



An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

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

2005 JANUARY



Standing room only! Microwave Update ~ Dallas 2004



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

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From the Editor's Desk

This month's issue carries much important information about the threats facing our microwave bands over the coming years. It's very easy to say, "I'm never going to be on 24 or 76GHz, so I don't have any thing to say about the recent Ofcom document that refers to these bands". Apathy and complacency are our real enemies in this hobby! Please folks, read all you can from the Ofcom website for there is a virtual waterfall of papers appearing as I write this column. For once, we the public are asked to respond... please do so! The UK Microwave Group is taking these papers very seriously and has already posted its response on the 76 and 24GHz issue. Single, private individual responses are just as important. The Ofcom website(www.ofcom.org.uk) has downloadable response forms for you so you don't have to do more than fill them in and add your comments!

We are not alone in this fight for our bands. The astronomers, meteorologists, remote imaging groups and the like are all in the same boat as us. **73 Peter, G3PHO**



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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 below. 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.

FOR SALE

Kune 10GHz Preamp Model MKU 102s EME.



Brand new and never used. It was part of an EME system I had been planning (£120 o.n.o)



Kune MKU 23-47S Varactor multiplier 23GHz in 47GHz out >15mW -Brand new and never used (£150 o.n.o)

Contact Martin

Farmer G7MRF QTHR

**Email G7MRF@Amsat.org or
telephone 01782 637467**

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

UK MICROWAVE COMMITTEE NEWS

Your committee has been working hard over the past few months in a number of areas. This report covers a number of important spectrum issues which have been keeping the committee extremely busy recently (including the Christmas period!).

OFCOM CONSULTATION DOCUMENTS

Several very important discussion documents have recently appeared on the Ofcom website (www.ofcom.org.uk). These are available for download in PDF format by anyone by visiting the website. Some of them are several MB in size so you will need to be patient if you do not have a broadband connection!

(1) **The Spectrum Framework Review** outlines OFCOM's plans for the future including the suggestion that several radio services (including Amateur Radio) may be considerably deregulated. This raised the alarm at RSGB HQ and a special working party was organised to look into the implications and file a response to OFCOM in the near future. This document covers Amateur Radio as a whole, not just microwaves, so the UKuG Committee has decided to leave the response in the hands of RSGB as there are other documents on the website that could affect UK microwave operation.

(2) **Notice of Ofcom's proposal to exempt automotive short-range radar users at 79GHz from wireless telegraphy licensing**

This paper, published on the Ofcom website on the 9th December and corrected on the 15th December, concerns deregulation of licencing requirements for manufacturers and users of Short Range and Long Range anti collision radar in vehicles. The suggested spectrum requirements for both these systems is quite enormous ... up to 5 GHz from 77 to 71GHz in fact! This covers the UK amateur allocations in our so-called 76GHz band. Until 2006 we have use of a primary section at 75.6 to 76GHz but an earlier decision was made to take this from us and move us up to a **primary** section at 77.5 to 78GHz, with a further secondary space at 78.81GHz. In other words, we would be dropped

right into the SSR/LRR potential interference zone! The logical step would be to let us keep the 75.5-76GHz primary allocation but this means a reversal of decisions taken at international level in the past. **Your committee has submitted a powerful response (written by Committee member Murray Niman, G6JYB) asking for the old primary section to be reinstated on a permanent basis** and for OFCOM to take more care in future to consult groups such as ours. Our submission should be posted, along with others, on the OFCOM website after January 14th 2005, so it may be worth a look after you read these pages!

Unfortunately the story doesn't stop there as the OFCOM document also states that the 24GHz band may be used in the interim while equipment and systems at 79GHz are developed. It would be relatively easy to set up SSR/LRR on 24GHz within a year or two whereas the 79GHz equipment could take almost a decade. The following passage from their document clearly shows the intention:

"In order to enable early adoption of IVS using SRR equipment the EU is proposing to allow limited use of the 24GHz band in the short term. This will allow equipment using the 24GHz band to be installed from 2005 to 2014, up to a maximum of 8.3% of the total vehicle stock. Ofcom is to consult on the use of the 24GHz band by SRR equipment during 2005".

Murray, G6JYB comments: The question therefore arises as to what is meant by 'short term' use of the 24GHz band? There are projections by the automobile industry itself than suggest that "short term use of the 24GHz band" will mean that vehicles fitted with such devices will be in use until **at least** the year 2020 !

Clearly this represents a potential threat to weak signal work on a band that has been growing in popularity over recent years.

The problems don't stop at 24GHz either. Some very recent documents that have just come into the Chairman's hands, but are not yet classified for the public domain, suggest there

will be even more possible dangers to every amateur microwave band we have, as early as 2008, just three years away. We hope to provide more details in the next edition of Scatterpoint. Rest assured, the UKuG Committee will make its voice heard, on your behalf, in any discussions and consultations that may arise.

IARU REGION 1 PAPERS

The UKuG Committee has also been busy behind the scenes, preparing papers for submission to this year's IARU Region 1 meeting. Such papers have to go via RSGB to IARU, so our committee decided to draw up three papers for submission and forwarded them to the RSGB Spectrum Committee via Mike Dixon, G3PFR, who is RSGB's Microwave Spectrum Manager. He has considerable experience and expertise in how such papers should be worded and assembled and has been of invaluable help to the papers' authors!

The first paper, *"Galileo GNSS in the 1.3GHz band"* has been compiled by a non committee member of UKuG. We have to thank **Peter Blair, G3LTF** for this excellent paper on the Galileo Navigation Satellite and its implications for the amateur microwave operator on the 23cm band. Peter has considerable knowledge on the subject and his paper shows it!

