

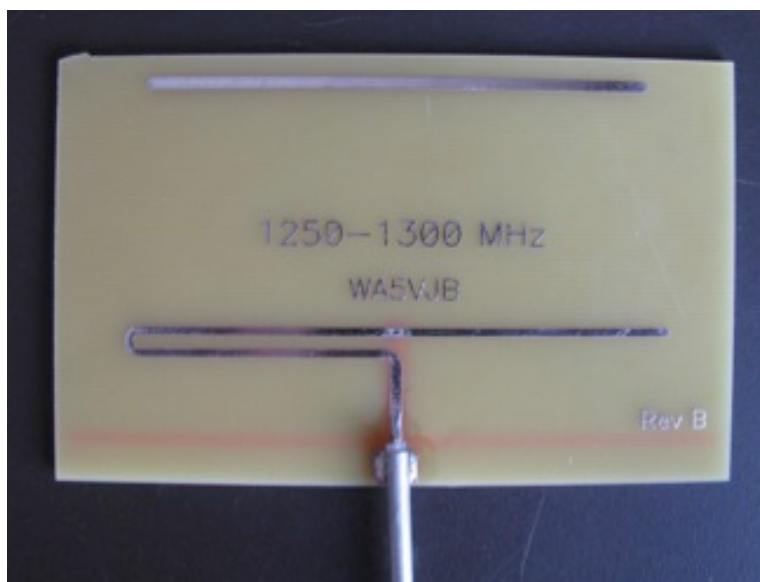


scatterpoint

February 2012

Published by the UK Microwave Group

Two 23cm band PCB antennas :
WA5VJB 3 element Yagi and omni-
directional 'Big Wheel'
By Sam Jewell G4DDK



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**Many thanks to all our contributors
this month, without whom there
would be no Scatterpoint!**

Martlesham Microwave Round Table

(including UKuG AGM)

28-29 April 2012

Adastral Park

- Talks
- Dinner
- Stalls
- Testing

[Web site](#) for registration is now live.

Hotel

Once again the hotel is the [Cameo Hotel](#) (Formerly the Hotel Elizabeth, Copdock) Ipswich. A block of rooms has been reserved for the round table, and can be booked by phoning the hotel on 01473 209988 and quoting booking reference BK48672. Single occupancy rooms are £55.00 bed and breakfast, double/twin rooms are available at £61.00 (the same prices as 2011).

John Quarmby G3XDY

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Editor's corner

It's coming up to AGM time and your input is required:

- Nominations for Committee membership (p4)
- Nominations for Awards (p5)
- Voting on the M5 rule (p14).

Also, more technical/operational articles, please.

Here's an idea (from Sam G4DDK). Most smart phones have a video camera facility. How about a competition for the best 1 minute amateur microwave radio video? Post to, say, Youtube for convenience.

One of UKpG awards could be re-directed to this for 2012, maybe?

Separate section(s) for optical and maybe even construction, operation, EME, DXing, contests, DXpeditions. This could help advertising the 'contest', links listed in Scatterpoint and some stills, maybe helping the group to bring in more members? Your ideas & suggestions, please.

73 de Martin G8BHC

Articles for Scatterpoint

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

Please send them to

editor@microwavers.org

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

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

Please submit your articles in any of the following formats:-

Text: txt, rtf, 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

UK MICROWAVE GROUP SUBSCRIPTION INFORMATION

The following subscription rates now apply.

UK £6.00 US \$12.00 Europe €10.00

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

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

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

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

QUOTE YOUR CALLSIGN PLEASE!

Payment can be made by: PayPal to

ukug@microwavers.org

or

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

Colour codes

Editorial & Events

Activity & Contests

Technical

Nanowaves (optical)

Commentary

Reproducing articles from Scatterpoint

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

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

UK Microwave Group

Annual General Meeting – Sunday 29 April 2012

Notice is hereby given that the 2012 Annual General Meeting of the UK Microwave Group will be held at 10:00am on Sunday, 29 April 2012 as part of the [Martlesham Microwave Round Table](#) event which takes place over that weekend at Adastral Park, Martlesham Heath, IPSWICH.

Sunday morning sees the UKμG AGM at the start of the morning's session. 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 Peter G3PHO, Sam G4DDK and Kevin Avery G3AAF are standing down from the committee so we are interested to hear from anyone who would be willing to join the committee. If any UKuG member is interested then please submit your name (and the name of your seconder) to the UKuG Chairman G4BAO as soon as possible.

On behalf of the UKuG Chairman John Worsnop, G4BAO, the UKuG Committee and the UKuG membership I would like to formally thank Peter, Sam and Kevin for their dedication and efforts during their years on the committee.

If you are interested in joining the committee or have any agenda or AOB items for the AGM, please contact the UKuG Secretary, Martin Richmond-Hardy G8BHC by 29 March 2012 by email to secretary@microwavers.org.

Proposed change to Rule 4.1

Current wording is:

- 4.1 The affairs of the organisation will be run by a committee of up to 10 members. These will be Chairman, Secretary, Treasurer, Editor and up to 6 other members.

Secretary's comments

- 1 Officers of a committee are generally considered to be Chairman, Secretary & Treasurer.
- 2 Para 4.1 does not state otherwise.
- 3 There is no explicit rule about one person holding multiple officer posts.
- 4 Scatterpoint Editor can be an existing officer, an elected member or a co-opted member.

The Committee propose Para 4.1 be amended to read:

- 4.1 The affairs of the organisation will be run by a committee of up to 10 members. These will be Chairman, Secretary, Treasurer (The Officers) plus Membership Secretary and up to 6 other members.

73 Martin Richmond-Hardy G8BHC

Secretary, UK Microwave Group

Nominations for Awards

By Dave Powis G4HUP

We have one nomination for the Fraser Shepherd Award.

No other nominations have yet been received for any of the Awards.

Further nominations for the Fraser Shepherd Award and nominations for G3EEZ and G3BNL Awards please, to [Dave Powis G4HUP](#) by **15 March**.

