An Amateur Radio publication for the Microwave Enthusiast

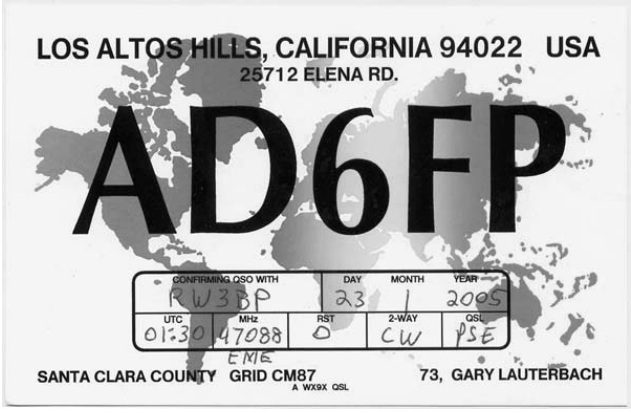
scatterpoint

Formerly the RSGB Microwave Newsletter and now published by the UK Microwave Group

2005 May

It doesn't get much better than this ...

California to Russia on 47GHz !



In this issue ...

• *Latest News …*

- **UK Microwave activity increases during May**
- **Jan-Martin, LA8AK, dies on hill walking trip**
- **UKuG's 'Proceedings 2004-5' almost sold out**

MANY THANKS TO ALL OUR CONTRIBUTORS THIS MONTH ... WITHOUT YOU THERE WOULD BE NO SCATTERPOINT!

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From the Editor's Desk

We are very grateful to all our contributors this month, especially as they so quickly rose to the call for material! This newsletter can only be what you the readers make it. If no material is sent to this desk then none comes out in the following Scatterpoint ... we gladly edit anything sent in so don't be shy!

There's a most welcome increase in activity news this month.Thanks to all who emailed us. The summer is almost here so we should see some excellent activity and especially some interesting portable expeditions.

It's almost our first anniversary as an "independent" publication. Twelve months ago, we ceased as the RSGB Microwave Newsletter and merged with Scatterpoint (should we say became the "new" Scatterpoint). Thanks to all of you supporting UKuG over the past year. We hope you continue your membership after the renewal date and that you feel that you are getting value for money. If you don't, then please tell us why!

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News, views and articles for this newsletter are always welcome. Please send them to G3PHO (preferably by email) to the address shown lower left. **The closing date is the Friday at the end of the first full week of the month** if you want your material to be published in the next issue.

PROCEEDINGS OF THE UK MICROWAVE GROUP 2004-5

There are still a few of these left ... and we mean a few! If you have not yet ordered one, be quick because they are going fast. Full details of prices, etc can be found on the back page of last month's Scatterpoint.

Before ordering, please contact the Scatterpoint Editor, G3PHO, to confirm they are still available. You can reserve one by email or telephone.

There will be no reprints!

SUBSCRIPTION ENQUIRIES SHOULD BE SENT TO THE UKuG GROUP SECRETARY AT THE ADDRESS SHOWN AT THE TOP OF THIS PAGE

GIPPSTECH2005

Anyone who might be considering visiting Australia in the coming months might consider being in the state of Victoria (VK3) during early July.

The WIA Eastern Zone Amateur Radio Club (Inc) is pleased to announce **GippsTech2005.** This year, the event will be held on Saturday July 9 and Sunday July 10. This event has a well-recognised reputation as the premier technical conference in VK, considering techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts. In addition to the Conference, a Partner's Tour will be conducted, together with an informal social gathering for dinner on Friday and a Conference Dinner on Saturday.

CALL FOR PAPERS

Amateurs (& others with material to contribute) are invited to submit titles and outlines for
topics to be presented at GippsTech2004. Presentation slots can be brief (5 -10 Minutes) through to 1 hour. Anything longer - you will need to justify!!

Presentations can be formal or informal, or display. We use a lecture theatre for the formal (& semi-formal) presentations. Displays are open during coffee/tea breaks and after lunch. Potential presenters are welcome to contact me direct for further information or to suggest a topic.

The conference will be held in Churchill about 170km east of Melbourne.

Further details can be found at the Eastern Zone Amateur Radio Club web site at: http://www.qsl.net/vk3bez/

More details will become available on the website in the coming weeks. An on-line registration form will also appear as soon as final costs are determined.

Topics scheduled to date:

- Calculating Troposcatter Losses (Rex VK7MO)
- Lightning - Effects of a Near Strike. (Guy VK2KU)
- More Ideas and Measurements of Elevated Ducts. (Andrew VK3KAQ)
- Noise figure measurements over the years. (Chris VK5MC)
- High stability xtal ovens based on zero temperature gradient. (Rex VK7MO)
- Modification of the FT847 to eliminate frequency drift. (Joe VK7JG)

For further information contact:
Peter, VK3KAI
Chair: Organising Committee
Email: vk3kai@qsl.net

SUBSCRIPTION RENEWAL ….
A REMINDER !

Many of you reading this will have joined the UK Microwave Group this time last year so you'll already be aware that the annual subscription is due for renewal during June 2005. If this applies to you please contact the secretary, G0CZD (see page 2) and renew your subscription for another year (well, we sincerely hope you will!). Those of you who receive Scatterpoint in a paper format will see your renewal month on the address label. Please try to renew by the 1st day of that month. A proportion of the membership renew at other dates, dependant on when they first joined UKuG. In all cases you will be sent a reminder of course.

Extensions to the Mosfet Regulator Circuit

- by John Hazell, G8ACE

The **Mosfet Regulator and/or Switch** (published last month), for use with an SSPA, can be extended to include the other supplies needed by a home brew microwave transmitter using, for example, an Ionica 9cm Tx module. This is 'low tech' circuitry for which most parts can be found in the average 'cum handy' box.

Additional functions added here to the original circuit are: Relay supply, -12V Bias supply and Sequencer. These circuits have, of course, been published before in some form or other, but perhaps not with these variations. The relay supplies formerly published in newsletter pages either use a switching IC regulator or voltage doubler. It's difficult to achieve more than 20 volts under load from a diode voltage doubler using a 12V battery supply. Consideration of the transistor and diode voltage drops will confirm this. It was thought rather risky to rely on such a low voltage to reliably operate a 24-28V antenna relay carrying watts of RF power. The IC switching regulator style relay source whilst being efficient does produce problems with the 50kHz signal creeping into unwanted areas of the rig unless very good supply filtering is used hence not being used here.