The second paper, *"The role of Special Interest Groups (SIGs) within national and international Amateur Radio Administration Frameworks"* is an informational one concerning the UK Microwave Group. We have sought to "make our mark" with IARU in letting them know that we exist and who we represent. Written by UKuG's Chairman, it outlines how the Group found a new "raison d'être" after the demise of the RSGB Microwave Committee and how it has had to assume the important role of not only being a specialist group of like-minded enthusiasts but, when it comes to consultations with the regulatory authority, being the "voice" of UK microwavers as a whole. The paper puts forward the UKuG as a model for other microwave enthusiasts in other countries. It is actually quite surprising that other countries, even the USA, do not appear to have a **national** microwave group to represent them.

Finally, our third paper, drawn up by **Murray, G6JYB**, is entitled *'Challenges to*

Amateurs in the Microwave Bands'. It summarises the latest status and suggests new tactics to organise defence of Amateur allocations. A three-pronged approach is proposed for IARU members to consider what Murray has termed the '3Es' - Evolution, Education and Engagement. He also emphasises the importance of forging links with other weak signal flux users such as the Earth Sciences and Astronomy communities who face similar threats to frequency allocations. Their numbers may be modest but they do have political connections and often get significant amounts of national funds.

So there we have it ... just a part of what the UKuG Committee have been up to. Outside the politics of microwave spectrum issues, we have also been busy doing further work on the **Beginners CD and Information pack** described over a year ago at UKuG's Martlesham meeting in 2004. This has been held up by the usual time constraints facing those committee members who also have a full time job to hold down. However, one of our new committee members has "volunteered" to take the project on board so we expect a more rapid progress towards the finished article.

Another project is to produce a **"Proceedings of the UK Microwave Group"**, a book along the lines of the USA's Microwave Update Proceedings. This is now in hand and several presentations from the past 12 months of microwave meetings in the UK are already in the resource file for this book. We have had a very favourable quote from our Scatterpoint printer and the book should look good when it comes out. **WE ARE ANXIOUS TO INCLUDE SOME NEW, HITHERTO UNPUBLISHED, MATERIAL** into the book so if you have something to offer then please send it to the Scatterpoint editor as soon as possible.

If things work out, the "Proceedings of the UK Microwave Group 2004-5" could very well be available as early as the RAL Microwave Round Table meeting this April.

The Committee have also been negotiating the date (usually in April) for the annual microwave round table meeting at RAL. This has not yet been finalised at the time of going to press. A definite date will be published in next month's Scatterpoint.

Peter Day, G3PHO - Chairman UKuG

A Voltage Standard for the Hamshack

Paul Wade W1GHZ ©2004

w1ghz@arrl.net

Recently, while tuning up a new project, it seemed like the knob on the power supply turned awfully far just to reach 12 volts — then I noticed the "low battery" indicator on the digital multimeter. The voltage was already above 16 volts. Fortunately, that project has an internal regulator so no damage was done. However, it was annoying — this digital multimeter replaced one whose flaky range switch caused similar problems. At times, I've pulled out the old Simpson VOM - the red needle is reliable but not as precise.

A few nights later, I found a bag of parts buried on the workbench — probably purchases from a hamfest last summer. Among the gems was an IC marked AD581L. A quick search at www.analog.com showed it to be a precision voltage reference, laser-trimmed to exactly 10 volts. Just the ticket for untrustworthy digital meters.

The AD581 has only three terminals: an input of 12 volts or higher, an output of 10 volts, and ground. No external components required. I dug up a small ABS plastic box, a couple of pin jacks, and a cord with an Anderson Powerpole connector. Two holes and three solder joints completed the assembly. The photo shows the complex assembly — I added a bypass capacitor, just because. A schematic is hardly necessary.



Time to spark it up — the output was 10.01 volts on the digital multimeter. Pretty good, but the L suffix is specified to be within 5 millivolts, so I tried a lab-grade meter, and read 10.003 volts — really good. The data sheet talks about aging for 200 hours to stabilize, so I ran it for a week and measured again: 10.0031 volts.

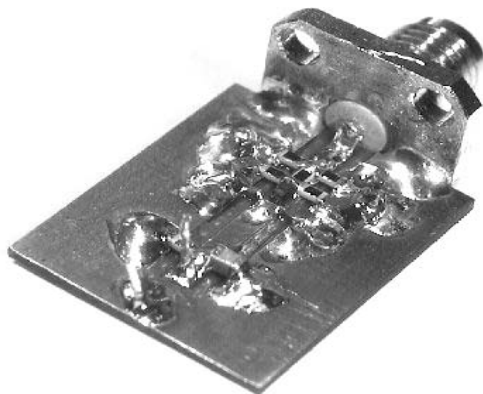
Is this accuracy necessary? Probably not, most of the time. I tried several digital multimeters of various age and quality, and obtained the following readings: 10.10, 10.03, 9.96, and 9.98 Volts, a range of 70 millivolts. None is off by more than 0.4%, not bad considering that these were cheap meters rated for 1% accuracy when new, and never calibrated since. 1% accuracy is fine for most measurements, but some things, like battery testing and charging, require finer resolution. We've learned the hard way that good, fully-charged batteries are essential for successful portable operation. Comparison to an accurate standard is a

good way to get more accurate results.

This is a handy little gadget that you can build, even if your homebrewing skills aren't quite up to tiny surface-mount microwave components. The AD581 is readily available from www.analog.com, or an equivalent part, the LT1031 from www.linear.com (see application notes AN82 and AN42); both are available from Digikey. In either case, you can pay for as much accuracy as you need. Other voltages are also available. Many are lower noise than normal voltage regulators, so they might be good voltage references for low-noise oscillators. Some of these parts may be available as surplus — mine apparently was — so let us know if you find a good source.

A low-cost high-performance RF power sensor

By Herbert Dingfelder, DL5NEG



What is it good for?

