring that the Committee decides in good time to whom to award the UKμG Annual contribution trophies.
 - ii. liaises with the Contest manager as to whom to award the Operation Trophies.
 - iii. is responsible for the safe keeping of the trophies and having them engraved with the Winner's callsign where necessary.
 - iv. ensures that the Trophies get to the relevant event for presentation by the Chairman and that a record is kept of all winners past and present.
- Scatterpoint editor Martin G8BHC needs a deputy able to cover for holidays/illness and to take over the Activity Reports section.

We are therefore interested to hear from anyone who would be willing to take on these vital UKμG positions. Any UKuG member wishing to stand should notify the UKμG Secretary, John Quarmby G3XDY, by 18th March 2016.

If you have any agenda or AOB items for the AGM then please contact the UKμG Secretary, John Quarmby G3XDY by 18th March 2016, email: secretary@microwavers.org

Martlesham Round Table and UKμG AGM

The MMRT web site <http://mmrt.homedns.org> should be live.

The 2016 Martlesham Microwave Round Table is planned for the weekend of 16th and 17th April 2016, at the Adastral Park, Martlesham, Ipswich.

This year the dinner will be held at the Holiday Inn Ipswich, London Road, and accommodation is available at concessionary rates. See <http://www.hiipswichhotel.co.uk>

Holiday Inn Ipswich,

London Road,

Ipswich, IP2 0UA.

Telephone: 01473 786700

Concessionary room rates are £65.00 double/twin B&B and £55 single B&B for the 16th April.

Please book by phone on 01473 786700 and quote booking code **MGG** .

Dinner Menu

Please book for the dinner on the main registration 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

Roasted Pork Rump with Cassoulet

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

Price: £20.00 per person

Travel

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 accomodation will be at:

Holiday Inn Ipswich, London Road, Ipswich, IP2 0UA

See <http://www.hiipswichhotel.co.uk>

A regular bus service between Ipswich and Stansted is available at a reasonable price.

For more details and booking, see : <http://www.nationalexpress.com/>

Refreshments

The usual catering services of sandwiches, biscuits, hot and cold beverages will be available on both days.

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.

From John Worsnop G4BAO

I asked Roger G8CUB a while back about the benefits of gluing mm wave PCBs in with silver loaded epoxy. Here is a useful data point for you all.

While building up a /P system for 24GHz using my "leftover bits from upgraded projects" I rebuilt my "home built in a home made milled box" 24GHz DB6NT SMA preamp. I'd bought some silver epoxy for my 47GHz project (£41 for two small tubes!) so I thought I'd try it in this unit.

In the past I could never get the NF of my homebrew close to the 2.5dB NF / 28dB gain I measured on my commercial built preamp from Michael's labs. (His figure for NF for the same unit was 2.25/29 dB so my test setup is in the right ballpark.)

Prior to the rebuild, I was measuring 4.5 / 23dB on my homebrew unit but, with the board silver-epoxied in, I now measure 3.4 / 22dB.

I'm convinced but you can draw your own conclusions as to whether it was worth the cost of the glue. There is enough to do a lot of PCBs in the tubes and its shelf life unmixed in the fridge is measured in years.

I can see it being more beneficial on the higher bands

From Richard G8ZHA

Along the lines of G4BAO's "what I am building".....

What I have been blowing up!

I have managed to put the power onto my GPS locked 10MHz frequency standard the wrong way around. After replacing a couple of voltage regulators, I find that the 10MHz TCXO has also blown – it is an ISOTEMP model OCXO134-10 10MHz unit.

I wonder if anyone has one that they are not using that I could purchase?

Rich G8ZHA email g8zha@blueyonder.co.uk

If you make something idiot proof.....someone will make a better idiot!

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.

ACPR measurements on G4BAO's 2.5W 23cm LDMOS driver amplifier

Hermann Westra PE1GTA @justatoms

Source: http://www.phyguy.net/pe1gta/DVB-S_ACPR.htm

During the recent X-mas break I had access to an Agilent/Keysight EXG IQ vector signal generator and made some DVB-S spectral re-growth measurements on G4BAO's 23 cm driver amplifier. I was curious to see what the ST PD85004 LDMOS device was capable of, mostly for my own DATV experiments and came away pleasantly surprised.

The measurement setup consisted of the aforementioned EXG signal generator driving the amplifier under test and my trusted HP8566B spectrum analyzer capturing the output signal after a precision 10dB attenuator on the amplifier (to protect the SA's input attenuator). The sig gen was configured to generate a 4Msymbol/s PRBS RRC (root raised cosine) filtered ($\alpha=0.35$) QPSK signal at 1260 MHz with output power levels stepped from 0dBm to 20dBm in 5 dB steps. The measurement cables (incl. adapters) to and from the amplifier had a loss of 1.7dB each.