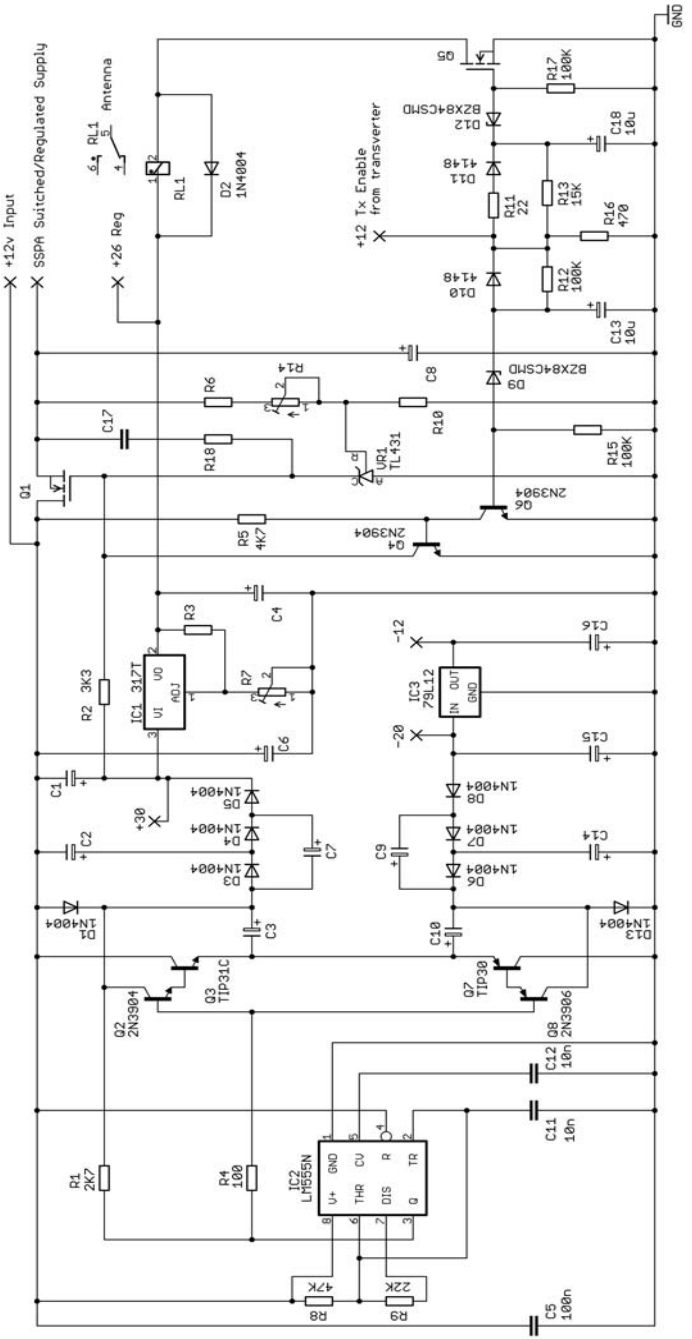
In the previous Mosfet Regulator/switch circuit, the 555 IC is used to supply the higher than incoming rail voltage needed for the gate of the Mosfet. This 555 is now additionally employed for the relay and bias supplies, as commonly seen before, but this time with two changes. The 24-28V is generated by a tripler rather than doubler. Complimentary transistors drive the multiplier diodes driven by bootstrapped emitter followers Q2, Q8. Referring to the circuit note the collectors of these emitter followers are connected to the first stage of the dual polarity voltage multipliers. The increased voltage on the followers enables the drive into the complimentary pair to be maintained as the bases are driven down to 0v and up to near the 12V rail. This increases the efficiency by a few percent as does the resistor R1 back to pin 3 on the 555. The value used for R1 must not be to low otherwise some unwanted oscillation takes place. Common 1N400* series diodes are used in the multiplier along with low ESR electrolytics all 25V except for the post regulator C4 which should be 40V. The multiplier supply is hung from the incoming supply rail hence the requirement for only 25V capacitors. C6 must not be omitted in this arrangement. Around +31V is achieved from the multiplier which is connected via a 317 to the relay and sequencer.

A standard N Mosfet is used for the antenna relay switching. Several ohms on resistance can be tolerated for this device as it is switching at most a few hundred mA. Poor voltage stability of the voltage multiplier output under load would indicate capacitors with an undesirably high ESR. The negative multiplier supply achieves -20V which is regulated by a 7912 regulator for the –12V bias supply.

Sequencing is achieved by employing the same circuit technique as the DB6NT Mosfet sequencer. When +12V is applied to the Tx enable point C18 charges rapidly through D11 and R11 such that the antenna mosfet switch operates almost instantly. The PA supply mosfet switching on is delayed however by the time C13 takes to charge through R12, D10 being none conducting. When the +12V Tx enable is removed the PA mosfet switches off first as C13 discharges rapidly through D10 and R16 however the antenna relay is held on until C18 has discharged slowly through R13 and R16, D11 now being none conducting.

Circuit values are shown where the values are standard. Unmarked circuit component values can be calculated according to requirements. Sections of the circuitry can be omitted when not required. As before the main Mosfet regulator can be used as a PA supply switch where the PA requires the same voltage as the incoming dc supply or as a switched regulator where a lower voltage is required. Output voltage is set with R14. The resistor capacitor C17, R18 have not been used to date. An adequate heat sink is required for the regulator mosfet when a PA voltage such as 9.6V is required from the incoming 12V. Always refer to the pdf data files readily available on the web for the various semiconductor devices used.

Mosfet regulator circuit extensions ....



High performance –low cost Lightwave RX front end

~ Gordon Fiander, G0EWN

Reading last moinths's Scatterpoint item by XE2AT, Alvaro, persuaded me to write down some of my lightwave experiences.The following describes a low cost-high performance lightwave RX that combines parts of the K3PGP design with G0MRF stages.

My first RX was based on G0MRF design but used OPT101 frontend. These are still available, via Farnell for around £4.00. The OPT 301 is no longer available as far as I can gather, which is a pity as they have slightly better characteristics than the 101. In practice, however, performance of the 101 and 301 are very similar; a test over a 10km path with Barry, G8AGN TX, and Peter G3PHO(using the OPT301) and myself RX, G0EWN, (using the OPT 101) showed little, if any, difference in performance (both received G8AGN at 59+).

Following the above test earlier this year, I decided to experiment with a PIN diode front end. This was based on the K3PGP design. I found Maplin sold a 5mm package PIN photodiode,the Siemens SFH2030, costing only 79p. I used a 2N3819 in place of the MPF102 and omitted the second stage of the K3PGP design. The output from the 2N3819 was filtered and amplified by G0MRF's audio stages, which use low noise 5534 op amps. TL071/81's are very poor in comparison. Output from David's unit then goes to an LM386 audio amp set at maximum gain.

I compared the Pin diode front end with the OPT101 using a G8AGN weak signal source and found the PIN diode arrangement was much more sensitive than the OPT 101. Tests were made using exactly the same following stages and just substituting front ends. The PIN diode was capable of copying signals the OPT101 could not detect! These tests were made without any optics ahead of the two sensors.

I followed K3PGP's advice of using simple point-to-point wiring and shielding (see photos opposite). By combining the first stage of the K3PGP design and G0MRF's audio filter/amp stages you get a high performance/low cost system that's very easy to construct and is an excellent starting point for dabbling in lightwaves.

Photo 1(below): Left to right — (1) G0MRF audio filter/amp. (2) Pin photodiode front end housed in two tuna tins, (3) LM386 audio amp and speaker, (4) OPT 101 frontend, (5) G8AGN weak signal source.

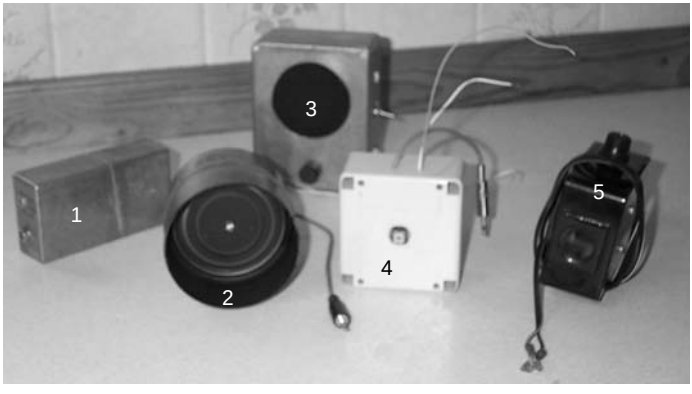


Photo 2. Complete RX system fitted with OPT 101 frontend.

LA8AK

SILENT KEY

After being missing for about one week, Jan-Martin Nøding, LA8AK, was found dead on Wednesday 27th April 2005. He died from a heart attack on a walking trip in an area near his home near Kristiansand, Norway. He was in his fifties.