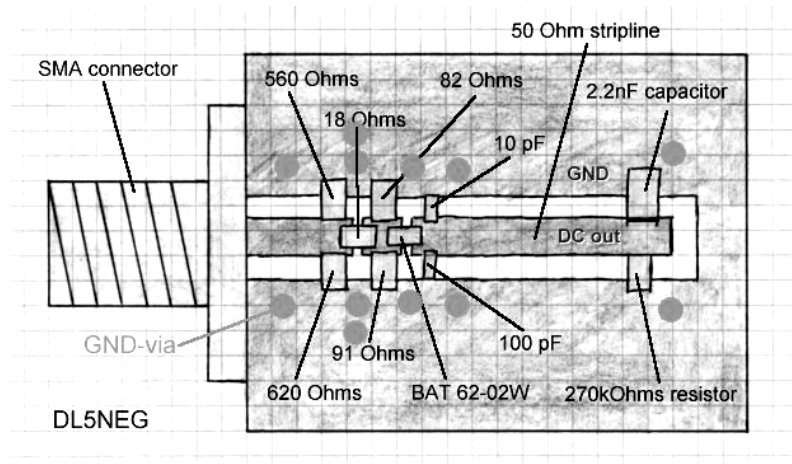
A lot of radio amateurs are afraid of building gear for GHz frequencies because they fear that they have no chance to measure at these frequencies. Well, the most interesting parameters of a signal are frequency and amplitude. Reasonably priced frequency counters up to 3GHz are widely available now but RF power meters are still quite expensive. This circuit transforms a RF signal into a DC voltage level which can easily be measured with a low-cost multimeter. Using the graph shown later in this article, you can then determine the RF signal level.

How does it work?

The 5 resistors at the input form a combined 3dB resistive pad and RF termination. The RF diode (BAT62-02W) rectifies the signal, the capacitors on the DC side form a broadband short circuit for RF. Having the different capacitance values in the arrangement shown (the pF very close to the diode) is very important for a flat frequency response.

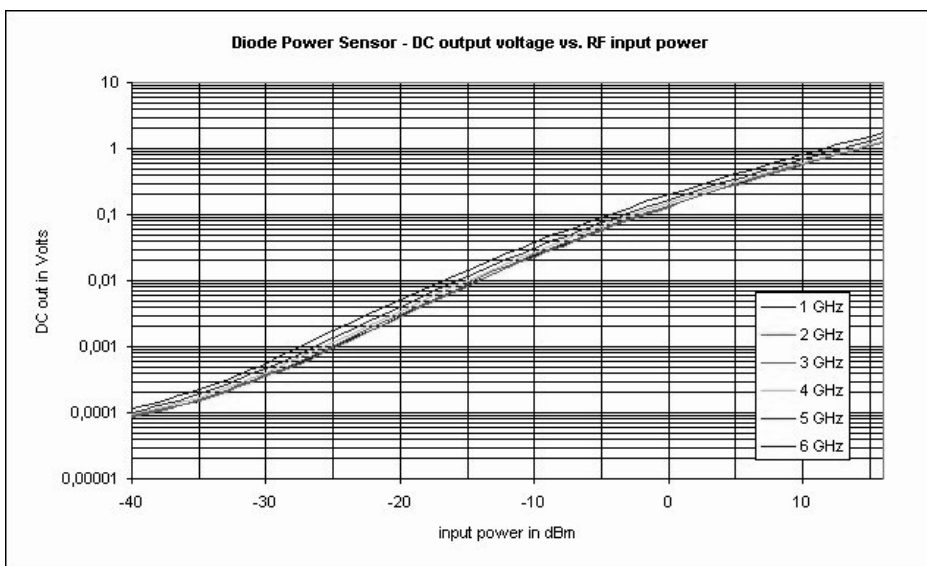
The **component layout** shown on the next page is for scaling. One grid square is one millimeter. The ground vias are very important for a constant frequency response. The more the better. I have marked my vias in the drawing to give you an idea where the vias are most important. I have used silver coated copper wire with 1mm diameter, the thicker the better. I have used FR4 PCB material with a thickness of only 0.8mm to keep the ground vias short. You can use 1.5mm material as well but the stripline has to be 2.5mm wide then.

RF input is the SMA connector on the left side of the circuit board. The rectified DC voltage is present on the stripline right to the diode. Just measure the voltage across the markings shown as GND and DC out. See below for finding out how much RF input power causes a certain DC level at the output.



How can I convert the DC level to the RF power level?

I have built a number of these circuits and the variation from one sample to another is very small. So if you built such a circuit for yourself and stick to the component mounting drawing above, you can use my measured values. You can even use BAT62 diodes in different packages for frequencies up to 2.5GHz. Above 2.5GHz it makes sense to use the very small package that I have used to keep the self-resonance frequency high.



(This graph can be seen in full colour on DL5NEG's website)

In the graph above you can see the DC output voltage that the circuit gives at certain input power

levels at certain frequencies. As you can see the DC output voltage is practically independent frequency up to 3GHz. Above 3GHz there is a slight frequency dependency but, using the graph above, you can still determine the RF power with high accuracy.

If you feel that the graph does not give you precise enough information you can download the complete table from my website as textfile. Go to **www.dl5neg.de**

Any questions? Just don't hesitate to contact me by email and I will be glad to provide you with answers.

Email: homepage.feedback@dl5neg.de

This diode sensor by itself will be interesting enough to many readers but I would also like to draw your attention to the sub-page on my website that describes a full-blown handheld power meter, using the aforesaid diode sensor (amongst others). It provides the radio amateur with a fully featured power meter for very little money. Due to the fact that the measured sensor tables are put into the software (with interpolation within the measured 1dB steps), the reading is extremely precise, usually well below 0.5dB absolute error. Details can be found at:

<http://www.dl5neg.de/powermeter/powermeter.html>

I have another page that gives an overview on the working principles and the pros and cons of diode, thermal and logamp sensor and you might feel it's worth visiting at:

<http://www.dl5neg.de/powermeter/theory/powersensors.html>

Happy measuring!