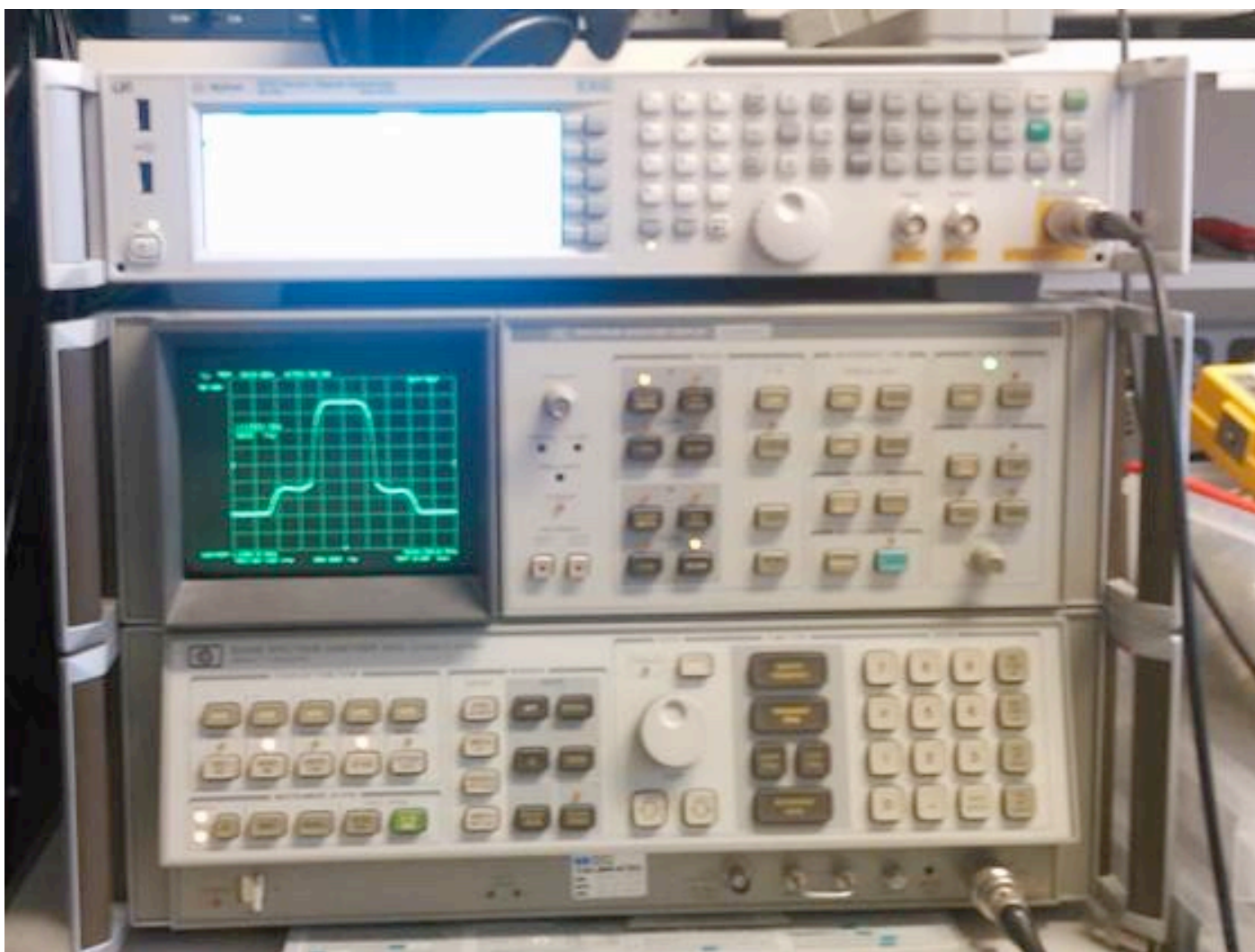


Fig. 1. Agilent EXG sig gen and HP8566B spectrum analyzer.

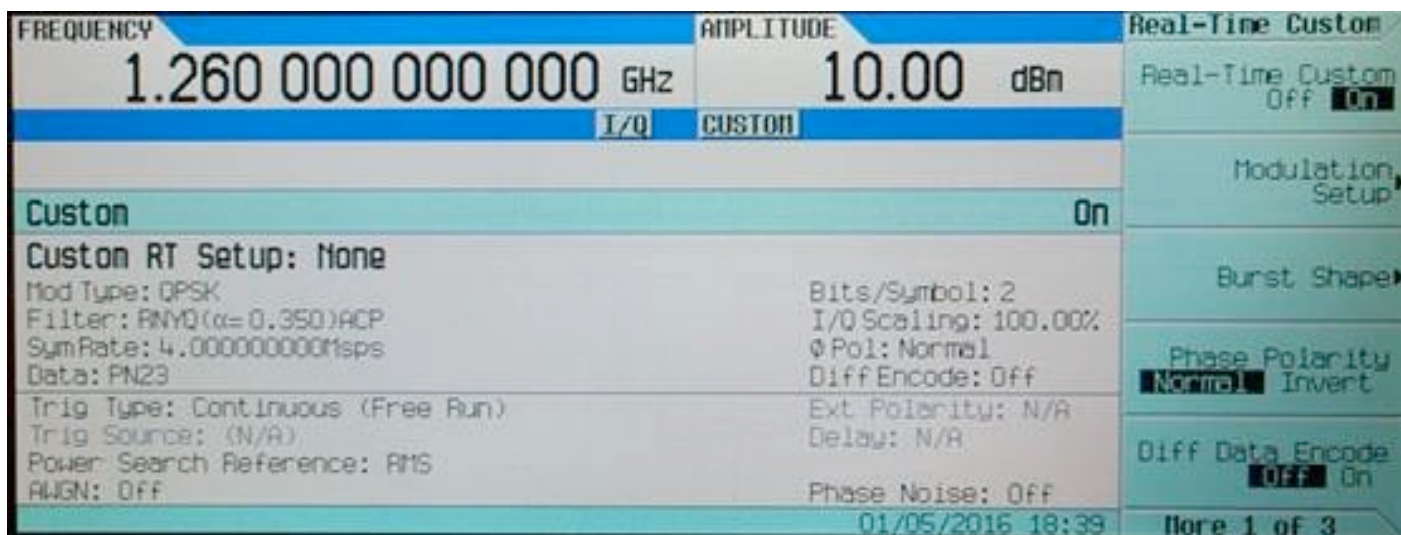


Fig. 2 EXG modulation settings.