There cannot be many radio amateurs, especially in the VHF/UHF/SHF field that have not heard of Jan-Martin, LA8AK. A prolific writer and experimenter, he published his findings and ideas world-wide and particularly on his website **<www.agder.net/la8ak/index1.htm>** which is still in operation as this newsletter is being put together.

Ian White, G3SEK, comments," Amateur radio has lost its genuine Norse Giant. Jan-Martin was a man of huge stature, with an engineering talent to match.

Condolences maybe sent to his family at:
jon@noding.com

WHOOOOPs !

Gentlemen,

A typo, possibly Gatesware generated has crept into my piece on a Mosfet regulator in the April 2005 Scatterpoint. The on resistance of a good choice Mosfet for switching Amps should be 0.01 ohms or less not 0.01W as in the text. The Ohms symbol I used in Word has got transposed into a W.
Al esson for me... print ohms as a word next time!

73 John, G8ACE

USEFUL WEBSITES

French Microwave Contest Calendar:
http://trans.voila.fr/ano?anourl=http%3A//www.ref-union.org/concours/&anolg=65544

Rain Radar Maps (real time or nearly!):

SEIGY (CJ2005)

G4ALY strengthens the Entente Cordiale ....

Seigy (CJ2005), near Saint Aignan, is just south of Blois and Tours.

This, my expedition into the heartland of France, was inspired by my wish to meet the French microwave operators I had worked over the past 3 years. As I am getting older, I thought I'd better make the trip sooner rather than later. As it turned out, it proved to be one of the most pleasant experiences I have had for a long time.

For me this was quite an undertaking as I hate flying ... in fact I am terrified of flying! I will go anywhere by sea being an ex-seagoing man,but up in the air is a different matter.

The whole five days which I spent there, or would have spent there, if it had not been for a six hour delay at Exeter airport, with poor André F1PYR having to hang around Charles De Gaulle for me instead of mixing with his friends down at Seigy, was, without a doubt an experience which I think most of you would enjoy.

We arrived at the Friday dinner around 8pm, about 10 minutes before it started, having booked in to the hotel first and freshened up. There were two dinners, one on Friday and one on Saturday, both of which lasted around three and a half hours. The company was wonderful, the food was excellent and the hospitality outstanding. Even with wine it was still cheaper than the dinners at the Marriot hotel we have over here in the UK in November. The French really know how to make their meetings into a really good social event.

Saturday morning was the start of the radio part of the meeting. The weather proved to be warm and sunny and, considering it was only the 2nd of April, it was more like our summer. The was a small queue, as we had arrived early where we paid our entry fee and were each given a callsign badge and a half bottle of red wine with their own label on it (CJ2005).the label was a drawing of a microwave dish. I assume the wine was bottled by Gilles Hubert F5JCB as this was on the bottom of the label.(I have it here unopened). What a lovely gesture!

In the field behind the village hall, they had a very long canvas covered, bring-and-buy area, under which there were four rows of tables with a good range of radio related goodies for sale, (though in my case as I don't travel light and I would have had trouble on the plane bringing back the things that interested. For those of you who would have driven down from the ferries this, of course, would not have been a problem. In the hall they had a radio book section plus other radio, ATV and Amsat sections, plus a couple of tables with lots of new components.

There was a noise measuring area where lots of people were getting their transverters and preamps measured by F6ETI. Also in the corner was an area with tables where you could sit and drink a small beer, coffee or soft drink.

In the field there was a large tent in which everyone went to have lunch. This overflowed to tables outside in the sunshine.

I met all the leading French microwave operators except one, F6DWG, who could not come: F1GHB F1PYR F5HRY F6DKW F6APE F6CBC F6DRO F6HTJ and many more. QSL cards were exchanged with some stations whom I had just worked recently and thought it would be nice to give them personally.

André, F1PYR, even had time to take me to a beautiful chateau between the meeting and the dinner later on. I was treated with great kindness while I was over there. I would like to thank André especially for all his time and excellent company throughout the five days. I saw France from the French point of view and felt very humbled by the attention they gave me.

Finally, I would thoroughly recommend that you try to attend this event next year, though the actual meeting is only officially Saturday. The dinner on the Friday is a must if you can stay overnight. Accomodation is hard to find if you don't book early, suggest you look on the CJ web site where they list all the accomodation available there is also lots of photographs of all the meeting over the past few years on it so you can see what I have been talking about.

My thanks also to the organisers of the event for making me so welcome.

Andre, F1PYR and Ralph,. G4ALY

The superb EME station of F2TU

Rainer, DF6NA looking for a bargain!

SEIGY SCENES — APRIL 2005

The photos on this page give you a flavour of the French UHF/SHF meeting at Seigylast month, as described by G4ALY on the opposite page.

It looks like we Brits will have to mount an expedition down to the Loire next year!

Photos by G4ALY and DF6NA

Lightwave and microwave enthusiasts are often the same people in France ... It would be great if it were so in the UK!

ANTENNA TEST RANGE RESULTS
R.A.L. 16 April 2005

These interesting tables show the results of antenna tests made at the home location of Brian, G4NNS, during the Saturday of the Microwave Round Table weekend at RAL (see last month's Scatterpoint). All numbers are in dB, with the Antennas Under Test shown as absolute gain.

Reference Antenna			Antenna under Test			BAND: 2.3GHz
Power	**Atten**	**Gain(dB)**	**Power**	**Atten**	**Gain(dB)**	**Comments**
-17.0	10	10	-12.7	10	14.3	G8ACE 'pukka' but rusty Quad loop Yagi
-17.0	10	10	-12.8	10	14.2	G4LDR Quad Loop Yagi
-20.0	10	10	-12.8	10	17.2	G8ACE Quad loop
-16.6	10	10	-19.2	10	7.4	DF6NA's Septum feed by OK1DFC
-16.6	10	10	-19.5	10	7.1	DF6NA's Log periodic by PA0HVA
-15.4	10	10	-18.0	10	7.4	Re test of - ditto -
-16.8	10	10	-14.8	10	12.0	DF6NA's lunch box, port 1
-16.8	10	10	-12.5	10	14.3	- ditto - port 2
-14.5	10	10	-16.2	10	8.3	Commercial Siemens Dish feed
-14.5	10	10	-15.8	10	8.7	DF6NA's 6 dipoles / reflector
-19.8	15	10	-13.5	15	16.3	Dish with multi band feed by LX1DU/SSB
-19.8	15	10	-24.0	15	5.8	WA5VJB 2-8GHz log periodic
-19.8	15	10	-14.0	15	15.8	G0RRJ's Multi band 60cm dish
-16.6	10	10	-16.4	25	25.2	G4HUP's 3 Band dish
						BAND: 3.4GHz
-17.0	0	11.6	-13.7	0	14.9	G8ACE 1/2 Quad Loop
-16.0	0	11.6	-5.0	0	22.6	G4LDR multi band offset
-16.0	0	11.6	-9.8	0	17.8	G0RRJ multi band feed
-16.0	0	11.6	-8.8	0	18.8	re test after focus
-16.0	0	11.6	-18.0	0	9.6	DF6NA's PCB patch
-16.0	0	11.6	-20.0	0	7.6	WA5VLB 2-11GHz log per
-16.0	0	11.6	-17.8	0	9.8	DF6NA's Log periodic PA0HVA
-16.0	0	11.6	-5.0	0	22.6	DF6NA's Multi band dish LX1DU/SSB
-16.0	0	11.6	-14.2	15	28.4	Peter, G3PYB's offset
-14.0	0	11.6	-17.2	15	23.4	G4HUP 3 band dish
						BAND: 5.7GHz
-27.0	0	12.2	-18.6	10	30.6	Amstrad perforated 85 x 75cm
-20.0	15	12.2	-10.2	15	22.0	Peter G3PYB offset
-20.0	15	12.2	-20.0	0	-2.8	DF6NA's WA5VJB log periodic
-18.5	10	12.2	-24.8	10	5.9	DF6NA's Log periodic PA0HVA
-18.5	10	12.2	-18.0	10	12.7	DF6NA's 5.7GHz Horn
-18.5	10	12.2	-18.0	0	2.7	DF6NA's 2 port circular feed horn port 1
-18.5	10	12.2	-18.0	0	2.7	- ditto - port2
-18.5	10	12.2	-12.0	15	23.7	LX1DU/SSB dish 90cm feed
-23.5	10	12.2	-27.0	30	28.7	Lidle Dish 80x70cm 3&6cm feed G4NNS
-27.0	0	12.2	-18.6	10	30.6	Perforated Amstrad with 3&6cm G8APZ