Fraser Shepherd Award:	For research into microwave applications to radio communication. In honour of Fraser Shepherd GM3EGW
G3EEZ Award:	For Contributions to Microwave Communications, in honour of Alan Wakeman G3EEZ
G3BNL Award:	For innovation or technical development of microwave equipment or techniques, in honour of Les Sharrock G3BNL

Details of the trophies are to be found here: www.microwavers.org/trophies.htm

Eyal Gal units

Roger G8CUB

Since the original articles were published in Scatterpoint on converting the Eyal Gal units for 10 & 24GHz. Many people have asked me for modules. These have been either difficult to source or expensive. Unfortunately one or two people have bought units from eBay that have turned out to be scrap metal.

I have now sourced a new batch of 10.4 – 11.7GHz units which are idea for making 10GHz transverters. I have also sourced some 24.5 – 26.5GHz units, which is hoped will work as the original 21.2 – 23.6GHz units, but now with LO on the low side. Many of the original units gave 2W O/P CW and <3.5dB NF. Some 10GHz filters, and Elcom synthesisers should also be available.

Members of the Microwave group will be able to purchase these from me, tested on a non-profit basis. Therefore I cannot give an exact cost at present, as it depends on import duties and yield.

I believe that the 10GHz units will be around £65, and the 24GHz around £95.

Anyone interested please contact me at littlemallards@hotmail.com

Roger G8CUB

Two 23cm band PCB antennas

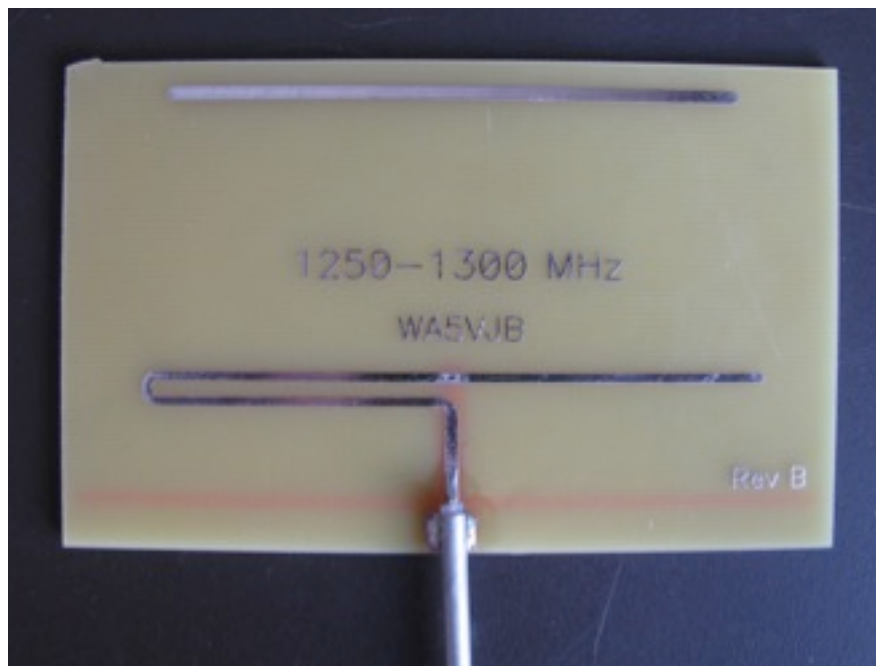
WA5VJB 3 element Yagi and omnidirectional 'Big Wheel'

By Sam Jewell G4DDK

Introduction

Readers of Scatterpoint will be familiar with WA5VJB's log period yagi antennas, the LPY2 and 4 covering 900 to 2600MHz and 2 to 11GHz respectively. Less well known are his two 23cm antennas. These are a 3 element yagi and an omnidirectional 'Big Wheel'.

The 1250 to 1300MHz 3 element yagi is particularly useful for general testing or as an input to a spectrum analyser. It is also suitable for the monitoring of local 23cm beacons. With just 6 to 7dBi gain the beamwidth is quite wide. Two or 4 of them could be phased so as to provide extra gain. A plot of return loss is available at [1]



The 23cm Big Wheel is a useful 'probe' antenna for use in the shack, connected to a receive converter or scanner with coverage of 23cm. Mounted outside with two or more of them phased together the Big Wheel array is useful for beacon and activity monitoring.