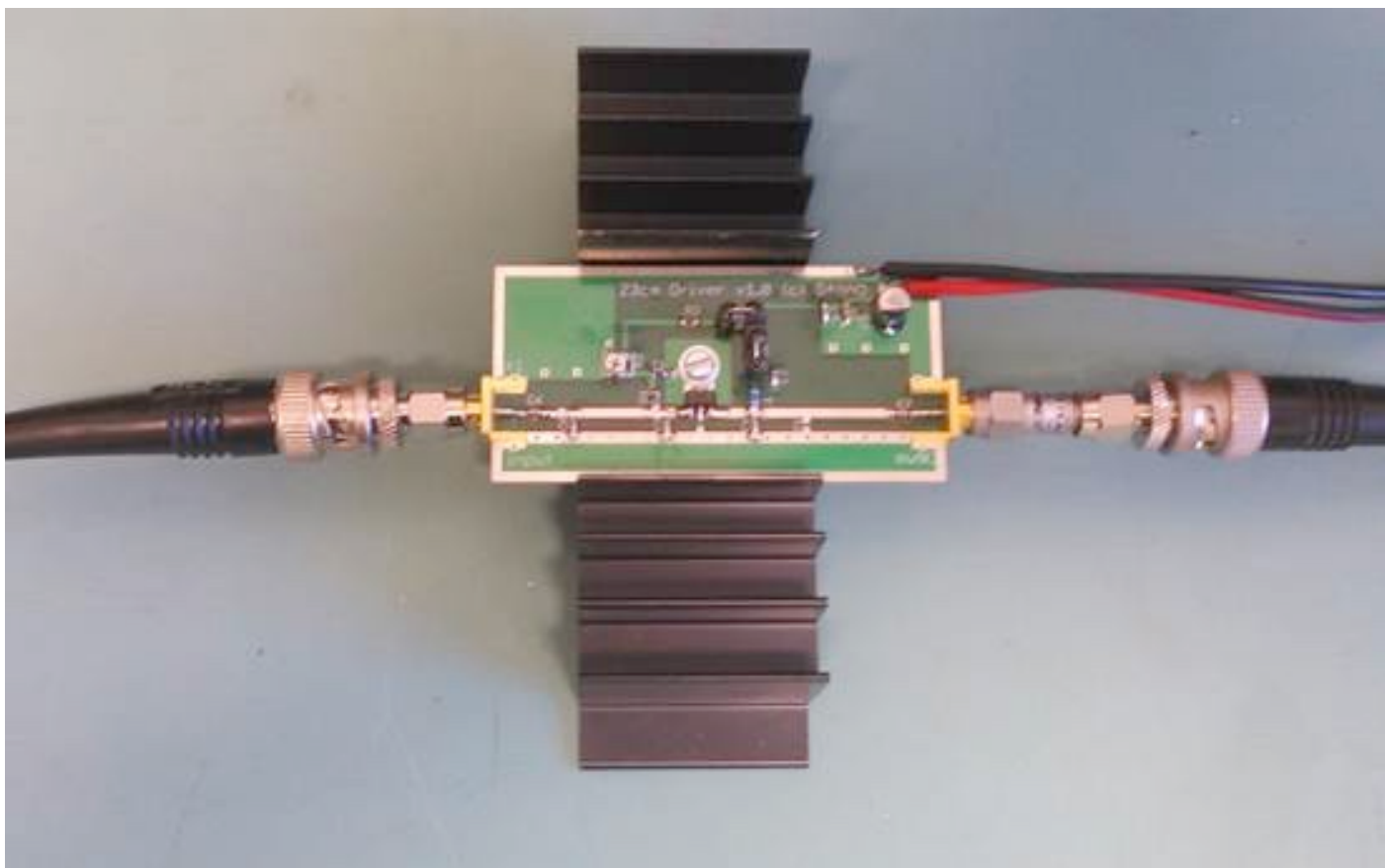


Fig.3. Amplifier under test on heat-sink (PCB version 1.0, C12 not mounted).



Fig.4. The amplifier under test was biased in class A with $V_{\text{drain}}=13\text{V}$ and $I_{\text{dqs}}=0.53\text{A}$.

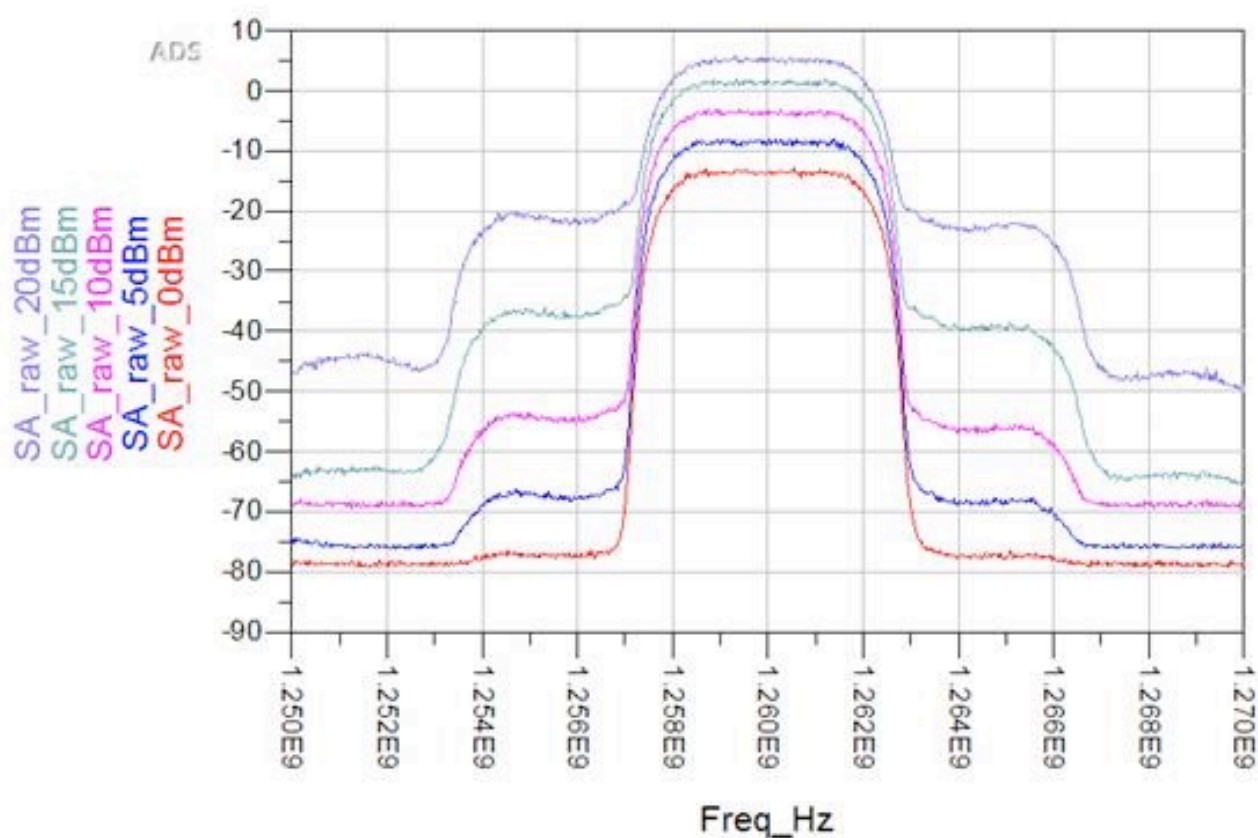


Fig.5. Spectrum as captured for 5 different input power levels.
SA settings: RBW=100kHz, VBW=300Hz, 1001 points, Sweep_time=2s, normal detection.

To my knowledge there is no channel spacing defined for DVB-S signals, so we can't really speak of ACPR (Adjacent *Channel* Power Ratio). To come up with a quantitative measure for spectral regrowth, I calculated the power ratio from a 1 MHz of 'first-shoulder' (3rd order intermod) spectrum and a 1 MHz of in-band spectrum.