10GHz Antenna tests Reference: Sivers lab 16.0dB

Owner	Description	Measurement	Actual Gain dB
G4HUP	Corrugated horn	3.8	19.8
DF6NA	Rectangular horn	4.0	20.0
G8ACE	Rectangular horn	3.2	19.2
G8ACE	Rectangular horn	3.5	19.5
G8ACE	Sectoral horn	-0.8	15.2
G8ACE	60cm dish fold back reflector	15.8	31.8
G3PYB	60cm offset + rectangular horn feed	18.6	34.6
G4NNS	60cm prime focus procom feed	4.2	20.2
G4LDR	Rectangular horn black	4.0	20.0
G4LDR	60cm focal plane + penny feed	3.8	19.8
G4NNS	Rectangular reference	1.0	17.0
G8APZ	80cm offset + rect horn 6cm feed !	17.8	33.8
G8APZ	80cm offset + rect horn correct 3cm feed !	19.8	5.8
G4LDR	80 cm offset with tubular horn feed	19.9	36.0
DF6NA	VHF comms dual band	-5.5	10.5
G4NNS	80cm offset 3 / 6cm feed	18.8	34.8
G4LDR	slotted waveguide omni	-9.2	6.8

24GHz Antenna Tests Reference: WA5VJB 20.7

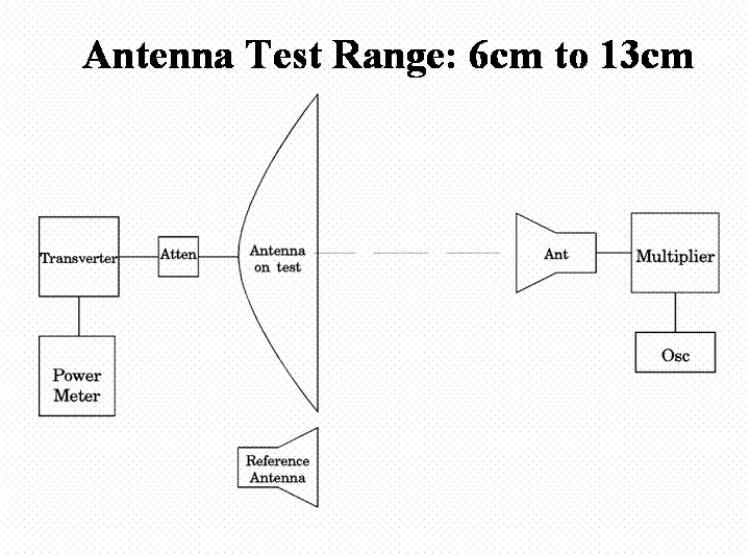
Owner dB	Description	Measurement	Actual Gain
DF6NA	8 slot rect w/g beacon ant	-5.7	15.0
DF6NA	Rect Horn	-3.3	17.4
DF6NA	30cm RFS shepherds crook	14.0	34.7
DF6NA	Dual band horn VHF comms	?	?
G8ACE	30cm Precision + 18GHz Tubular horn feed	10.0	30.7
G3PYB	60cm offset Channel master + Rect Horn	21.9	42.6
G4DDK	25cm Procom + feed	14.0	34.7
G4DDK	BSB DMAC offset + DL feed	16.2	36.9
G4DDK	KBSB DMAC offset + W1GHZ feed(not focused)	12.0	32.7

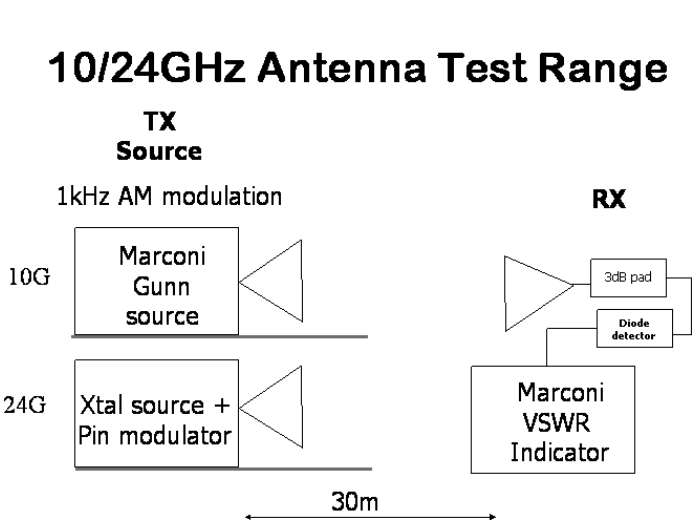
In doing these tests, two separate ranges were set up (see next page), with the 10GHz and 24GHz range using the tried and test method employed at Martlesham and Microwave Update. Details of this have been published in previous Scatterpoints. Here a Gunn or xtal source, set at ground level, is AM modulated at 1kHz and detected by a Marconi VSWR meter with a suitable microwave detector.

Initially, a standard reference horn antenna is used on receive to determine a point, some 30m away from the source, where there is no change in reading around a sizeable area at shoulder height. The reference is then exchanged for the antenna under test and the gain (or loss) is read as dB above or below the reference horn. In the 10 and 24GHz tables, both the actual VSWR meter reading is given as well as the actual antenna gain.

In the case of the 2.3 to 5.7GHz test range, separate DB6NT transverters and reference antennas were used to drive an HP432 power meter as shown in the diagram overleaf. Purpose built source transmitters were used at the far end of the range.

Antenna Test Ranges used at G4NNS during the Microwave Round Table weekend at RAL in mid-April

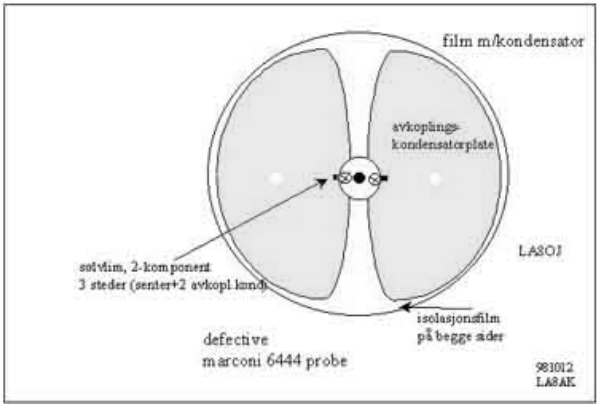




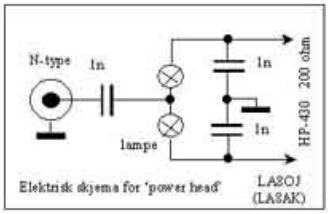
Scatterpoint and the UKuG is most grateful to Brian, G4NNS, for providing these excellent test facilities at his home and for providing the material for this article.