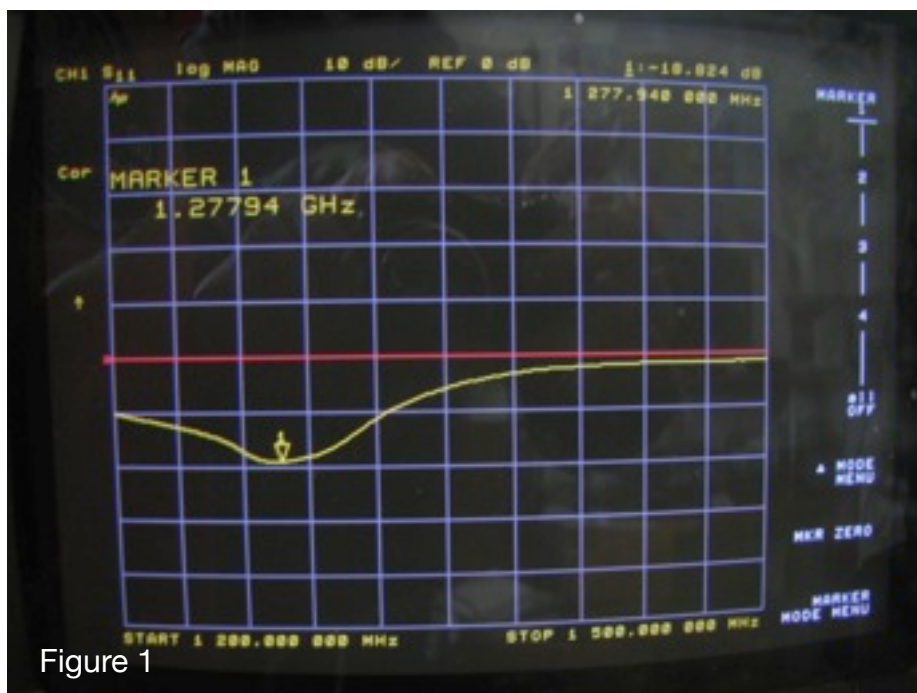


Figure 1

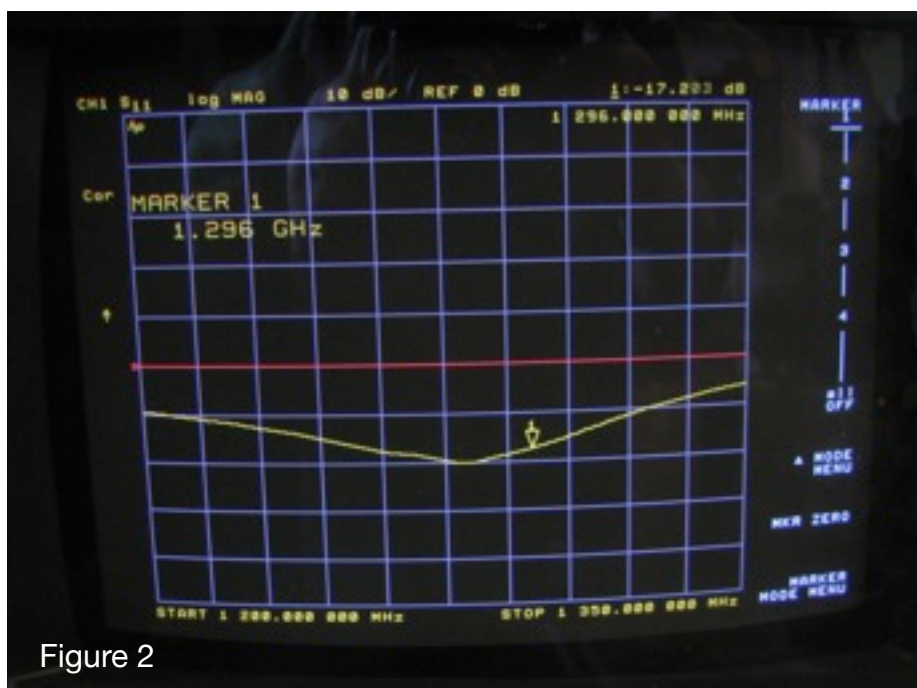


Figure 2

Figure 1 shows my measured return loss (RL) of a 3 element yagi mounted in free space i.e. not on a mounting pole. The best RL occurs around 1270MHz, which is right in the middle of the design frequency range. At 1296MHz the return loss is around 17dB. This is an excellent figure for such a simple J matched antenna.

Figure 2 shows the measured return loss of a revision C 23cm Big Wheel antenna. Earlier versions matched elsewhere in the band. This antenna is marked for use at 1290MHz, although when measured the best RL occurred at 1278MHz with a very broad minimum from 1250 to 1290MHz. At 1296MHz it measured a very respectable 10dB RL. It is noticeable that the return loss could be improved by moving a metallic tube, slipped over the connecting cable, along the cable in the vicinity of the input connector. This suggests that a $1/4 \lambda$ coaxial sleeve balun may be beneficial in some circumstances in improving the RL at some other desired frequency.

An independent lab in the USA has measured the gain of the Big Wheel at 2dBi.

The yagi antenna requires a cable connection, using a short length of either flexible RG316 size cable or semi rigid UT141 cable, with a suitable connector at one end, whilst the Big Wheel requires a PCB mount SMA connector.

Both antennas are available from either Kent, at wa5vjb.com or myself at www.g4ddk.com
UK prices are £8.00 for either antenna.

Sam G4DDK

References

1. <http://www.wa5vjb.com/pcb-pdfs/Yagi1250.pdf>

28 – 29 April 2012



<http://mmrt.homedns.org/>

Programme

Saturday 28th April 2012

- 10:00 Truck Stop Breakfast
- 12:00 Doors Open
- 13:00 Welcome & opening G4FSG
- 13:15 WA5VJB "Microwave antennas"
- 14:00 Refreshments
- 14:30 Trophy Presentations TBD
- 14:45 G4HUP. "Stresses in cables and towers"
- 15:30 G4DDK "Making a start in microwave EME"
- 16:15 G4NNS. "An introduction to radio astronomy"
- 16:55 Close
- 17:00 EME 2012 Committee Meeting
- 19:30 Meet for Dinner at 20:00 at the Cameo Hotel Ipswich

Sunday 29th April 2012

- 09:00 Doors Open
- 09:50 Welcome & Opening G4FSG
- 10:00 UKuG AGM (see Page 4)
- 10:30 Refreshments
- 11:00 G8CUB "76GHz and up"
- 11:45 G3RUH. "Big dish – Activities at Bochum"
- 12:30 Lunch break
- 13:30 G4JNT "21st Century Frequency Converters , Transverters and Radios"
- 14:15 G3WDG "GaN power amplifiers"
- 15:00 UKuG Contest Forum G3XDY
- 15:45 Close

Testing

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

Noise figure testing on many bands.

Travel

The talks and testing will be held at:

BT Adastral Park,
Martlesham Heath,
Suffolk, IP5 3RE.

This is located a few yards off the A12,
just east of Ipswich.

[CLICK](#) for map.

The evening meal and accommodation
will be at:

Cameo Hotel Copdock, London Road,
Ipswich, Suffolk, IP8 3JD, England.

Direct number 01473 209988
(09:00-17:30 on weekdays)

[CLICK](#) for details.

There is a shuttle bus between Ipswich
and Stansted every two hours at a
reasonable price.

For more details and booking, see [here](#)

Menu

Starters:

Butternut Squash Chilli and Tomato Soup
Ham Hock Terrine with Suffolk Mud Mustard
Sun blushed tomato-Goats Cheese Tart

Mains:

Chicken Supreme wrapped with Pancetta
Belly of Pork rolled with Apricots and Ginger
Poached Supreme of Salmon
Pumpkin, red onion and Chick Pea Tagine

Desserts:

Chocolate and Orange Cheesecake
Raspberry and Amaretto Tart with Toffee
Syrup
Seasonal Crumble with Custard
Tea and Coffee with mints