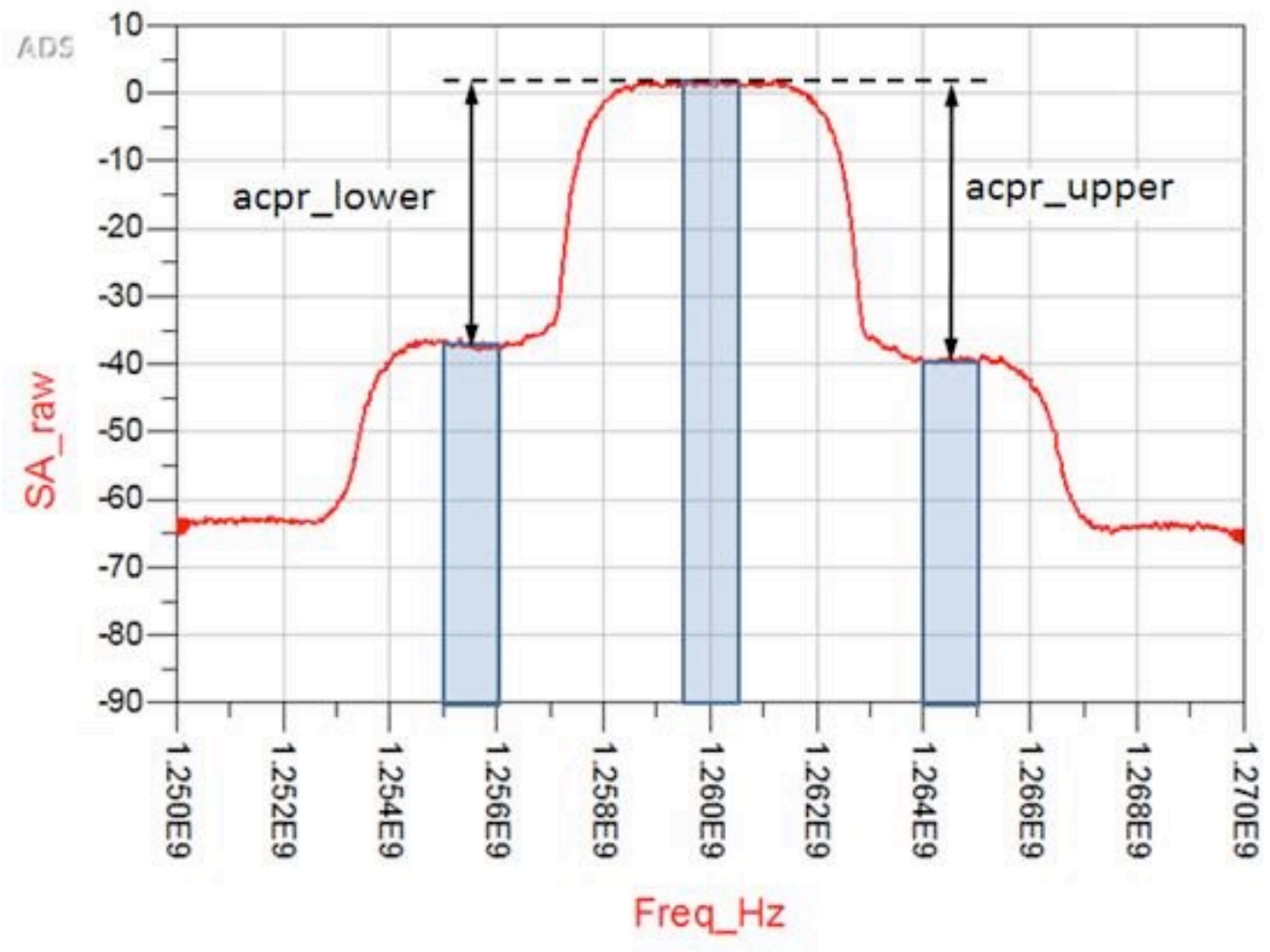


Fig. 6. ACPR is calculated as a ratio of the power in a 1 MHz section in the first 'shoulder' and a 1 MHz section in the main spectrum.

The amplifier output power itself is calculated by integrating the power of the main spectrum over $(1+\alpha) \cdot SR$ ($=5.4$ MHz), taking into account losses and (video) averaging of logarithmically displayed noise [1].