FINDING A USE FOR DEFECTIVE MARCONI POWER HEADS

The following information was gleaned from the website of the late Jan-Martin, LA8AK. It's presented here as a starting point for what could be the "answer to a maiden's prayer" as far as those of us who have blown Marconi power meter heads in the bench drawer. Although the diagrams are not very sharp, as taken from Jan-Martin's webpage, they show the general idea of using miniature watch illumination lamps to make a workable sensor. The editor would be very interested to hear from anyone trying this out and also from someone with a source of the miniature lamps. A check at the Conrad website, the company mentioned in the diagram below, failed to find anything suitable.



Using defective MI 6444 probe to repair old HP 431B and Narda power meters



Repairing power head using miniature watch illumination lamps from Conrad in Germany As shown for Marconi power head

SDR Microwave Receivers

These notes appeared on the UKuG Reflector recently.You should refer to his article in last month's Scatterpoint for more information ...

Just a quick report of my experience with the AD8347 evaluation board at 1.3GHz.

I'm using the board to convert directly to baseband, and using Alberto, I2PHD's software along with an (allegedly 96kHz, 24bit) M-Audio Transit USB audio box with a 1.4GHz Dell D600 laptop. LO and signal inputs came from lab. signal generators. Signal Generator frequency limitations have prevented me from trying the board at 2.3GHz, but I've no doubts that it would work equally well there.

It works. With no preamp, I can detect signals at -130dBm on ssb. This is broadly consistent with AD's claimed noise figure. There are just noticeable strong-signal effects within the I-Q passband at -60dBm with the receiver gain at maximum. The AGC within Alberto's software seems to work well. Also, it's relatively easy to adjust the unwanted sideband suppression to <-70dB and once set, it seems stable.

The zero frequency beat equates to ~20dB SNR in whatever the equivalent noise bandwidth of the spectrum display is. That would be buried in the noise by a suitable preamp. I need to look at transient hardware effects related to offsets caused by the input coupling capacitors of the audio box.

With a suitable preamp - such as Sam 'DDK's new design, a bit of filtering, and a LO, this could make a very adequate 1.3GHz receiver.

It could be improved by implementing hardware AGC. I've tried loading the current SDR-1000 software, but although this software is now released under the GPL it requires a proprietaryDLL... If I can get the M-Audio box to operate under Linux, and it has a rather odd implementation of USB, this will allow me to look at other software.

This all looks good, and sometime in the next month or two, I'll design a pcb for the 8347 and its lower frequency version, probably with a simple synthesiser.

73 Chris GW4DGU

MICROWAVE CONTEST ISSUES

G3PHO says to "KST" or not to "KST", that is the question!

It's not so long ago that this publication, in it's previous life as the RSGB Microwave Newsletter, held a debate within its pages about the pros and cons of 144MHz ssb or 432MHz ssb as UK's talkback system for establishing microwave contacts. The debate soon brought out the obvious split between the adherents of each band and some passionate discussion was the result. In the end, 2 metres seemed to have won out, for a while at least! However, we now have a similar debate emerging in the form of **VHF talkback -v- Internet "talkback"** in the shape of the **www.ON4KST.com** microwave chat room! The writer has seen this coming for a couple of years now but it was brought to a head in his mind during the April 2005 UKuG Lowband Microwave Contest and the point was fully driven home in the recent RSGB 432MHz and Up contest at the beginning of May. In both contests, there was a marked lack of 144MHz talkback activity but up to 40 or so UK operators were glued to their computer screens instead!

Before anyone jumps to the wrong conclusion, as several certainly did when this subject was brought up on the UKuG Microwave reflector a few weeks ago (!), **let me emphasise, categorically, that I am not opposed to the use of the KST chat room** to establish microwave contacts during normal(non contest) days. Indeed, I also use the system myself, especially during tropo openings! I believe ON4KST has done the amateur microwave world a great service by setting up this free means of liaison. It has enabled any home station to get in touch with operators beyond the range of their VHF talkback system. It's also a boon to those who are plagued with EMC problems when using VHF or UHF talkback at home.

So what is my debate about then? First of all, to appreciate the following debate, you have got to put yourself in the shoes of a **dedicated portable contest operator**, not someone who comes on in a contest just to pick up a few new paths, countries and grid squares but someone who has gone to a great deal of trouble to build up an efficient portable station, on up to seven microwave bands, plus VHF 144 and 432MHz talkback. Such an operator enters contests with an aim to do as well as he can, to win if possible. To achieve a high rank in the contest lists he needs to be able to liaise with as many of the active participants who are on during the contest. Almost 100% of portable stations have no real choice but to use some form of radio talkback that is common amongst all participants. In the UK, this is usually 144MHz ssb on the "calling channel" of 144.175MHz. **Mobile phones** have become in common usage in recent years and the writer has no problems with them as everyone can access such if (and only if) radio talkback becomes difficult. This is not the case with Internet from a mountaintop!

Internet chat room liaison is another matter, however, for only those who are sitting at home in front of a computer can access this system. For all but one UK portable operator, the KST chat room is inaccessible, along with those stations who use it exclusively, never calling CQ on 144MHz. Thus the portable operator can spend the whole contest day think there's little or no activity because the bulk of the other stations have not made themselves "visible" to him by being on 2m. Even if the portable operator does not work all of those using 2 metre talkback, at least he is aware they that are around, for he hears others calling them and, if he's "on the ball", he'll note the callsigns down for searching later in the day. He doesn't know who is on KST.

Clearly, **during a contest**, the KST chat room provides the home station with an advantage that the portable contester does not have. Even the portable station's better location cannot make up for this severe limitation of exposure to activity. Under present UKuG contest rules, the portable operator now finds himself, especially from this year on in my opinion, with little or no chance of ever being the leading station! A home station in a good location, with Internet access, has the best chance of winning any or all of our contests .... a far cry from 10-15 years ago when the argument was the other way around! Then it was the portable operator that was deemed to

have the edge as he usually had a better location and some even had greater ERPs !

Today the boot is on the other foot and the writer believes it's time to change the contest rules. Contests, contrary to some people's assumptions, are organised for competition, where a micro-waver can test his equipment and his operating skills against the best of them. Contests were not designed to be activity days 'per se'. Indeed, I cannot understand why all those who claim contests are really for generating activity don't come on for the planned Activity Days from November through to March and on the weekly Monday Activity nights. **Why wait for contests? Why can't we scrap many of the contests and just call them Activity Sundays**? We could still have a few contests to please those with 'competitive aggression' but the rest could be pleasant days where the same amount of activity takes place without the need to swap serial numbers in rubber stamp QSOs, often over paths that are repeated month after month.

I have no dreams of Internet liaison disappearing from the scene but, as a die-hard contester, I'd like to see a more level playing field for everyone taking part, including those who hang around contests just to pick up countries and grids and never enter a contest log!

As far as I can see there are **the following choices available:**

1. Ban the use of Internet liaison in contests ONLY.
2. Give portable contest entries a multiplier for their total score (say x 1.5 ?).
3. Split the contest entry into two groups, home station and portable.
4. Keep the contest results in one list as at present but award certificates(and trophies?) to both the leading home station and the leading portable (and their runners up). In fact we had this system a decade or so ago but abandoned it for some reason.
5. Have two contest entry sections ...one for Internet assisted operators and one for radio assisted only operators. This could be abused by the unscrupulous!
6. Leave things as they are ... Status Quo (and even that group is out of date now!).