Herbert, DL5NEG



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MICROWAVE CONTESTS 2005

Aims and comments:

The calendar is very similar to 2004, with the same format for the combined 5.7GHz and 10GHz cumulatives, and the combined 1.3GHz/2.3GHz/3.4GHz events. These have encouraged a lot of new activity on these bands, since their introduction in 2003.

On the higher bands, 24GHz is combined with 47GHz, as per 2004. Often the same dish used for both bands, and 24GHz is often used to align this dish before a 47GHz contact is attempted, so that a number of operators expressed the wish that it be continued. 76GHz is not included as an event in the calendar – operation on this band tends to be more individual tests, arranged to suit the weather and individual operators, rather than a specific contest date.

In planning the year's contests we have tried to avoid clashes and adjacent weekends with major VHF contests and events such as rallies and microwave meetings but, inevitably, this has not been possible in all cases.

Microwavers in Europe are most welcome to join in our UK contests. There is already a core of French, Dutch and Belgian stations who appear regularly in our summer contests. We would like many more to do the same!

The Rules listed below are final and binding for 2005 (there are some changes from 2004).

The following contests are scheduled for 2005:

Low Microwave Bands - 1.3GHz/2.3GHz/3.4GHz (3 contest days)

5.7GHz Cumulatives (6 contest days with 3 to count for scoring purposes), on the same days as the 10GHz Cumulatives.

10GHz Cumulatives (6 contest days with 3 to count for scoring purposes), on the same days as the 5.7GHz Cumulatives.

24GHz Cumulatives (4 contest days with 2 to count for scoring)

47GHz Cumulatives (4 contest days with 2 to count for scoring)

10GHz Trophy (1 contest day, arranged by VHFCC, see the VHF listing for further information.)

In addition there are four non-competitive winter activity days.

The full contest program and rules are also published in the January 2005 issue of the RSGB's RadCom and are also available on the Internet at: www.g3pho.org.uk and on the UKuG website at www.microwavers.org

General Rules (applicable to all events)

ALL THE CONTESTS (except the 10GHz Trophy) run from **0900 to 2000 UTC** on a Sunday.

- The Contests are open to all comers (you do not have to be an RSGB or UK Microwave Group member), except for the 10GHz Trophy where contestants must be members of RSGB if they wish to submit logs. The logs for the 10GHz Trophy must NOT be sent to the UKuG Contest adjudicator.
- Contestants are expected to enter in the true spirit of the event and to adhere strictly to any equipment or power restrictions that apply to the particular contest.
- Operators may enter as home station or portable (either mixed or separately); in multi-band contests, single-band entries are always acceptable.

Stations: Entrants must not change their location or callsign during the contest, unless the Rover rule is invoked. In multi-band events, all stations forming one entry must be located within a circle of 1km radius.

Contacts: Only one scoring contact may be made with a given station on each band, regardless of suffix (P, I, M, etc) during an individual contest or cumulative activity period, unless the Rover rule is invoked. Contacts made using repeaters, satellites or moonbounce will not count for points. Contacts with callsigns appearing as operators on any of the cover sheets forming an entry will not count for points or multipliers.

Scoring: Contacts are scored on the basis of 1 point per kilometre for full, two-way microwave contacts and at half points for one-way (ie crossband) contacts.

Exchanges: Contest exchanges on the microwave bands consist of RS(T) + serial number (starting at 001).

In addition, the six (or eight) figure QTH Locator must be exchanged either via the microwave band or on the talkback frequency. Where the Locator is not known, a full six-figure National Grid Reference (UK only) must be provided. In multiband contests, the serial number will start at 001 for each band (ie a common sequence across the bands is NOT to be used). No points will be lost if a non-competing station cannot provide an IARU

locator, serial number, or any other information that may be required. However, the receiving operator must receive and record sufficient information to be able to calculate the score.

Paperwork/Entries: Contestants are asked to make sure their entries have been scored correctly and that all relevant bonus points and multipliers have been claimed.

All entries must be prefaced with an appropriate summary / cover sheet (either an RSGB VHF / UHF type or a personal one) showing: Title of contest, name(s) of operator(s), location(s) of station, section entered, callsign used, band score(s), multipliers or bonus points, final claimed score. The sheet should also detail equipment used, particularly the power output, antenna and receiver for both the microwave band and the talkback. This is very important if the logs are entered in one of the restricted sections. Where the contest has a 'rover' facility, it is essential that each location used is clearly stated.

- Where Locator squares and / or countries are used as multipliers for bonus points, a summary list of the squares and countries worked must be attached to the contest cover (summary) sheet. This list should include the callsign and date of the first contact for each square / country.
- Log entries may be submitted directly on paper, using standard RSGB VHF Contest sheets or self-prepared contest sheets, on a 3.5in diskette (IBM PC format), or via e-mail. For electronic entries, the format should be one of the following: ASCII text, Microsoft Excel, Microsoft Word, or the G4JNT contest software format. E-mail entries will be acknowledged to confirm receipt.
- All logs should be sent to the Contest Adjudicator, G4KNZ, *within 16 days of the end of the contest*. Late entries will be acknowledged but not used in the final ranking. G4KNZ's address is: 17 Haywood, Bracknell, Berks RG12 7WG, UK; or e-mail: steve.davies@nokia.com

Awards: Certificates will be awarded to overall contest winners and individual section leaders and their runners up. Additional Certificates of Merit may be awarded at the discretion of the adjudicator. With these, as with the logs, the adjudicator's decision is final.