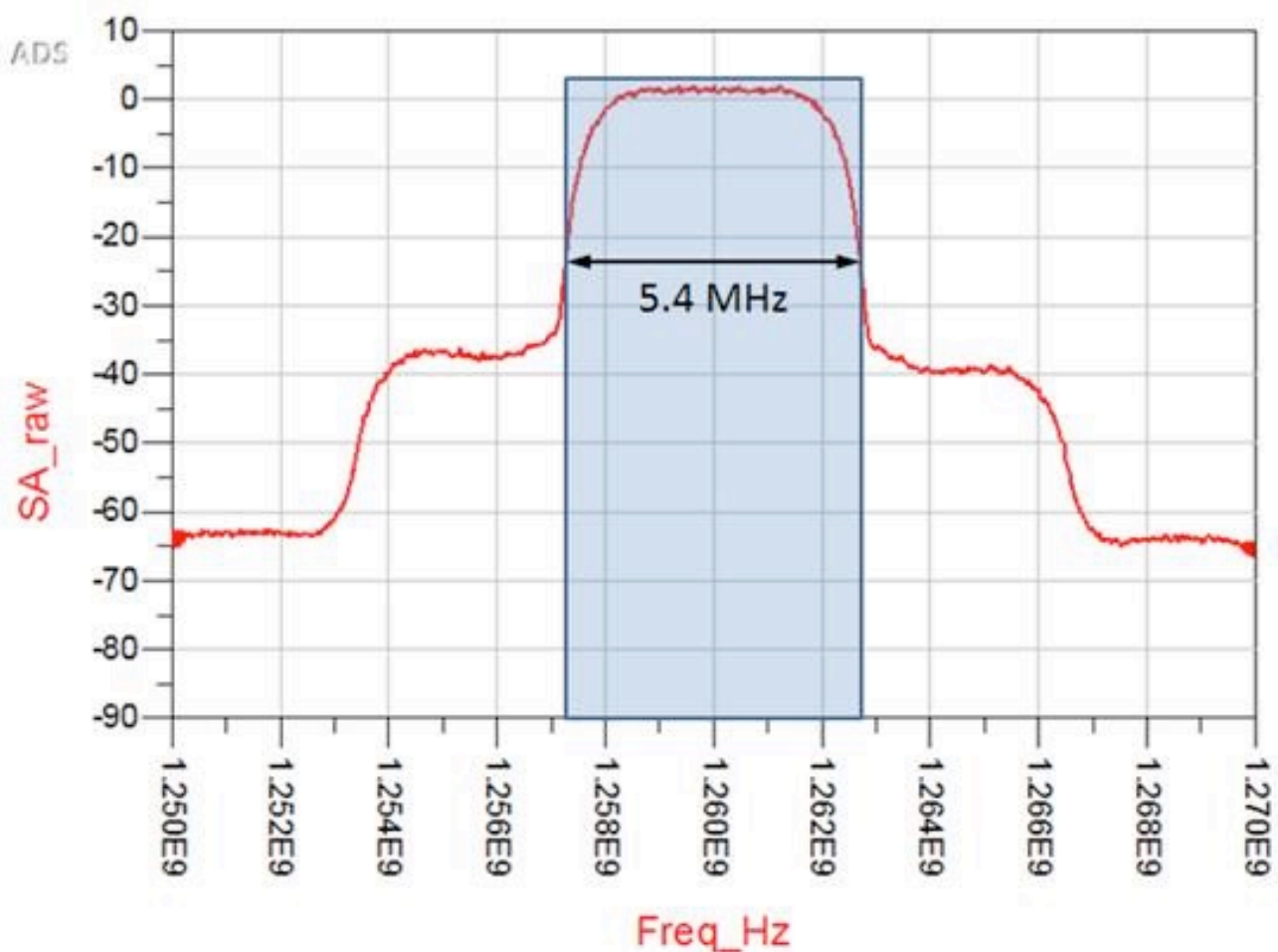


Fig.7. Amplifier output power is calculated from the integrated power in a 5.4 MHz band around the centre frequency.

Pgen [dBm]	Pin [dBm]	Pout [dBm]	ACPR lower [dBc]	ACPR upper [dBc]	Gain [dB]
0	-1.7	15.3	-63.8	-63.7	17.0
5	3.3	20.3	-59.9	-59	17.0
10	8.3	25.3	-52.6	-50.9	17.0
15	13.3	30.2	-40.8	-38.6	16.9
20	18.3	33.9	-27.9	-26.6	15.6

Table.1. Calculated 'ACPR' for the first lower and upper intermodulation shoulders.

Not bad at all; 1 Watt of DVB-S with spectrum regrowth around -40dBc.

References:

1. Agilent Technologies, "Measuring Noise and Noise-like Digital Communications Signals with Spectrum and Signal Analyzers" <http://cp.literature.agilent.com/litweb/pdf/5966-4008E.pdf>

BATC 2016 Convention for Amateur TV (CAT 16)

The BATC has run a number of highly successful rallies and conventions known as CAT (Convention for Amateur Television) at locations around the UK.

The 2016 Convention for Amateur TV will be held at the [RAF Museum Cosford](#) on **24 and 25 September 2016**.

The Events will start at around 1:00 pm on the Saturday, and conclude with the Biennial General Meeting early afternoon on the Sunday. Attendees will be free to wander around the Museum at no extra charge; we hope to arrange some guided tours. Arrangements are also being made for an informal dinner at a Hotel in Telford on the Saturday evening.

Latest news and discussion about the Convention can be found on the [BATC Forum](#).

Previous events have been recorded and are available online:

- The recording from the 2015 and previous years conventions are now available on the BATC Online Youtube channel - [Click here for more details](#).
- Some rare black and white footage from [CAT70](#) is available here.

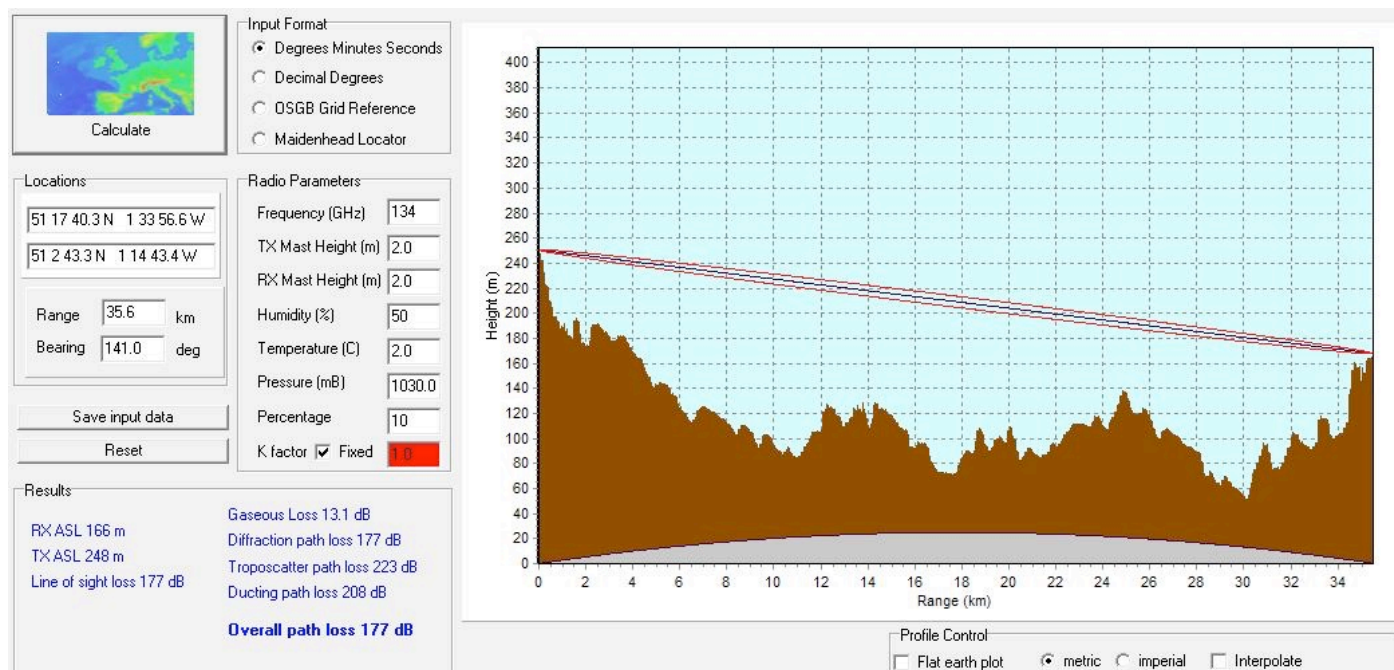
New 134GHz UK distance record

From Ian Lamb G8KQW

John Hazell G8ACE and I further extended the 134GHz UK record¹ to 35.6km earlier this morning over a LOS path between Cheesefoot Head and Chute Causeway.