Price: £29 per person

dBm	mW	dBm	mW	dBm	mW	dBm	mW	dBm	mW	dBm	mW	dBm	W	dBm	W
0.0	1.00	5.0	3.16	10.0	10.0	15.0	31.6	20.0	100	25.0	316	30.1	1.02	35.1	3.24
0.1	1.02	5.1	3.24	10.1	10.2	15.1	32.4	20.1	102	25.1	324	30.2	1.05	35.2	3.31
0.2	1.05	5.2	3.31	10.2	10.5	15.2	33.1	20.2	105	25.2	331	30.3	1.07	35.3	3.39
0.3	1.07	5.3	3.39	10.3	10.7	15.3	33.9	20.3	107	25.3	339	30.4	1.10	35.4	3.47
0.4	1.10	5.4	3.47	10.4	11.0	15.4	34.7	20.4	110	25.4	347	30.5	1.12	35.5	3.55
0.5	1.12	5.5	3.55	10.5	11.2	15.5	35.5	20.5	112	25.5	355	30.6	1.15	35.6	3.63
0.6	1.15	5.6	3.63	10.6	11.5	15.6	36.3	20.6	115	25.6	363	30.7	1.17	35.7	3.72
0.7	1.17	5.7	3.72	10.7	11.7	15.7	37.2	20.7	117	25.7	372	30.8	1.20	35.8	3.80
0.8	1.20	5.8	3.80	10.8	12.0	15.8	38.0	20.8	120	25.8	380	30.9	1.23	35.9	3.89
0.9	1.23	5.9	3.89	10.9	12.3	15.9	38.9	20.9	123	25.9	389	31.0	1.26	36.0	3.98
1.0	1.26	6.0	3.98	11.0	12.6	16.0	39.8	21.0	126	26.0	398	31.1	1.29	36.1	4.07
1.1	1.29	6.1	4.07	11.1	12.9	16.1	40.7	21.1	129	26.1	407	31.2	1.32	36.2	4.17
1.2	1.32	6.2	4.17	11.2	13.2	16.2	41.7	21.2	132	26.2	417	31.3	1.35	36.3	4.27
1.3	1.35	6.3	4.27	11.3	13.5	16.3	42.7	21.3	135	26.3	427	31.4	1.38	36.4	4.37
1.4	1.38	6.4	4.37	11.4	13.8	16.4	43.7	21.4	138	26.4	437	31.5	1.41	36.5	4.47
1.5	1.41	6.5	4.47	11.5	14.1	16.5	44.7	21.5	141	26.5	447	31.6	1.45	36.6	4.57
1.6	1.45	6.6	4.57	11.6	14.5	16.6	45.7	21.6	145	26.6	457	31.7	1.48	36.7	4.68
1.7	1.48	6.7	4.68	11.7	14.8	16.7	46.8	21.7	148	26.7	468	31.8	1.51	36.8	4.79
1.8	1.51	6.8	4.79	11.8	15.1	16.8	47.9	21.8	151	26.8	479	31.9	1.55	36.9	4.90
1.9	1.55	6.9	4.90	11.9	15.5	16.9	49.0	21.9	155	26.9	490	32.0	1.58	37.0	5.01
2.0	1.58	7.0	5.01	12.0	15.8	17.0	50.1	22.0	158	27.0	501	32.1	1.62	37.1	5.13
2.1	1.62	7.1	5.13	12.1	16.2	17.1	51.3	22.1	162	27.1	513	32.2	1.66	37.2	5.25
2.2	1.66	7.2	5.25	12.2	16.6	17.2	52.5	22.2	166	27.2	525	32.3	1.70	37.3	5.37
2.3	1.70	7.3	5.37	12.3	17.0	17.3	53.7	22.3	170	27.3	537	32.4	1.74	37.4	5.50
2.4	1.74	7.4	5.50	12.4	17.4	17.4	55.0	22.4	174	27.4	550	32.5	1.78	37.5	5.62
2.5	1.78	7.5	5.62	12.5	17.8	17.5	56.2	22.5	178	27.5	562	32.6	1.82	37.6	5.75
2.6	1.82	7.6	5.75	12.6	18.2	17.6	57.5	22.6	182	27.6	575	32.7	1.86	37.7	5.89
2.7	1.86	7.7	5.89	12.7	18.6	17.7	58.9	22.7	186	27.7	589	32.8	1.91	37.8	6.03
2.8	1.91	7.8	6.03	12.8	19.1	17.8	60.3	22.8	191	27.8	603	32.9	1.95	37.9	6.17
2.9	1.95	7.9	6.17	12.9	19.5	17.9	61.7	22.9	195	27.9	617	33.0	2.00	38.0	6.31
3.0	2.00	8.0	6.31	13.0	20.0	18.0	63.1	23.0	200	28.0	631	33.1	2.04	38.1	6.46
3.1	2.04	8.1	6.46	13.1	20.4	18.1	64.6	23.1	204	28.1	646	33.2	2.09	38.2	6.61
3.2	2.09	8.2	6.61	13.2	20.9	18.2	66.1	23.2	209	28.2	661	33.3	2.14	38.3	6.76
3.3	2.14	8.3	6.76	13.3	21.4	18.3	67.6	23.3	214	28.3	676	33.4	2.19	38.4	6.92
3.4	2.19	8.4	6.92	13.4	21.9	18.4	69.2	23.4	219	28.4	692	33.5	2.24	38.5	7.08
3.5	2.24	8.5	7.08	13.5	22.4	18.5	70.8	23.5	224	28.5	708	33.6	2.29	38.6	7.24
3.6	2.29	8.6	7.24	13.6	22.9	18.6	72.4	23.6	229	28.6	724	33.7	2.34	38.7	7.41
3.7	2.34	8.7	7.41	13.7	23.4	18.7	74.1	23.7	234	28.7	741	33.8	2.40	38.8	7.59
3.8	2.40	8.8	7.59	13.8	24.0	18.8	75.9	23.8	240	28.8	759	33.9	2.45	38.9	7.76
3.9	2.45	8.9	7.76	13.9	24.5	18.9	77.6	23.9	245	28.9	776	34.0	2.51	39.0	7.94
4.0	2.51	9.0	7.94	14.0	25.1	19.0	79.4	24.0	251	29.0	794	34.1	2.57	39.1	8.13
4.1	2.57	9.1	8.13	14.1	25.7	19.1	81.3	24.1	257	29.1	813	34.2	2.63	39.2	8.32
4.2	2.63	9.2	8.32	14.2	26.3	19.2	83.2	24.2	263	29.2	832	34.3	2.69	39.3	8.51
4.3	2.69	9.3	8.51	14.3	26.9	19.3	85.1	24.3	269	29.3	851	34.4	2.75	39.4	8.71
4.4	2.75	9.4	8.71	14.4	27.5	19.4	87.1	24.4	275	29.4	871	34.5	2.82	39.5	8.91
4.5	2.82	9.5	8.91	14.5	28.2	19.5	89.1	24.5	282	29.5	891	34.6	2.88	39.6	9.12
4.6	2.88	9.6	9.12	14.6	28.8	19.6	91.2	24.6	288	29.6	912	34.7	2.95	39.7	9.33
4.7	2.95	9.7	9.33	14.7	29.5	19.7	93.3	24.7	295	29.7	933	34.8	3.02	39.8	9.55
4.8	3.02	9.8	9.55	14.8	30.2	19.8	95.5	24.8	302	29.8	955	34.9	3.09	39.9	9.77
4.9	3.09	9.9	9.77	14.9	30.9	19.9	97.7	24.9	309	29.9	977	35.0	3.16	40.0	10.00
										30.0	1000				