Special Rules: Applicable if called up for the specific contest:

Rover Concept: The 'Rover' concept is to encourage lightweight, low power portable activity. This allows the location of the station to be moved as many times as desired and by a minimum of 16 linear kilometres, at any time during the contest period. From each new location, stations worked from any of the previous locations during the event may be worked again, both stations involved in the contact gaining points. The serial number, however, will not revert to 001 each time a move is made but will carry on consecutively from the previous contact.

Low Band Microwave Contest Rules

First introduced in 2004, these contests aim to encourage operation on the three lowest bands in the amateur microwave allocation, particularly as there is growing UK interest in 3.4GHz equipment and triband antenna feeds for these three bands. The April and November events are aimed more at home stations, though portable operators are, of course, welcome to enter. The June event is more likely to suit portable operators, and is also timed to coincide with UHF/SHF events in other IARU Region 1 countries.

1. The General Rules listed above apply.
2. There are three contests, one in April, one in June, and one in November.
3. There is only one section - open.
4. Each band will be scored and tabulated separately. The total points for each band will then be normalised by the adjudicator to 1000 and the normalised band totals added up and tabulated.
5. Each session will be scored separately - there are no cumulative scores.
6. For each session, April, June and November, certificates will be awarded to
 - the leading entry on each band
 - the overall leading entry across the three bands
 - the runners up to both the above categories
7. All logs should be sent to the contest adjudicator, Steve Davies, G4KNZ, within 16 days of the end of each of the three contests.

5.7GHz Cumulatives Rules

The 5.7GHz and 10GHz cumulatives have been run concurrently because of the growth in activity on 5.7GHz, and the ease of combining the two bands on the same dish. Although they are on the same days, they are completely separate contests. Either band or both bands can be used on any of the 6 days, and any three days submitted for either band.

1. The general rules shown above apply.

2. There are six, monthly, events, from May to October inclusive.
3. Any three of the six events may be used for final scoring purposes. Logs for all events entered should be submitted.
4. There is one section - open.
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. The final, total kilometre score for the best three cumulative sessions will be multiplied by the total number of different Locator Squares ("grids"), for example IO92, IO81, etc) contacted over the entire cumulative (ie up to the six events maximum). To claim this bonus it is therefore essential to submit logs for all events entered, not just the best three. Please include a separate check list of the squares worked with your cover sheet. This multiplier is applicable to all sections. A one-way contact to a new locator square can be counted as a square for the purposes of the multiplier.
7. Certificates will be awarded to the leading station and runner-up, plus the leading home station. **The G3KEU Memorial Trophy** will also be awarded to the leading entry.
8. All logs should be sent to the contest adjudicator, Steve Davies, G4KNZ, within 16 days of the end of the final session of the contest.

10GHz Cumulatives Rules

The 5.7GHz and 10GHz cumulatives have been run concurrently because of the growth in activity on 5.7GHz, and the ease of combining the two bands on the same dish. Although they are on the same days, they are completely separate contests. Either band or both bands can be used on any of the 6 days, and any three days submitted for either band.

1. The general rules shown above apply.
2. There are six, monthly, events, from May to October inclusive.
3. Any three of the six events may be used for final scoring purposes. Logs for all events entered should be submitted.
4. Contestants may submit logs for either of the following sections:

Open

No power or antenna restrictions (other than those laid down in the amateur licence) on either 10GHz or on the talkback band. The 'Rover' concept does not apply to this section.

Restricted

10GHz transmit output not to exceed 1.0 watt to the antenna.

No power restrictions on the talkback band. No antenna restrictions

Moving location during the contest is allowed - the Rover concept is applicable.

(There is no separate section for portable stations.)

5. The final, total kilometre score for the best three cumulative sessions will be multiplied by the total number of different Locator Squares ("grids"), for example IO92, IO81, etc) contacted over the entire cumulative (ie up to the six events maximum). To claim this bonus it is therefore essential to submit logs for all events entered, not just the best three. Please include a separate check list of the squares worked with your cover sheet. This multiplier is applicable to both sections. A one-way contact to a new locator square can be counted as a square for the purposes of the multiplier.
6. The final results table will show entries in rank order for each section. In addition to the usual leader/runner-up certificates for each section, the following certificates/trophies will be awarded:
 - leading entry in the Open section - **The G3RPE Memorial Trophy**
 - leading entry in the Restricted section - **The G3JMB Memorial Trophy**
 - leading home station in each section.
7. All logs should be sent to the contest adjudicator, Steve Davies, G4KNZ, within 16 days of the end of the final session of the contest.

24GHz Cumulatives Rules

In 2004, the 24GHz and 47GHz cumulatives reverted to being run concurrently, and this is continued for 2005. Often the same dish used for both bands, and 24GHz is often used to align the dish before a 47GHz contact is attempted, so a number of operators expressed the wish that this be continued. The activity is primarily portable, and the dates have been adjusted so that they mainly fall in the summer months; the exception is October, where the date is chosen to align with the IARU Region 1 UHF/SHF Contest. Although they are on the same days, the 24GHz and 47GHz events are completely separate contests. Either band or both bands can be used on any of the four days, and any two days submitted for either band.

1. The General Rules listed above apply.
2. There are four sessions to the 24GHz cumulative in July, August, September and October. The best two sessions out of four will be used for scoring purposes.
3. There is only one section - open.
4. Operation may be from portable sites or home stations.
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. Certificates will be awarded to the leading station and runner-up for the two sessions combined
7. All logs should be sent to the contest adjudicator, Steve Davies, G4KNZ, within 16 days of the end of the final session of the contest.

47GHz Cumulatives Rules

In 2004, the 24GHz and 47GHz cumulatives reverted to being run concurrently, and this is continued for 2005. Often the same dish used for both bands, and 24GHz is often used to align the dish before a 47GHz contact is attempted, so a number of operators expressed the wish that this be continued. The activity is primarily portable, and the dates have been adjusted so that they mainly fall in the summer months; the exception is October, where the date is aligned with the IARU Region 1 UHF/SHF Contest. Although they are on the same days, the 24GHz and 47GHz events are completely separate contests. Either band or both bands can be used on any of the four days, and any two days submitted for either band.