Signals were 10dB above noise at best, Temperature was 2.5 degrees C, Dewpoint - 1 degree C.

More detailed information to follow once we have thawed out but a little taster attached!



1 John G8ACE and Ian, G8KQW broke, by 2km, the long-standing UK 134GHz distance record held by G0FRE / M0FRE. The new record path was 19.2km. Ian supplied a loss calculation for this path.

Total path loss = (free space path loss 161dB) + (19.2km x 2dB/km gas loss) = 200dB

A detailed report of the QSO was carefully hidden in the November Scatterpoint in the article "134 GHz Band Construction by G8ACE and Operating Preparations by G8KQW"



Activity News : January 2016

By Martin RH G8BHC & Bob Price G8DTF

Please send your activity news to:

scatterpoint@microwavers.org

Introduction

This month there are some reports of activity in the UKACs, some millimetre wave activity and some EME activity.

23cm UKAC

From Eddie G0EHV IO84

Despite the snow, I ventured out /P to the moors of County Durham for the January UKAC.

Rewarded with at best average conditions, but quite a high score for me. 43 QSO's some of which were very marginal, best of the bunch was G4LDR at 414 Km.

The band continues to be well populated, activity levels are very good. Usual setup, 100W and 55 element Tonna. EE mobile signal much better as well, but 'KST didn't play ball at times!

A lovely night out, took down in clear conditions with fantastic views across the moonlit snowy fells.

EME

From John G4BAO JO02

Just a bit of EME to report this month, but my terrestrial "best " was a 250km QSO with Ronald ON7FLY (JO10) on 3cm in SHF UKAC. It was a scatter QSO as tropo was really poor that evening.

On 1296 EME in the "SSB "Funtest" I worked my first SSB initials on the band. Both "super stations" HB9Q and PI9CAM. a few others were jut below my detection threshold for SSB. Pretty good going for a 1.9m dish and 180 Watts!

I also worked new initials DL6SH, CW initial #12 And on JT65C, GM4PMK initial #55 SP3XBO initial #56 UA4LCF initial #57 OE5JFL initial #58 and VA6EME initial #59.

I will put the 13cm feed in soon for the February 2.3GHz Dubus contest.

Skeds via johng4bao.com

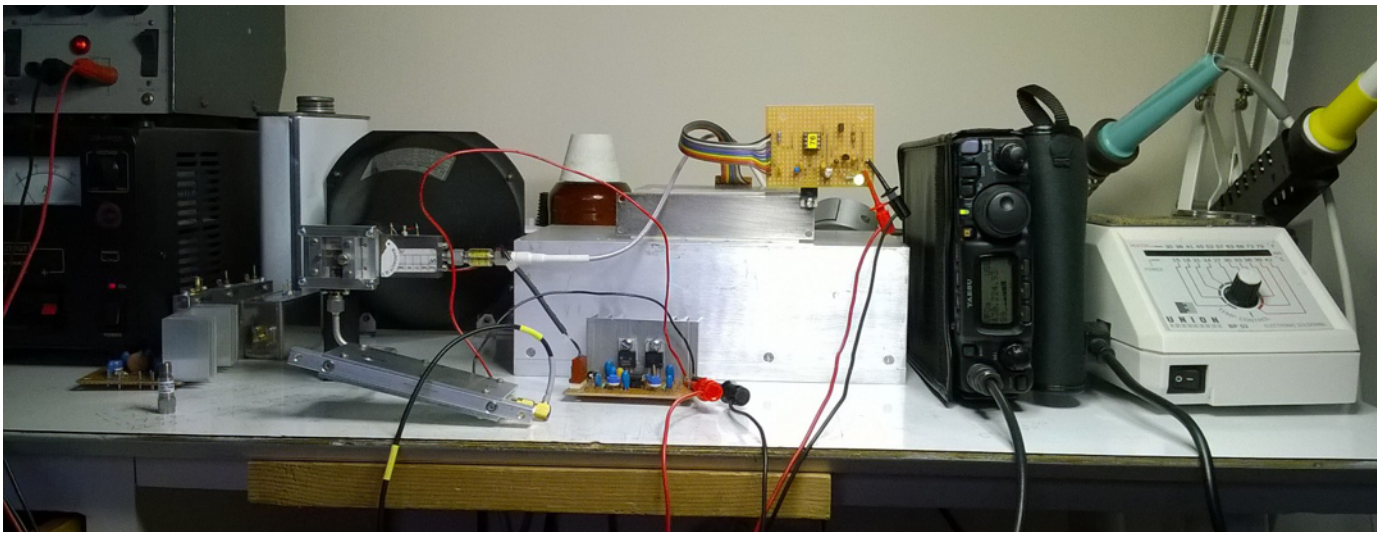
76GHz Activity

From Keith GW3TKH IO81

I've been building two sets of kit for 76GHz. Two way tests of the 'breadboard' systems across the shack were successful, using G8CUB's loan kit as reference.

When the units have been boxed up, Pete (G4HQX) and I will test over some longer paths hopefully.

Pic shows first cw beacon received across shack.



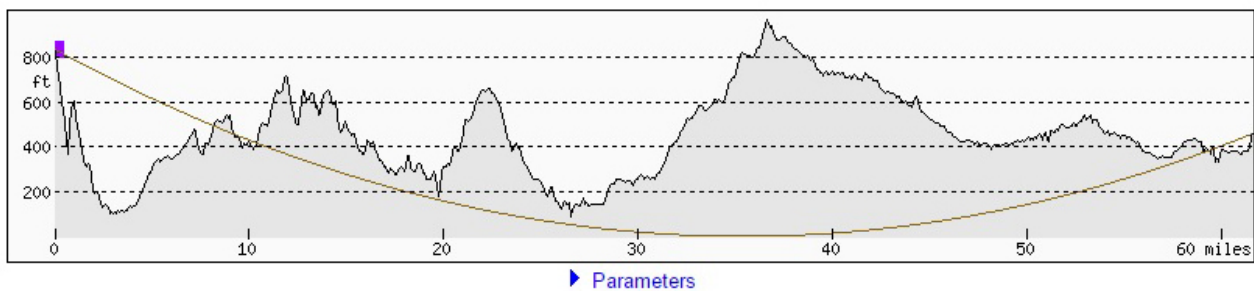
Other Activity

From Alan GM0USI IO75

I was at Baidland Hill on the 3rd January at IO75 or 830ft ASL today helping install the 70cm repeater GB3WA - I thought I would try a 24G test with Brian GM8BJF in IO85jv in Edinburgh 99.1km away.