Another chart for the shack
courtesy of Bill WA6QYR (San Bernardino Microwave Society)

Silent Key MoCYN

Dear Bryan,

Just to let you know that my husband Walter Arnold passed away on 10th January 2012. I know he enjoyed keeping up with all the news from your group and wish to thank you all.

Kind regards

Pam Arnold, M1FBY

EME 2012

Cambridge 17–18 August 2012



Registrations for the 15th International EME Conference opened in January and with more than 100 UK and overseas attendees already booked it is promising to be a great success.

EME Conferences are the world's premier event for weak signal VHF and Microwave technology including amateur Radio Astronomy. Two days of technical papers will be presented over the main conference days of 17th and 18th August. There will be a comprehensive noise figure measuring facility available for you to have your equipment checked and measured. At the Friday dinner, Howard Long, G6LVB, has been invited to speak on the Fun Cube Dongle's journey from the kitchen table to production. Professor Tony Hewish, discoverer of the pulsar, will be the Conference dinner speaker.

The conference will be held in Cambridge, the greatest seat of scientific learning in the world. This is a great opportunity for us to demonstrate that Amateur radio is a valuable science-based hobby. It is not too late to book. Residential packages, day passes and dinner tickets are still available but book soon to take advantage of the early booking discount.

Go to www.eme2012.com for more details and how to book your place at THE premier amateur radio conference this year. We can now accept payment in stages with a 25% non-refundable deposit to secure your reservation and the balance of 75% to be paid by the end of June.

Footnote:- Graduates of Cambridge University have, between them, won more Nobel prizes (65) than those of any other university in the world.

microwaveUpdate 2012

Santa Clara 18 – 21 October 2012

Hosted by: [The 50MHz and Up Group](#) of Northern California.

Chairman: Jim Moss (N9JIM) Honorary Chairman: Will Jensby (W0EOM)

Email contact: mud2012@pacbell.net

Registration not yet available. (to be announced) www.microwaveupdate.org

Accommodations:

Biltmore Hotel & Suites www.HotelBiltmore.com

2151 Laurelwood Road, Santa Clara, California 95054 +1-800-255-9925 +1-408-988-8411

microwaveUpdate rates: (until Oct 1, 2012)

Garden Rooms: M,T,W \$129/night Garden Rooms: Th,F,Sa \$79/night

Tower Suites: Th,F,Sa \$99/night

Biltmore Hotel shuttle to/from San Jose International Airport available

High speed wireless internet

Full Hot American Breakfast each morning

Additional information:

ARRL National Convention & Pacificon is the weekend before (10/12-14/2012)

at the Marriott in Santa Clara. <http://www.pacificon.org/>

Nearby attractions:

Silicon Valley, NASA, Intel, Texas Instruments, Computer History Museum, Stanford, San Francisco, Fisherman's Wharf, Pier 39, Alcatraz, museums, Monterey 17 mile drive, Monterey Bay Aquarium, Cannery Row

Speakers: We are currently inviting all to submit abstracts and papers

Preliminary Schedule of Events

- | | | |
|-----------------------|----------------------|------------------------------|
| * Thursday | * Lunch (included) | * Test Lab |
| * Surplus Tour | * Demonstrations | * Auctions |
| * Sites Touring | * Test Lab | * Demonstrations |
| * Hospitality Suite | * Indoor Swap | * Vendor Displays |
| * Friday | * Dinner on your own | * Evening Banquet (included) |
| * Registration | * Hospitality Suite | * Keynote speaker |
| * Introduction | * Saturday | * Door Prizes |
| * Presentations | * Registration | * Socializing |
| * YL / Family Program | * Introduction | * Outdoor Flea Market |
| * Auctions | * Presentations | |

Heelweg Microwave 2012

another great Microwave Event!

Dave Powis G4HUP

Once more, John G4BAO, Sam G4DDK, and myself found ourselves queuing with the excited masses on their way to sample the delights of Amsterdam for the weekend – only we were trading that for a 2 hour car trip across the Netherlands to the village of Westendorp, home of the Heelweg Microwave meeting.

Our hosts, Ruud PE1BTV and Hans PH0V, met us at the airport, and we spent a delightful evening at a small restaurant in Sandpoort, close by Ruud's QTH – before an early start on the journey. Arriving about

10:30, the event was in full swing, and car parking already at a premium. This year Sam had been invited to run one of the measurement bays, specialising in preamps (no surprise there, then!), having a very busy day dealing with both his own and other suppliers' products for measurement and some optimisation.

One of the strong points of the Heelweg meeting has always been its magnificent focus on a wide variety of measurements from MF to microwaves. This year there were about 13 separate stacks running covering all

Fig 1 – View over the measurement area at Heelweg 2012



the usual requirements – noise figure, gain, return loss, phase etc across the range up to 47GHz, which were kept busy all day. Fig 1 shows a general view of the measurement area, with all the stations arranged round the cafe tables set out as a large rectangle.

In the relatively small area left, a few traders plied their wares – and there's usually some good stuff amongst what they bring. John picked up some precision N shorts, and ordered a 5.7GHz synthesiser. Fig 2 shows a couple of traders you may recognise – John selling Kent's antennas, and Roger, G8CUB, disposing of some surplus gear. Roger was the first Brit we've seen there, and it was quite a surprise when he walked in, having driven over via the Tunnel. Maybe we'll see one or two more next year?