My own preferences, for the next year or two at least, are numbers 3 or 4 ... easy to set up and could be used for this years contests... it only needs the contest adjudicator to score as normal and, in option 3, list the portables separately from the home stations. He would also need to remember that there is already a restricted power section (1 watt or less) for both categories in the 5.7 and 10GHz Cumulatives and this list should also be score separately as home/portable.

The non-portable operators among you may say, "Why don't you set up Internet facilities when you are out portable?". I wish this were viable for us all! There's only one portable UK station I know of who does this .... G4RFR/P. This group sets up a 2.4GHz WLAN repeater link all the way back to the home of one of the group. This system works beautifully and the person concern deserves praise. However, this is only possible on a regular basis when the same portable location is used each time. The alternative would be to plug one's laptop into a mobile phone and access that way. The present running costs of this are beyond the writer's means, coming on top of an average 150-200 miles drive to remote hilltops. Lucky are they who have a free mobile phone line, courtesy of their employer! Other problems surface in the form of extra battery drain. My own laptop consumes 4.75A at 19V... that's a lot of "juice" over a full day and a separate leisure battery would be needed in addition to the other four I take out. Also we would still need 2m ssb for those without Internet. In fact, I wouldn't like to take out a valuable laptop, like the one I'm using to type this article, onto the rainswept hilltops of the Pennines and North York Moors! For all the portables to "tool up" for the Internet age would incur quite large sums of money and could restrict those who "rove" around the UK putting on rare grid squares for the non-contester to enjoy, because mobile phones sometimes don' t work from some hilltops.

So, let's have a reasoned debate on this subject and try to see it from the perspective of those hardest hit by the new technology. One day, portable interenet access from any point in the UK will be a reality and this writer will embrace it with open arms. At the present time it just isn't possible and the "secret society" label that has been attached to those on KST is beginning to feel rather real when the writer is vainly calling "CQ for microwaves" on 144.175MHz, only to be greeted with white noise when the PTT is released! What say chaps? **Letters to the editor, please!**

With two microwave contests since the last issue of Scatterpoint there has been most welcome upturn in both activity and reports to this humble column.

April UKuG Lowband Microwave Contest

This contest is becoming increasingly popular as more people are building DB6NT systems to drive the now ubiquitous Ionica or HP amplifiers available for as little as £25 at rallies. While it saw mixed conditions on the 1.3 to 3.4GHz bands, most portable operators thought activity was rather low but home stations were making at least 30% more contacts by having Internet "talkback" (see pp14-15!).

Mike, G0JMI/P, IO91KA, Beacon Hill, 10km East if Winchester, Hants sends the following report for the day: **Worked: G1JRU (IO90HU, 25km), G8BKE/P (IO80WP, 82km) and G4LDR (IO91EC, 36km)** worked on all 3 bands ssb over 25km

I was using a 2.5 foot dish and inter-changeable feeds for 23, 13 and 9 cm. Power O/P 23cm: 1w, 13cm: 150mW, 9cm: 100mW.

John, G3XDY <g3xdy@btinternet.com> JO02QB, sent in the following interesting report:
This was the best supported microwave contest outside the internationally co-ordinated events in May/October that I can recollect. Lots of stations were active and conditions were on the good side of normal but without being too much enhanced. Beacons from Holland were good early on Sunday morning but dropped back again by the time the contest started.

On 23cm I worked 39 stations. The best were DF6NA (JN49XS, 664km) and DF9IC(JN48IW, 634km), other good QSOs included DJ5BV, GW8IZR, G4ALY, F1BZG, DL3YEE, and DG1KJG, all over 400km. It was nice to find 4 GWs (3TKH, 3HWR, 8ASD, and 8IZR), plus a good sprinkling of PA, DL and F stations.

On 13cm the best DX was DL3YEE in JO42GE at 501km, followed by DG1KJG (JO30) and G4ALY (IO70). Out of 19 QSOs overall, there were 4 PAs, 2 DLs, 1 F, 1 ON and 11 Gs.

On 9cm, I ended up with 13 contacts, the best again being DL3YEE at 501km, with DG1KJG (JO30NT) at 433km. On this band the stations worked included 9 G's, 2 PA's and 2 DLs.

There were several gotaways as well - stations heard on 144.175 but not found later included G1JRU (also heard on 23cm working G4SJH/P), and F1ANH in IN88. Several stations appeared on ON4KST briefly but disappeared again before we could set up a contact.

I echo the comment about coordination with other contests/activity days - it seemed the F's all wanted the high bands when we wanted the low bands, although if I read their Journee d'Activitee rules right the JA now covers all bands from 1296MHz upwards. All my French contacts were late in the afternoon after their activity day had finished. It doesn't help that their 2m talkback calling frequency is 144.390 and not .175 - but that's another story.

The June lowband event may be better, as it coordinates with the German Microwave contest and one of the main French VHF/UHF/SHF contests of the year for the first 5 hours. Lets see if the activity levels reach or exceed those of yesterday's excellent event. **73 John G3XDY.**

From: Dave Powis, G4HUP, (JO02) <powis.dfamilyj@btinternet.com>
I only had a short time available, due to a commitment to take my parents-in-law back to Birmingham. However, I managed a few **23cm** contacts in the first hour of the day: G3XDY - almost impossible not make a contact given only 7km between us! I also worked DL1EJA and DJ5BV

I almost made a contact with M0GHZ, but in spite of being a copyable signal just before we tried, I could not copy Dave! Then I had to QRT and go! **73, Dave, G4HUP**

Low band contest results from G4RFR/P Via Paul M0EYT <pauljmarsh@yahoo.co.uk>
We managed to have quite a nice day up on Bell Hill despite the awful weather which at times was horizontal rain...
On **3.4GHz** we worked; G3XDY, G3PHO/P, MOGHZ, G8ACE/P, G4LDR, G3UKV/P, GW3TKH, G1JRU, G0RRJ with the best DX being G3PHO/P at 360K.
On **2.3GHz** we managed to work: G0API, G3XDY, G8BKE/P, G4XUM, MOGHZ, G4LDR, G4ALY, G4DDK, G1JRU, G0UHY, G0RRJ.

ON4IY 'got away', as we couldn't exchange our serial number with him despite keying it for a while... which is a shame as that would have been a 500Km contact.

The **1.3GHz** results from G0NZO now follow: Running from Bell Hill (IO80UU) as **G4RFR/P**, I was operating the 23cm station. This was the first outing for this setup and it seemed to work and do the job, despite my best efforts over the last few weeks!

Thanks must to go to Charlie G3WDG, for the help with getting the PA back up and running. I used 25 watts into a 2.4mtr dish at approx 10mtrs and I completed with: G0API G3XDY G4SJH/P M0GHZ G3UYM/P G4LDR G4ALY G1JRU G4KIY G0UHY G0RRJ. Best DX was 277km with G3XDY.

73 from Jules G0NZO and **regards from the G4RFR/P group:** (G3PFM-G0NZO-M0EYT)

Heath, GW3HWR,<@aol.com>, Swansea, writes: Here's my report on a very good contest on 1296MHz, my first full event for 38 years. I made 9 QSOs with:- G0RRJ, G3XDY, G4ALY, G4BRK, G4EAT, G4XUM, G8DKK, GW3TKH, GW8IZR, with 3 failures, probably because of my low power TX: G3PHO/P, G4DDK, GW8ASD. (I've done a lot worse in a 432MHz event).

Interestingly, I didn't work any portable stations Apart from Peter, G3PHO/P, the only one definitely identified was G3UKV/P; the difficulty was keeping track of stations working on more than one microwave band and decoding the exchange of first names and no callsigns.

Searching and calling on 1296MHz brought nil return, most contacts followed QSOs on or near 144.175MHz. I know how the 144MHz band works for me here, it will take time before I can get the best out of 1296MHz.