His carrier was audible straight away with my 85cm dish peaked signals were fairly stable both station peaking 55 with the usual QSB and slight scatter over the path that was obstructed by around 200ft of higher ground near the centre point.

Weather at my end was around 5 or 6C with a brisk 25mph east wind.



A View from both ends

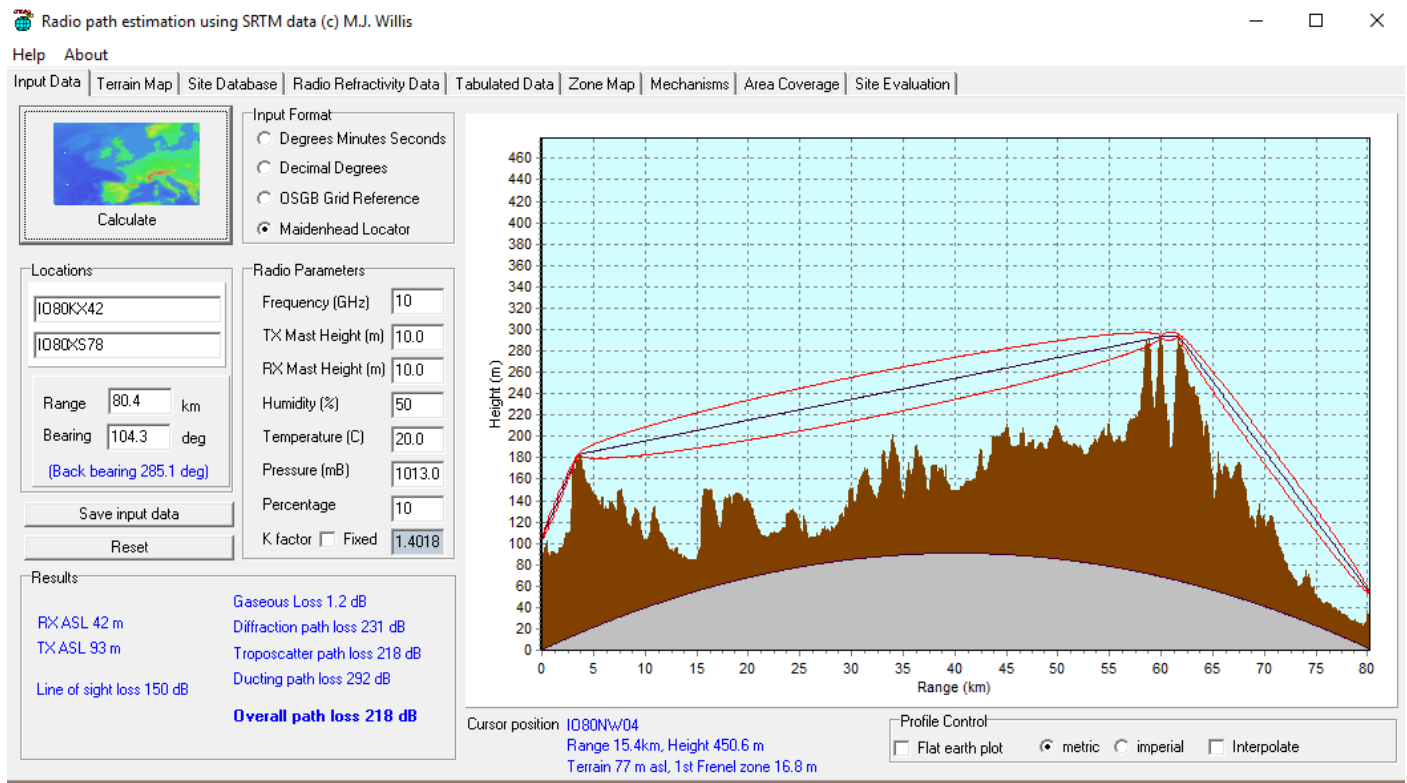
From Adrian G4UVZ in IO80KX42

Back on 3cm! Had my first one way today with John API ..non optical to say the least received at up to 20db above the noise.

Having disposed of the old White box and TWT last year.. I treated myself to the a DGU Transverter. all now assembled in a diecast box I was anxious to see how it worked out ...so this morning set up a test with John.

After a bit of tweaking at both ends we were in contact !

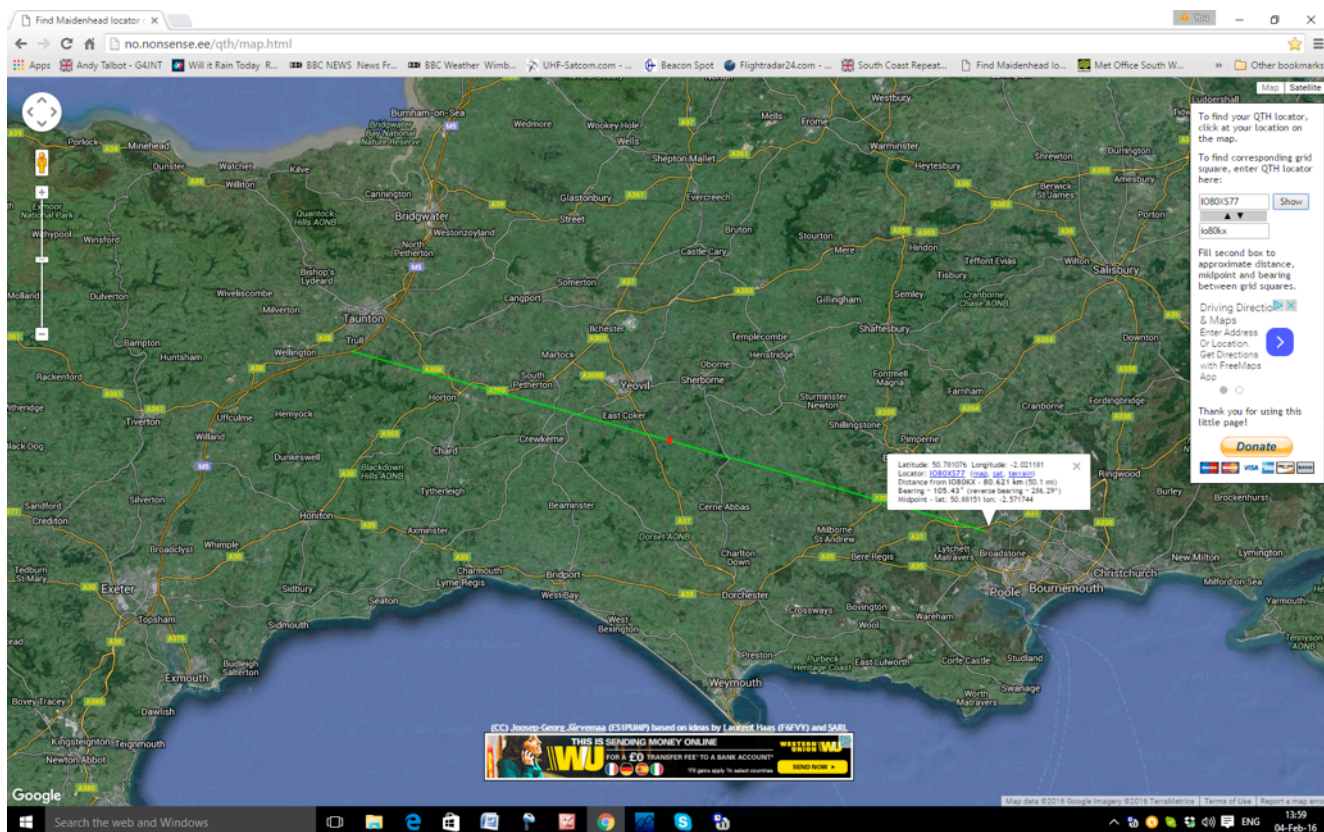
Possibly worthy of a mention ..I was in the shack with the kit with a 6 degree horizon at just over a mile.