1. The General Rules listed above apply.
2. There are four sessions to the 47GHz cumulative in July, August, September and October. The best two sessions out of four will be used for scoring purposes.
3. There is only one section - open.
4. Operation may be from portable sites or home stations.
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. Certificates will be awarded to the leading station and runner-up for the two sessions combined
7. All logs should be sent to the contest adjudicator, Steve Davies, G4KNZ, within 16 days of the end of the final session of the contest.

Other Microwave Contests

The first weekend of May sees the RSGB 432MHz -248GHz Multiband Contest staged in parallel with the Region 1 IARU UHF/SHF Contest. The 10GHz Trophy is run in parallel by the VHF Contest Committee on the same weekend, and the rules can be found in the VHF contest rules. It was felt unnecessary to add yet a third "layer" of contest activity on this weekend.

The first weekend of October sees the RSGB 432MHz -248GHz Multiband Contest staged in parallel with the Region 1 IARU UHF/SHF Contest. The 1.3GHz Trophy and the 2.3GHz Trophy are run in parallel by the VHF Contest Committee on the same weekend, and the rules can also be found in the VHF contest rules.

In addition there are many other Continental UHF/SHF Contests held over the summer months and interested UK microwavers are urged to be active during these. Their details may be found on the Internet.

UK MICROWAVE GROUP MICROWAVE CONTEST CALENDAR 2005

Dates	Time UTC	Contest name	Sections
23 Jan	0900 - 2100	All-band Activity Day	Non competitive
20 Feb	0900 - 2100	All-band Activity Day	Non competitive
20 Mar	0900 - 2100	All-band Activity Day	Non competitive
24 Apr	0900 - 2100	1.3GHz/2.3GHz/3.4GHz	Open
7 May	1400 - 2200	10GHz Trophy	See VHFCC Rules
22 May	0900 - 2100	1st 5.7GHz Cumulative	Open
22 May	0900 - 2100	1st 10GHz Cumulative	Open, Restricted
5 Jun	0900 - 2100	1.3GHz/2.3GHz/3.4GHz	Open
19 Jun	0900 - 2100	2nd 5.7GHz Cumulative	Open
19 Jun	0900 - 2100	2nd 10GHz Cumulative	Open, Restricted
10 Jul	0900 - 2100	1st 24GHz Cumulative	Open
10 Jul	0900 - 2100	1st 47GHz Cumulative	Open
24 Jul	0900 - 2100	3rd 5.7GHz Cumulative	Open
24 Jul	0900 - 2100	3rd 10GHz Cumulative	Open, Restricted
7 Aug	0900 - 2100	2nd 24GHz Cumulative	Open
7 Aug	0900 - 2100	2nd 47GHz Cumulative	Open
21 Aug	0900 - 2100	4th 5.7GHz Cumulative	Open
21 Aug	0900 - 2100	4th 10GHz Cumulative	Open, Restricted
4 Sep	0900 - 2100	3rd 24GHz Cumulative	Open
4 Sep	0900 - 2100	3rd 47GHz Cumulative	Open
18 Sep	0900 - 2100	5th 5.7GHz Cumulative	Open
18 Sep	0900 - 2100	5th 10GHz Cumulative	Open, Restricted
2 Oct	0900 - 2100	4th 24GHz Cumulative	Open
2 Oct	0900 - 2100	4th 47GHz Cumulative	Open
23 Oct	0900 - 2100	6th 5.7GHz Cumulative	Open
23 Oct	0900 - 2100	6th 10GHz Cumulative	Open, Restricted
20 Nov	0900 - 2100	1.3GHz/2.3GHz/3.4GHz	Open
18 Dec	0900 - 2100	All-band Activity Day	Non competitive

Martlesham 2004 Antenna gain measurements

10GHz				Comments
Call sign	Antenna	Measured gain	Description	Comments
G3PHO	Horn	16.5dBi	Ridged waveguide circular horn	Ex Gregorian feed 60cm dish
M0EYI	Dish	33.1dBi	1m dish with ridged W/G horn feed	Gundig
G8BEH	Horn	22.1dBi	Secondary radar type	Long thin type with diagonal slots
G4PBP	Horn	13.6dBi	W2IMU feedhorn and radome	No dish
G4PBP	Horn	21.1dBi	Rectangular horn	
G0MJW	Dish	30.8dBi	60cm dish with horn feed	Prime focus
G4PBP	Dish	25.8dBi	35cm BSB dish with WGHZ feed	D-MAC type
2.4 GHz				
G3LOR	Dish	35.2dBi	30cm offset dish with Shepherd crook feed	Ex 18GHz link type
G8SFF	Dish	34.7dBi	35cm BSB dish with horn (?)	D-MAC type
G4DDK	Dish	32.7dBi	25cm Procomm dish with Procomm reflector feed	Prime focus
G4PBP	Dish	33.0dBi	35cm BSB dish with WGHZ dualband feed	D-MAC type
G4ZXO	Dish	35.7dBi	45cm prime focus dish with Penny feed	Focal plane
G0JPU	Dish	36.1dBi	30cm dish with Cassegrain feed	
G4BAH	Dish	39.5dBi	48cm Procomm with Procomm reflector feed	Prime focus
G4DDK	Dish	32.5dBi	35cm BSB dish with WGHZ dualband feed	Feed not at focus
G4DDK	Dish	36.2dBi	35cm BSB dish with 'DL' feed	MU type feed with one choke ring. Bought Weinheim
G3PHO	Horn	22.7dBi	Rectangular horn	Copper
G3PHO	Horn	20.1dBi	Rectangular horn	'Grey'!
G8IFT	Horn	22.4dBi	Circular horn	Ex BT 18GHz link horn
G8IFT	Dish	31.3dBi	30cm 'Precision' dish	Ex BT 18GHz link dish
For 10GHz the source was a Marconi Gunn source type 6058B tuning 8 to 12.4GHz.				
The source antenna was a 20dBi rectangular horn.				
The detector was a Marconi 6162/2 with Huber and Suhner 3dB pad				
The reference antenna was a Sivers Lab PM7 320X wideband reference gain horn with HP W/G - coax adaptor type X281A				
For 2.4GHz the source was a home brew 250mW narrowband source modulated with 1kHz from a HP PIN switch.				
The source antenna was a Flamm Microwave 20dB horn				
The same detector as for 10GHz but with HP 8493C 6dB ATTENUATOR				
The reference antenna was a 20dB reference horn loaned by WA5VJB and as used in many of the NA gain measuring contests. Thanks Kent.				