From: John, G8ACE /P Lane End, IO91JA <usuallyqrt@dsl.pipex.com>

I worked nine stations between 13.00 and 16.00 Best was G3PHO at G3PHO/P at 327km with G3XDY as runner up at 204km and in third place G3UKV/P at 190km. Rain stopped play at around 16.45 BST. I missed out with at least four active stations so the 9cm activity is gradually increasing. All stations worked either SSB or FM.

Gear this time was the 9cm MKII rig. This uses an Ionica Rx module and an HP Tx module. (The HP module is around half the price of the Ionica and easier to implement for much same power). Rx double conversion and Tx single conversion all LO frequencies derived from a single 101.75Mc/s crystal. 144Mc/s IF to/from FT290. Dish was an 80 x 85cm offset dish, side mounted just to confuse headings, measuring 25.5dBi with an NNS feedhorn (see his webpages for templates). Thanks to all for the contacts, an enjoyable afternoon. 73, John, G8ACE.

Ralph Bird, G4ALY , IO71VL, <Ralph.Bird@btinternet.com>

Ralph writes: Here are the stations I worked in the Low Band Microwave Contest on 24th April 2005.

23cm: GW3HWR/P,G3XDY(415km), G8BKE/P, G4EAT, G3PHO/P(453km), G4RFRP, G4LDR, G4DDK, F6APE (434km), F5PMB(514km ODX)
G3LRP(399km), G8DKK, G0RRJ, G4BRK, G23TKH, G0UHY, in that order (16 Total).

13cm: G3XDY (415KmODX), G8BKE/P, G4RFR/P, G4LDR, G0RRJ. (5 Total).

I failed to complete F6FHP (700Km). He was 519. GW8ASD 419. In addition I gave GW8ASD 2M and 70cm for new square.

I also worked F6APE on 6cm in the last five minutes of the French contest at 434km. Not a bad day had here. Thanks to all for the contacts. **73 Ralph, G4ALY**

Peter, G3PHO/P operated from IO93PW37, a little summit on the Yorkshire Wolds to the NW of Pocklington. With 15 watts on both 23cm and 9cm he thought he might be in for a good day but disappointment soon set when he found the 2m talkback link quite deserted. Even 23cm did not have the feel of being in good shape. It was quite a shock to work one station on 23cm, less that three hours into the contest, to find the said station had almost 20 in his log compared to Peter's 5 ! It was good to know that several Welsh stations were active on 23cm. It fact it almost began to sound like the "old days" when almost every Welsh hilltop would sport a portable group. Best DX on **23cm** of the 16 worked was G4ALY at 454km ... tnx Ralph!

3.4GHz bagged only 10 two way contacts for an average distance per QSO of 288km, the best DX being G8BKE/P (IO80WP) at 385km.

When he got back home Peter found out that there had been several Continental stations and other UK stations about but not one was heard on the 144MHz talkback channel, since they were all monitoring www.ON4KST.com for "calls" ! Portables are going to find the going tough over the next few years if this trend continues. Home stations ... please spare a thought for those portables who regularly go out to give you contacts in rare squares. The least you can do is to put up some sort of VHF talkback facility for them and regularly monitor 144.175kHz ssb.

From: Paul Higginson GW8IZR, (IO73TI Anglesey) <paul_group@greenrover.demon.co.uk>

Nice contest, a bit slow going - gave me time to fix my 4m antenna at same time.

23cm single band with 10W to a 2m dish at 6.5m agl. 10 stations worked: G3XDY, G4EAT, G8XVJ, G4XUM, GW3HWR, G8DKK, GW8ASD, G0FYD, G0HIU and G4KIY. I failed with G0RRJ who I could *just* hear and someone answered my CQ at about 15:00 on CW.. Sorry, you were just too weak! **G4KIY was only station to answer my hours of CW cq'ing (readers pse note .. editor !)** G3XDY @ 402Km was my best DX for the day while GW3HWR gave me a new Loc square and new country!!! Tnx all qsos .. **Regards, Paul.**

From: Paul, GAYY, Birmingham <p.gaskin@tiscali.co.uk>
I came on 1.3 GHz from home but only managed to work George, G8AIM, in Leamington Spa at 26km with 5 & 9+ signal reports. I had specially wound the Versa-tower up but band conditions seemed poor and the GB3MHL beacon was weak.

By the way, the 'In Practice' item, by Ian White GM3SEK in 'Rad Com' May 2005, 'CROPPING COMPONENT LEADS' should read : 'G8AYY points out that side cutters can be used to crop leads BEFORE soldering..' 'Bent Neilsen, OZ8BN .. that you trim (cut flush) leads AFTER soldering..' **73, Paul G8AYY**

MAY RSGB 432 & UP CONTEST REPORTS....

From Ronny, M0FWZ/P (IO91DE33)
Beacon Hill, East of Amesbury, 204masl.
I worked following stations on the 7th May between 18:00 - 20:30z
5760 MHz
G4LDR IO91EC, G4NNS IO91FF, G4RFR/p IO80UU, G8IFT IO92GB
10368 MHz
G4LDR IO91EC, G4NNS IO91FF, G3FYX IO81RM
G4RFR/p IO80UU
G4MAP/p IO92GB
My Equipment:
5760: 150mW 80cm offset dish with G4NNS feeder
10368: 250mW 80cm offset dish with G4NNS feeder
144.175 talkback with an IC706 + HB9CV.
73 de Ronny M0FWZ / SM7FWZ

From: Chris Bartram, GW4DGU (IO71) <yahoo@blaenffos.org>
Having persuaded my 1.3GHz antenna to point approximately towards the horizon, while everyone was seemingly scurrying to Dunstable, I was moderately pleased with my results on 1.3GHz.

Sunday morning was interesting from a propagation viewpoint. Somewhere over southeastern England there seemed to be a mass of highlyturbulent air which made tropo backscatter on 432 sound more like 70cm aurora. Possibly this came from microwavers generating hot air in Bedfordshire! Even forward scatter on 432 and 1296 seemed to be significantly decorrelated. PA6NL was very broken-up at times. I could hear simultaneously at least three different CW signals from John, G3XDY on 1296... One semi-local, beaming east, was very convinced that my 432MHz signal was breaking-up, and I spent more time than I should have checking the 70cm system using a full array of test gear. I couldn't find anything wrong, apart from a rather 'hard' sounding mic. That's why I suddenly disappeared mid-morning, if anyone was wondering. After that, I was so cheesed off that I went and worked on our tractor, and then harrowed a field! Apologies to a number of people who I could have worked on 1296 if I'd have stayed around.

From IO71 the best I heard on 1296 was a DL0?? who must have been at least 800km away. PA6NL and PI4Z were both heard on 23 at just under 600km, but I didn't make a QSO with either. I need more power and a bigger antenna! It was good to hear GM3HAM/P and GD0EMG doing well on 1296. I suspect that if I'd had time to get 10GHz tropo running, QSOs on that band would have been possible. **73 Chris GW4DGU.**

From: G1EFF.P, Dave, <david.austen@thalesgroup.com>
I went out fully intending to dust off my 3cm gear for the first time in several years. Unfortunately it was so windy that I couldn't risk leaving the dish mounted on the mast. I was hoping the wind would drop in the early evening but it kept on blowing! Consequently I stuck with **23cm** ... here's my report:
Location: Coombe Gibbet IO91GI
Operating time: 14:00 to 18:00 Saturday
Power/Antenna: 15 Watts into 26 ele H/B DL6WU @ 4m AGL
Worked: 16 stations
Best DX: DF0HS/P in JO31AA @ 524km, followed by GM3HAM/P in IO74WV @ 433km
Not too bad for a modest set-up and with activity spread across so many bands. Hopefully the October Wx will be better. Thanks to all who provided a contact.
Dave Austen G1EHF/P

From: Ralph, G4ALY (IO70VL) <Ralph.Bird@btinternet.com>
Over this week-end I worked 8 on **23cm**, 2 on **13cm**, 6 on **6cm**, 7 on **3cm**. The best DX was 399km G3LRP on 6/3cm and 408km GD0EMG 23cm.