From John Fell G0API

I had a one way contact on 10GHz today with fellow Beacon builder , Adrian G4UVZ .

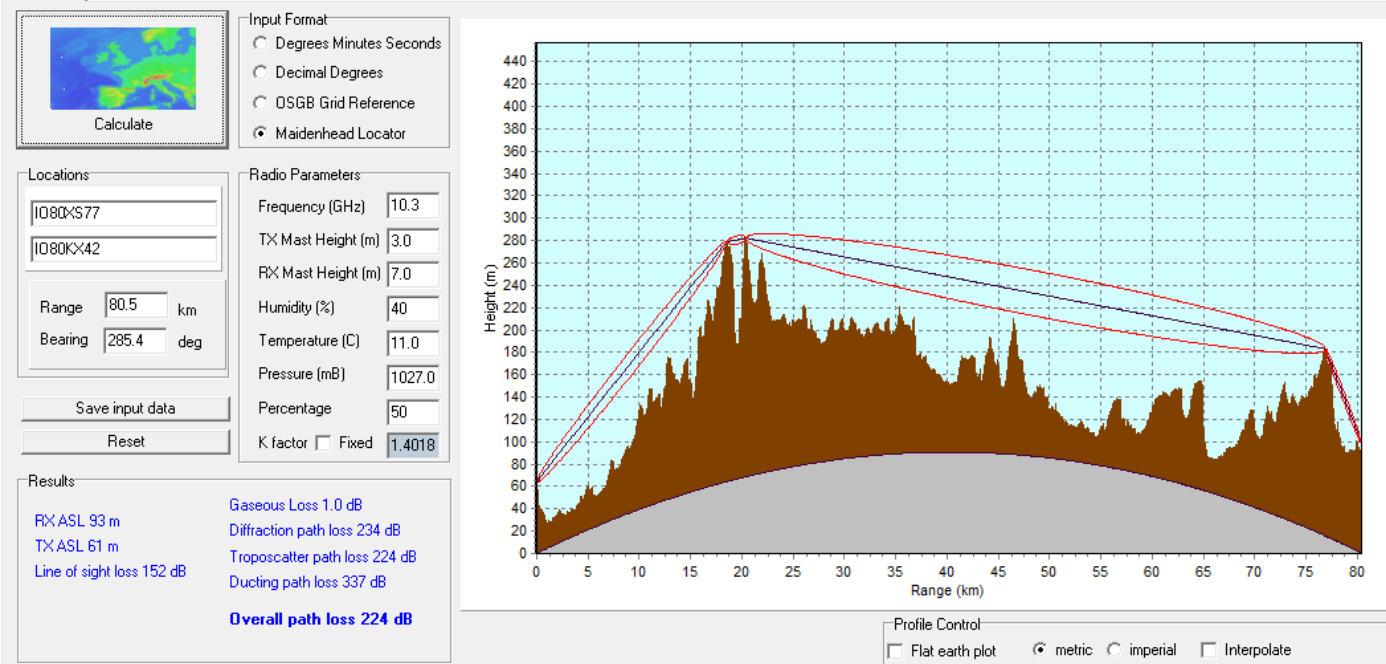
Nothing special as we have worked this band over the last 20 years with 10W TWT masthead systems but today was the first time we have tried using one end INSIDE the shack over the 80km path.



Radio path estimation using SRTM data (c) M.J. Willis

Help About

Input Data | Terrain Map | Site Database | Radio Refractivity Data | Tabulated Data | Zone Map | Mechanisms | Area Coverage | Site Evaluation



From Steve G4HTZ in JO01JN

With all us semi retired / retired people around during the day sometimes maybe we should start a activity morning ...bit like a top band AM net but on 10GHz.

I will be active soon with my new DB6NT G3 transverter.10MHz GPS locked and 10W output to a 80cm offset dish at 14m agl. QTH here only 3m asl on east Essex coast .

Looking to be active mid February .

... and finally

I want to encourage you to get on the air as often as possible and report your activity to clearly document use of the amateur microwave bands. This means not just DX or EME, but also local activity with ATV, low power or WB equipment.

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

Editor's post script

As you will have seen from the AGM notice on page 5, Bob is stepping down as Chairman of UKμG and as editor of the Activity column. It has been a great support to have Bob doing this column and we wish him well. Perhaps it is now time for younger members to step up and volunteer? No excuse that you are too busy – just wait until you retire – you'll be even busier ;-).

73 Martin RH G8BHC

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

73

John Quarmby G3XDY

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	http://mmrt.homedns.org
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 (RAL will probably change venue again to Chilton)	
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	www.ukw-tagung.de/
Sept 18	Crawley Round Table	
Sept 24 –25	BATC Convention, RAF Museum Cosford	www.batc.org.uk/convention.html
Sept 30–Oct 1	National Hamfest	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	www.microwaveupdate.org/
Nov 12 (tbc)	Scottish Round Table	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.

Sept 24 –25 BATC Convention, RAF Museum Cosford <http://www.batc.org.uk/convention.html>