Highlights of the constructed equipment there (for me at least) were the feeds made by John, PA7JB – Skobolev feeds for 9 and 6cm, an LX1DB 'squeezed waveguide feed and choke ring for 6cm, and a circular septum transformer feed with horn for 23cm.

Saturday was rounded off by the now traditional invitation to the Chinese meal for the organisers/measurement team in the nearby town. And then it was back to the airport early on Sunday morning for the flight home....our grateful thanks to Hans and Ruud and their families for their hospitality, and the transport. We look forward to seeing you next year!

73 Dave G4HUP

Fig 2 – G4BAO, with G8CUB behind, chatting with Michael, DL1YMK (back to camera)



The UKAC M5 rule – One year on

By John Worsnop G4BAO

It's just over a year since the M5 rule removing multipliers for working non-UK squares was introduced by the RSGB Contest Committee to the UKAC events. I think we have all had time to absorb it, and it seems like a good time to step back and review what effect it has had on the participation in the UKAC, activity in general and whether we like or dislike it.

There have been strong views expressed by the committee both for, against and neutral. However I feel what has been missing has been broader feedback from the membership at large.

I have therefore taken the unprecedented step of deciding (and sometimes a Chairman has to do this, one of the privileges of office!) to set out each side of the argument for and against the M5 rule to the membership, and ask for feedback from you to determine your own feelings. Hopefully the results of your feedback will then allow the UKuG's representative on the RSGBCC to then reflect the feelings of the membership as a whole.

The case For

As the UK Microwave Group is the representative voice of amateur radio microwave enthusiasts in the UK, members expect the UKuG to fully support initiatives designed to stimulate home based activity first and foremost.

M5 has proved it is possible to encourage increased and regular microwave contest participation in both remote and populous locator squares throughout the UK, unlike alternative methods of scoring.

Since the inclusion of M5 in UK Activity Contests, individual scores are far closer with no runaway winner which has made competition much greater and therefore more interesting to participate in. Contacts into the continent for kilometre points remain as highly sought after as in the past so it is a complete myth to believe this is not the case.

We can never remove a particular part of the UK being geographically advantaged for contesting and M5 provides the fairest compromise with a central location though in practise good results have been distributed to all regions.

With the current UKAC rules, the RSGB are encouraging greater national microwave spectrum use and this goes some way to help protect our spectrum from commercial interests.

Please support a UKuG mandate for maintaining the M5 multiplier in RSGB Microwave UK Activity Contests.

The case Against

The introduction of the M5 rule in 2011 which allows only UK stations to be counted as multipliers for the UKAC contests has created some controversy. After a full year's experience of the new rule, some clear conclusions can be drawn:

1. The numbers of continental stations beaming to the UK in these events has reduced, as there are fewer UK stations within range beaming in their direction, so they hear nothing and switch off. This in turn further reduces the incentive for stations near the coasts of the UK to take part.
2. On the higher microwave bands the sparse number of UK stations active means that some stations near the coasts may work a few non-UK stations yet not be within range of any G stations. This means that their total score will be zero however many stations they work. On 5.7 and 10GHz

in particular this implies that you have to have some local activity available in order to score any points. Activity in the SW and NE of the UK is such that finding locals to work is impossible.

3. The whole tenor of the M5 rule could be interpreted as isolationist. Rather than encouraging international contacts it has the opposite effect. It seems anachronistic to have a coordinated date with the Scandinavian contests and then discriminate against contacts with them, forcing stations to beam inland in the UK rather than look in all possible directions.
4. If Germany or France had coincident activity contests then there might be more of a case for tilting the playing field, but they do not. There are only a relatively few stations active from these countries in the UKACs, limiting the number of contacts that can be made in those directions. The number of occasions when Scandinavians are workable in quantity by tropo is very limited (once every two years perhaps).
5. Proponents argue that entries have increased as a result, but a popular low power section was added at the same time so the impact cannot be simply ascribed to the M5 rule change. Of the 45 entrants in the new low power section on 1.3GHz in 2011, 22 were stations that did not take part in 2010, so most of the increase in entries could be ascribed to the attraction of the new low power section.

In the light of the above, a fairer system for the microwaves would be to dispense entirely with multipliers and just use points per km scoring. If you agree that the UKuG should lobby for a fair scoring system for all then please vote accordingly in the poll.

How can you vote?

If you subscribe to Scatterpoint via the [Yahoo group](#), you will have received notification of the poll via that group.

UKuG Members who are not subscribed to <http://uk.groups.yahoo.com/group/scatterpoint> will have received a notification by email.

The question is:

Do you support the M5 Rule? Yes/No

The closing date for the poll is 15th March 2012

The results of the Yahoo poll will be notified to Scatterpoint members automatically at the end of the poll. NB these are not the complete results. The additional (email) votes will be added to these and the final result notified to members in the next edition of Scatterpoint.



Activity News

By John Worsnop G4BAO

Microwave activity tends to be poor over Christmas and the New Year, but trawling through the Internet loggers and other sources has brought up some activity reports to keep the dedicated Microwaver interested.

Microwaves from the Fen Edge

Here in Waterbeach, not having my 23cms system working and the amount of electronic hash that is present on the 144MHz band here has meant that I struggled to find QSO partners on the higher bands. The solitary pastime of “beacon watching” has had to keep me interested.

On the 16th of December the cold snap brought in my “local” 24GHz beacon GB3MHK (JO02pb) on 24048.817 (78km) and to my surprise, late in the evening I also copied the Farnham beacon GB3FNM (IO91of) at 559 on 24048.920MHz (135km) for the first time in 4 years. John G4EAT (JO01hr) also reported the beacon earlier in the day at 114km.

During the snow on the 5th of February 2012 I was again copying the GB3MHK beacon, this time via snow scatter. Interestingly, the 3cm beacon GB3MHX was not copied at the same time as is usual with tropo openings here. A most interesting facet of 24GHz propagation seems to be that snow scatter affects 24GHz more than 10GHz. I'd be interested if anyone else has observed this. Tropo conditions were rock bottom that day, but I did manage a QSO on 3400MHz with Tony G4CBW (IO83ub).

Notable tropo reports

Our friends across the channel continue to report some good activity on 10GHz.