The most interesting one was F6DRO/P on 3/6cm in IN77US which is a rare square, at 301km. Dominique had to set the station up on the beach to be able to be on the right side of the line to qualify for IN77. The signals on both bands were very good even though the path was blocked by the local town in my direction.

Normally I would be able to work lots of French stations on 2m/70cm I only worked 7 on 2m and 6 on 70cm, My usual group of beacons audible here were well below normal on both days. **73 Ralph G4ALY**

From: John G3XDY, JO02QB, <g3xdy@btinternet.com>
Following on from the report on the low band contest, here are some highlights from the recent RSGB UHF Contest. Conditions were fairly average, with a brief period of short range rainscatter on 10GHz and some aircraft scatter QSOs on 23cm.

1.3GHz: GM3HAM/P, IO74WV, 473km; DL3YEE, JO-42GE, 501km; DL0GTH, JO50JP, 684km; DL3IAS JN49EJ, 585km; GD0EMG IO74QD, 453km, GM4LBV, IO86RQ, 569km; DL0WAE JO42DC, 484km; DF0WD, JO42FD, 496km; SK7MW, JO65MJ, 861km; DK6AS, JO52JJ, 654km. The QSOs with SK7MW and GM4LBV were by aircraft scatter.

2.3GHz: DL3YEE, JO42GE, 501km; GD0EMG, IO74QD, 453km. A couple of tests with DL0GTH were made but there was no aircraft scatter on the path on each occasion so nil heard.

3.4GHz: DK2MN, JO32PC, 416km; DL3YEE, JO42GE, 501km. Not as many PA stations were active as in previous years. GD0EMG was heard briefly on aircraft scatter but then disappeared.

5.7GHz: DL3YEE, JO42GE, 501km
Some useful peaks due to aircraft scatter on 6cm.

10GHz: PA0WMX, JO21XI, 337km; PI9A, JO33FB, 372km Hard work to get contacts in the bag, too many failed attempts. The trees to the NW once again defeated attempts to work GD0EMG. **73 John G3XDY**

From: Dave, G4HUP (JO02)
<powis.dfamilyj@btinternet.com>
An interesting weekend! I spent the bank holiday weekend and all evenings during the week preparing a new shack in the back of an insulated HGV trailer and also getting the tower ready. By Saturday lunchtime I had 2m and 70cm antennas (recovered from the back of the house) on the tower and the 1.2 m dish (as measured by G4NNS at RAL) mounted for 23 and 13cm. I had also built the mast head box holding the 23cm relay and pre-amp, and the entire 13cm transverter, except the LO. Unfortunately, I didn't have time to get the 13cm 40W PA in the box as well, so operated with just 10mW out of the WDG transverter. I even used my old 13cm yagi to establish the WLAN link so that I could have KST available!

The tower finally went up into the vertical around 14:30 local, but I chickened out of raising it as the wind was quite blustery - we did have hail and rain quite heavily during the afternoon.

Everything worked fine once I realised that in my haste I had connected the lead that should be supplying +28v to the 23cm antenna relay to ground and established the correct connection!

Conditions were very variable - deep QSB, multipathing etc. Difficult to make a comparison as this was the first 'outing' for the system - however, I worked GD0EMG for the best DX of the day, and established a number of new UK squares.

On Sunday morning I was rather more brave with the tower and wound it up to about 45-50 feet - the limiting factor was the length of coax on the 23cm Rx line. First contact was GM3HAM/p for another new country, followed shortly by GW4DGU. Many PA stations and several DL's were worked during both days, but the 'icing on the cake' was a final QSO with OZ1FF at 593km. I also heard G3XDY working SK7MW - Tor was 539 to me by aircraft scatter.

In total 31 QSO's on 23 and just 4 on 13 - I'm looking forward to pushing that total up once the PA is installed.

Thanks to all who provided the other ends of the contacts, especially those braving the weather on hilltops! I look forward to the next event!

On the 14 May I worked DF9IC on 23cm at 601km via aircraft reflections on 23cm. I'm currently making progress in installing the 40W PA for 13cm, so hopefully will be properly on that band before the next contest - DL microwave contest on 4-5 June. **73, Dave, G4HUP**

OTHER MICROWAVE NEWS

From: Paul,M0EYT, [pjmarsh@compuserve.com]
Just a few lines about some of the tests I've been doing with Dave G0RRJ:

On April 15th, I had completed the feeds for a couple of my microwave transverter systems, 2.3G and 3.4G and could hear the Bell Hill beacons but wanted to test with real signals. I "talked" to Dave G0RRJ via ON4KST and he pointed in my direction and sent his CW beacon on 3400.100MHz - to my surprise I could hear him, despite the dish being only 2m above the ground and beaming directly into a hedge and trees. We completed a QSO on 3.4GHz with 539 sent and 529 received. The path between us is 61km but not very favourable terrain.

The next test was on 2.3GHz, with Dave sending his CW beacon on 2320.200 - this was received with the same dish reflector,and the ring feed. RST529 each way was exchanged. Following the two low band QSOs, we completed on 5.7GHz with 55 sent and 53 received and finally on 10GHz with 59 sent and 55 received in SSB. The 10GHz QSO showed signs of RS so we located the scatter point and worked via that also, with good signals being received each end.

A few days later, on the 22nd, we tried again on 3.4GHz, completing with 529 sent and 539 received, but also managed an SSB QSO with RS42 on send and receive - all over a massively obstructed path - I think both of us were surprised that any of these QSOs were possible.

From: Chris,G8BKE, <ctowns@care4free.net>
I' ve been spending the last few months trying to get something going on **142GHz.** Using the DB6NT mixer, G8ACE / Luis Cupido oscillators and a 160mm dielectric lens antennas. So far tests along the driveway have been made but itis hoped to get out /P later in the year with the gear At least the GPS locking on the Rx and the source works, as no retuning is needed while alignment is performed. **73 Chris, G8BKE**

FRENCH DXPEDITION TO IO51 (IRELAND)

F1PYR and F1BZG will be active from **IO51** square, later this year, on all microwave bands up to and including 24GHz over the period September 23 to 25 inclusive. This is not a UK Contest day so please make a special effort to give them some contacts! Usual UK talkback channels plus the French 144.390MHz ssb talkback.

Photo right: The antenna used by Sergei, RW3BP, to make the outstanding World Record contact of this decade, so far, between **AD6FP** and himself on **47GHz**. This was reported in detail in last month's Scatterpoint. The dish shown is 2.4m in diameter and is fed with a **100 watt** amplifier at 47GHz ! **RW3BP has worked AD6FP, W5LUA and VE4MA** on this band and has been heard by Gunther, **VE7CLD**. What a wonderful achievement by all!

Who says amateur radio is a dying hobby?!

The photography below shows some members of the G4RFR/P contest group (Flight Refuelling Amateur Radio Society) setting up their microwave antennas for the May 2005 RSGB 432 and up Contest. The group uses Bell Hill, IO80UU, for their contest expeditions and have a long-distance 2.4GHz WLAN broadband Internet link, developed by M0EYT, allowing the use of Internet liaison for setting up microwave contacts. Details of the system can be found in the recently published "Proceedings of the UK Microwave Group 2004-5".