SP Activity Contest 2005

PARTICIPANTS

SP VHF Club hereby invites all licensed radio amateurs to participate in the SPAC - SP Activity Contest - Open Class.

DATE & TIME

- 144MHz, on the first Tuesday, every month
 - 432MHz, on the second Tuesday, every month
 - 1.3GHz, on the third Tuesday, every month
 - 2.3GHz and up, fourth Tuesday, every month
 - 50MHz on the second Thursday, every month
- 1900-2300 local CET time

SECTIONS

1. Open Class 50MHz
2. Open Class 144MHz
3. Open Class 432MHz
4. Open Class 1.3GHz
5. Open Class Microwave (multi band - required are separate logs for every band)

Single and multi operators participate in same section.

CONTACTS

Each contacted station counts only ones regardless if it is /M, /A, /P etc.

Duplicates must not be deleted from the log, but shall be listed as a normal QSO with zero (0) points. In case points are claimed for a duplicate QSO, ten times the claimed points will be deducted.

Entries must contain contacts with at least ONE locator square (JO74, KN19, etc) covering Polish territory, with a Polish station. Any stations outside the Poland can be worked and will also count. All operation in accordance with licence and IARU Region 1 bandplans.

No contacts via MGM modes or via active repeaters, satellites, EME are allowed. CW, SSB, FM modes.

EXCHANGE

RS(T) and Locator, e.g. 579 KO28WV. No QSO number is needed! Please use REAL reports!

POINTS

50MHz, 144MHz and 432MHz
1 point/km + 500 bonus points for each worked

WW locator (eg KO10, JO96...)

Microwave

1 point/km * band multiplier + 500 bonus points per WWL, regardless of band.

Band multipliers:

- 1.3GHz * 1
- 2.3GHz * 2
- 3.4GHz * 3

- 5.7GHz * 4
- 10GHz * 5
- 24GHz * 6, etc.

Own locator (JO91AA<>JO91AA) counts for 1 point

AWARDS

In the annual result only the nine best contests are evaluated. The first three stations in each section, and the best station in each country, will receive an SP Activity Contest Award.

MANAGER

Logs must be received no later than two weeks after the contest at the Contest Manager.

Only EDI REG1TEST log format are accepted. E-mail: VHFcontest@pk-ukf.org.pl

Latest information, rules, results are available at:

www.pk-ukf.org.pl/contest/spac.php and www.sp6.vgj.pl/spac.php

California Dreaming!

Corridor Systems of Santa Rosa, California, thinks it has found a way to set up an interference-free power-line (PLT) internet service. It plans to use overhead power lines to carry data at frequencies between 800MHz and 10GHz which is, according to them, is **"way above the amateur radio and conventional power-line communications band and, which it will send in an outer power conductor" !**

The idea is that due to the "surface wave" effect, signals launched straight down a cable tend to stay inside the cable, near the surface. As a result Corridor say their system will not generate radio interference to mobile phones at these frequencies. For the final link into subscribers' homes they plan to use very low-power radio transmitters, like those used for Wi-Fi hotspots, which will be fixed to the nearest power cable.

Thanks to The New Scientist (15 January 2005) and G8BKE for access to this item.

You would think Corridor Systems would have some knowledgeable radio amateurs working for them wouldn't you? 800MHz-10GHz is way above our amateur radio bands? ... phooey!!

Interference free? We'll see!



ACTIVITY NEWS FROM THE WORLD ABOVE 1000MHz

The two month period since the last Activity News saw some excellent microwave conditions in Europe during the first ten days of December, while over in the USA some impressive things were happening on a frequency few of us have really thought about! Read on and enjoy ...

New 403 GHz DX Record Claimed

It seems that Brian Justin, WA1ZMS, just can't get enough gigahertz! He reports WA1ZMS/4 worked Pete Lascell, W4WWQ/4, December 21 on 403GHz CW for a new DX record QSO of 1.4 km (0.87 mile). "Signals were very weak on the W4WWQ end, while several dB of margin existed on the WA1ZMS end", Brian reports. "The exchange had to be sent several times for W4WWQ to copy the CW by ear." The December 21st QSO exceeded the stations' former "best DX" on 403GHz of 0.5 km (0.31 mile). It also conquers the 1 km barrier for amateur frequencies above 400 GHz ... except for visible light", he adds.