Maurice, F6DKW (JN18cs) reports QSOs on the 13th of January with F1VL (JN03RX) at 535km and on the 22nd, a nice 583km aircraft scatter contact with F1FIH/P (JN23gs). On the 17th of January the 1296MHz log of **DF9IC (JN48iw)** looked impressive with four QSOs over 650km. Namely OZ9KY (JO45VX) 830km, OZ1FF (JO45BO) 789km, G3XDY (JO02OB) 680km and DL0VV JO64ad 658km, showing just what QRO and a decent antenna can do on this band!

On the 29th of January, **Pete 2E0NEY (IO81vk)** had a commendable 1296MHz SSB QSO with Ray, GM4CXM (IO75TW) at 520km. Good to see someone waving the flag for the Intermediate license class. I've noticed a distinct lack of Microwave activity amongst Intermediate and Novice licensees so this is good to see.

From our correspondents

Ralph G4ALY (IO70vl) reports from “down behind Dartmoor”

Conditions have been fairly poor here in the SW except for the trusty 421km G3LRP 3/6/9cm aircraft reflection tests daily and F9OE 3/6cm skeds daily. Monday activity nights have just brought up G4NNS and G4LDR over the past month but signals have been poor over the tops of Dartmoor. I worked GW3TKH on 9/6cm but failed on 3cm on the 24th Jan. I have reduced capability until the weather improves and I can replace the 2mtr/23/13cm mast. The beacons in IO80 have been below normal most of the time but the 3/6cm beacons in IN88 have been quite good.

Tony G4CBW (IO83ub)

reports a 347km 10GHz QSO on the 15th of January with Alan, GM0USI/P (IO76XA) via tropo with 57/59 reports exchanged

Ray, GM4CXM (IO75tw) reports from North of the border, with some more observations about aircraft scatter.

My UKAC logs for 1296MHz <http://goo.gl/QP0EW> and 2320MHz <http://goo.gl/xja0e> show that these bands proved a difficult challenge with very poor conditions.

I have further confirmation that ascending or descending flights still have a place to play in working stations up to 300km over what on the surface are difficult paths. I tested with Jim GM3UAG on a path that rarely produces a contact over the mountainous path and a 519 signal was enhanced to 559 for a minute as a flight from Sweden to Edinburgh descended to between 18,000' and 17,000' over our mid-point near Dundee.

John, G3XDY (JO02ob) reports a rather quiet time on the Suffolk coast.

My only report is from the NAC contest on January 17th. Conditions were not too bad for this event; I worked 51 contacts in 26 locator squares. Best DX (mostly by aircraft reflection) were SK7MW (JO65), DL0VV (JO64), DK6AS and DJ3AK/P (JO52), DF9IC (JN48), DK7FU (JN49), OZ1FF (JO45) and within the UK GM4JR (IO85) and GI6ATZ (IO74).

Nanowaves

The nanowavers are working hard to crack non-line of sight (NLOS) paths.

Roger G3XBM (JO02dg) (famed for his ELF experimentation) has moved up in frequency somewhat and is experimenting with optical tree and sky scatter using a 250mA LED TX, and 100mm optics in one room of his house, and the RX in another room, a KA7OEI based head (doors closed, no light leakage) with 100mm optics and a PC running Spectran positioned to minimise light pollution to RX head. He writes:

First test was 10wpm CW off a tree 150m away (0.3km path length total) with strong

signals received 35dB S/N in 5.4Hz bandwidth. The signal was very clear in the earpiece too. I could just make out the red light glow in the distant tree branches. Aiming was critical. Second test: TX and RX elevated to aim at roughly same patch of clear sky. QRSS60 signal sent from TX. Signals were detectable in Spectran in 0.17Hz bandwidth, weakly, but definitely there. For this second test I made no great attempt to optimise the RX aim, just aimed at what I thought was roughly the same patch of sky. Now I can't be sure whether the signal is purely from scattering off mist/dust particles or what, but I think it is unlikely signals are coming off other objects as I am aiming quite high into the sky (about 45 degrees up) clearing nearby stuff. These tests suggest that with very slow QRSS I may be able to get a NLOS signal to G6ALB in the next village 3km away.

Barry G8AGN (IO93fi) reports on his activities

Gordon, G0EWN (IO93fk) and I have run a cloud bounce test between our QTHs and then my QTH and Gordon's local /P site. So far we haven't managed to see any received signal. I was transmitting a single tone from my Phlatlight + PMN + Fresnel and Gordon was using Spectran on receive. There are a number of problems at my end: My Tx beam is probably too narrow at present and I have lots of trees just in front of my QTH exactly in Gordon's direction so I'm limited to using an elevation angle of at least 25-30 degrees. There is also lots of sky glow for Gordon to contend with. Anyway, we intend to keep trying!

EME

One notable EME first this month, on the 15th January, **Kjeld, OZ1FF (JO45bo)** a regular big tropo signal in the UK reports working OH2DG (KP30ck) via the moon on 10GHz for what is believed to be a First OZ-OH on that band. Kjeld runs 45 Watts to a 1.8m Prodelin Offset dish, showing what can be done with a small system on that band.

Doug G4DZU (IO92es) reports nothing out of the ordinary, this month but an interesting observation on EME hardware! He runs 400W to a 3m dish with a G4DDK preamp.

On 1296HMz JT65, Doug worked IW2FXB, PA3FXB, G4CCH, OK1CS, PY2BS YO2BCT, on SSB worked G4CCH heard RA3AUB, SM4IVE G3LTF

Doug observes that when working JT65 EME it does help to have your own “mission control” in the shack (see the photo below). He has 6 monitors and 4 PCs running! 1 for WSJT9 and the SDR1000, 1 for dish control, 1 for MAP65 via a SDR-IQ and finally another PC for internet loggers.

That’s all for this month; if you can’t wait until next, you can keep up with my latest activities and ramblings on Twitter at

<https://twitter.com/#!/@g4bao> and on my website <http://www.g4bao.com>.

73 John G4BAO

Please send your activity news to:

scatterpoint@microwavers.org



G4DZU's EME "Mission control"

The only problem is that he sometimes gets confused with which keyboard and mouse to use!

UKuG Microwave Contest Calendar 2012

Dates, 2012	Time UTC	Contest name	Note	Certificates
4-Mar	1000 - 1600	Low band 1.3/2.3/3.4GHz	1	F, P,U,R,L
22-Apr	1000 - 1600	Low band 1.3/2.3/3.4GHz	2	F, P,U,R,L
27-May	1000 - 1600	1st 5.7GHz Cumulative		F, P,U,R,L
27-May	1000 - 1600	1st 10GHz Cumulative		F, P,U,R,L
27-May	1000 - 1600	1st 24GHz Cumulative		F, P,U,R
3-Jun	1000 - 1600	Low band 1.3/2.3/3.4GHz	3	F, P,U,R,L
24-Jun	1000 - 1600	2nd 5.7GHz Cumulative		F, P,U,R,L
24-Jun	1000 - 1600	2nd 10GHz Cumulative		F, P,U,R,L
24-Jun	1000 - 1600	2nd 24GHz Cumulative		F, P,U,R
22 -Jul	0900 - 1700	24GHz Trophy / 47 / 76/100-1000 GHz		
22 -Jul	1800 - 2400	>1THz (Lightwave)		
29 -Jul	1000 - 1600	3rd 5.7GHz Cumulative		F, P,U,R,L
29 -Jul	1000 - 1600	3rd 10GHz Cumulative		F, P,U,R,L
29 -Jul	1000 - 1600	3rd 24GHz Cumulative		F, P,U,R
5 -Aug	0900 - 1700	Microwave Field Day		P,L
26 -Aug	1000 - 1600	4th 5.7GHz Cumulative		F, P,U,R,L
26 -Aug	1000 - 1600	4th 10GHz Cumulative		F, P,U,R,L
26 -Aug	1000 - 1600	4th 24GHz Cumulative		F, P,U,R
30 -Sep	1000 - 1600	5th 5.7GHz Cumulative		F, P,U,R,L
30 -Sep	1000 - 1600	5th 10GHz Cumulative		F, P,U,R,L
30 -Sep	1000 - 1600	5th 24GHz Cumulative		F, P,U,R
25 -Nov	1000 - 1400	Low band 1.3/2.3/3.4GHz	4	F, P,U,R,L

Key:

F	Fixed / home station
P	Portable
L	Low-power (<10W on 1.3-3.4GHz, <1W on 5.7/10GHz)
R	Radio talkback
U	Unlimited talkback

73 John G3XDY, UKUG Contest Adjudicator

UKuG Contest Portal: <http://microwave.rsgbcc.org/cgi-bin/vhfenter.pl>

Please give publicity for a recently introduced contest aimed at clubs and portable groups which provides a good opportunity to introduce club members to the microwave end of the spectrum. Microwave Field Day was introduced by the UK Microwave Group last year, for 2012 we are looking to get a wider range of clubs involved, hence this letter.

Microwave Field Day takes place this year on Sunday 5th August 2012, from 0900 – 1700z (1000 – 1800 BST), on the 1.3GHz and 10GHz bands (23 and 3cm). There are open and restricted sections, the restricted section has power limits of 10W for 1.3GHz and 1W on 10GHz. Single band entries will be very welcome. Only portable stations can enter the event, but fixed stations are

encouraged to come on and give points away and submit check logs

The RSGB runs its 144 and 432MHz Low Power Contests on the same weekend, so a group can enter several events over one weekend for a small incremental effort.

The UK Microwave Group is keen to see more stations getting active on the microwaves and we think this event is a great way to get club members interested. Active microwavers are being encouraged to loan their stations to local clubs to get them started.

Complete rules can be found at:

<http://www.microwavers.org/files/2012-mwrules.pdf>

John Quarmby G3XDY

Events calendar 2012

Mar 31	CJ-2012, Seigy	cj.ref-union.org/
April 21	RSGB AGM	
April 28-29	Martlesham Microwave Round Table and UK μ G AGM	mmrt.homedns.org/
May 18-20	Hamvention, Dayton	www.hamvention.org/
Jun-10?	RAL Roundtable tbc	
Jun 22-24	Ham Radio, Friedrichshafen	http://www.hamradio-friedrichshafen.de/
Jul 7-8	Finningley Roundtable	
Jul 27 – Aug 12	Olympics Games, London, UK	
Aug 16-19	15th International EME Conference, Cambridge, UK	eme2012.com
Aug 29 – Sep 9	Paralympics, London, UK	
Sep 14–16	Amsat-UK Colloquium, Holiday Inn, Guildford, Surrey	www.uk.amsat.org/Colloquium/
Sep 14–16	57.UKW Tagung, Weinheim	www.ukw-tagung.de/
Sept 23 ?	Crawley Roundtable	
Sept 28–29	National Hamfest, Newark	www.nationalhamfest.org.uk/
Oct 12–14	RSGB Convention, Horwood House, Milton Keynes	www.rsgb.org/rsgbconvention/
Oct 18–21	MUD 2012, Santa Clara CA	www.microwaveupdate.org/ mud2012@pacbell.net
Oct 28 - Nov 2	European Microwave Week, Amsterdam RAI	www.eumweek.com/
Nov 3	Scottish Roundtable	www.rayjames.biz/microwavert

NB (unlinked websites) are still showing their 2011 programme.

Contests & Activity Dates 2012

See page 27 for Uk μ G Contest calendar

Feb 21	2000–2230 1.3GHz Activity Contest RSGB VHFCC
Feb 28	2000–2230 2.3GHz Activity Contest RSGB VHFCC
Mar 4	1000–1600 Low band 1.3/2.3/3.4GHz. First 4 hours coincide with IARU event
Mar 20	2000–2230 1.3GHz Activity Contest RSGB VHFCC
Mar 27	2000–2230 2.3GHz Activity Contest RSGB VHFCC

EME Activity weekends

2012 REF/DUBUS EME Contest:	
Mar 3/4	00–24 UTC 432 & 3.4 GHz : CW/SSB
Mar 31– Apr 1	00–24 UTC 144 MHz & 10 GHz + up : CW/SSB
April 28/ 29	00–24 UTC 2.3 GHz : CW/SSB
May 26 / 27	00–24 UTC 1.2 GHz : CW/SSB
June 23 / 24	00–24 UTC 5.7 GHz : CW/SSB

Don't forget that

**Every Monday evening is
Microwave Activity Evening**

The RSGB 2012 VHF+ Contest Calendar is available at www.rsgbcc.org