Gear used for the 403 GHz QSO was the same as that used for previous 241, 322 and 403 GHz QSOs (*and decribed in past issues of this newsletter ... ed*) Brian has posted additional details, an audio file and a photo on the Mount Greylock Expeditionary Force Web site: www.mgef.org

[Source: The ARRL Letter Vol. 23, No. 50
December 24, 2004]

Excellent tropo conditions in Europe

gave many UK stations their best DX for some time when the microwave bands opened for DX contacts in early December 2004

Up North in Sheffield (IO93GJ), **Peter, G3PHO**, found out a little late in the week that 10GHz was in fine shape. This was in the late afternoon of Thursday 9th December 2004 when a rare look at terrestrial TV (he's on cable TV normally) produced lots of Dutch and German video in addition to the more usual UK stations. A quick excursion to the garage for the portable 10GHz gear was followed by the tripod mounted 60cm offset dish being set up in a bedroom and pointed at 110 degrees through the double glazed window! Immediately PI7EHG/beacon was heard at 58/99 on 10368.190MHz, followed by DB0GHZ/beacon(JO43WE) at 569. These beacons were to stay in for hours and hours. At 1700z PA0EHG replied to a CQ via www.on4kst.com and a first SSB contact was made with Hans at RS59/57. This was immediately followed by Uffe, PA5DD, who was worked at R59 both ways. By 1855z the DB0VC beacon was coming in very well at 579 but there was almost no activity heard from Germany! Later that night the 3cm band opened to Scandinavia and Peter found it most frustrating to see the ON4KST chat room list numerous G/SM and G/OZ contacts. Peter's home location is very poor and no home station microwave antenna has ever been permanently installed. However, in spite of the 065 degree path to OZ being straight through the next door neighbour's roof and a large tree, OZ1FF(JO45BO) was contacted on 10GHz at 2245z, with RST549/569 reports on CW and RS56 on SSB. This was a new country and square for Peter and a nice 667km qso as well. At 2305 PA0BAT (JO31) was worked on ssb at RS56. By 0600 the following morning, Friday, the bands had faded! So brief but so good!

Another Sheffield operator is **Gordon, G0EWN** just a few miles north of Peter in **IO93FK**. He was also limited to an indoor 60cm dish antenna but nevertheless worked some great DX. This was his first microwave tropo experience as he only became active on 10GHz narrowband in 2004. Here's his email report...

G0EWN <gordonfiander@hotmail.com>

Good tropo conditions started to form on the 8th Dec with best direction to SE. Tried HB9AMH/P but very weak; I could hear odd bits but not a complete one way, 57 on 2m. However conditions peaked on the 9th & excellent on VHF/UHF/SHF especially out to East. On VHF worked some 100+ stations including Ukraine, 1795km. On 10GHz beacons in PA on .80 , .190, DL on .810, .820 all very strong at times--also heard GB3MHX for the first time. With the help of the ON4KST website I managed to work PA0BAT

JO31FX 562km, PA0EHG JO22HB 442km, PA5DD JO22IC 433km, OZ1FF JO45BO 668km, and OZ1CTZ JO46OE at 752kms .. all with dish indoors through double glazed window, frame and house over the road!! My gear is a DB6NT TX 250mw RX 60cm offset. At times signals were over S9!! Pity there were not more about otherwise I'm sure distances would have been even further. I tried a test with John G3XDY but no luck - possibly conditions plus the wrong window for John's direction. All great fun! By Friday there were still some strong OZ's on 2 metres but no 10GHz beacons. I tried with OZ5DI this morning on 3cm but no go. **Best Wishes Gordon**

Other UK ops had a longer spell of these conditions because they were alerted earlier that week. **John, G3XDY (JO02OB)** send in the following report that reads more like your scribe's 40 metre log! ...

This was a very long and extensive tropo opening that lasted a whole week, with a bit of a One day on, One day off cycle to it. Generally the higher bands were not as good as 23cm here.

On 23cm the pick of the crop were:
OESVRL/5 JN78 (heard most days during the week, loudest at the start on Monday)
DL3IAS JN49, DB6NT JO50 (heard most days)
LX1DB JN39 .

On 8 Dec: HB9AMH/P JN37, F6FHP IN94, DH9NBU JO40

9 Dec: DL1SUN JO53, OZ6OL JO65

10 Dec: the best day of the opening on 23cm
SM7LCB JO86, SM6HYG JO58, SK0UX JO99 (59+20dB at **1337km**!) Mind you they do have a 6m dish and 300W!), SK7MW JO65, SM0DFP JO89 (New Square), SM0SBI JO99

12 Dec: DK2GR JN59, DK0FLT JN59, F6BEE JN08, DL6NAQ/P JO40

On 13cm I worked the following:

6 Dec: DL3IAS JN49, DB6NT JO50, LX1DB JN39
OESVRL/5 JN78

9 Dec: DK6AS JO52 (New Square), DL1SUN JO53, DL7VTX JO62, G4ALY IO70

10 Dec: The best of the lot in terms of distance
SK7MW JO65, SM0SBI JO99 (New Square, **1325km** (maybe a new UK DX record if no others worked him))

SM0SBI also worked **F5HRY** in **JN18** for a new Eu **13cm DX record of 1557km**.

12 Dec: The French 13cm beacon from JN06 was loud but no stations worked.

Conditions after the first couple of days did not seem to support the bands above 13cm, so **9cm** was relatively poor:

6 Dec: DL3IAS JN49, DB0ANU beacon in JN59 heard
8 Dec: DK2MN JO32

9 Dec: DJ6JJ JO31

On 6cm, some very nice contacts:

6 Dec: OE5VRL/5 JN78 (**New Square/country, may be the first G - OE on 6cms, 1012km**) HB9AMH/P JN37 (New Square/country)

8 Dec: DK2MN JO32

9 Dec: DJ6JJ JO31, DL1SUN JO53 (New Square)

10 Dec: SK7MW JO65, SM0DFP JO89 - He heard me but no signals the other way (1319km), no QSO

3cm was good at the start but not much worked after the first couple of days

6 Dec: OE5VRL/5 JN78 1012km

8 Dec: HB9AMH/P JN37, DB0ARB JN69 Beacon heard 559 - I was checking DB0JK (JO30) and heard another carrier a few hundred Hz LF at the same strength which turned out to be this beacon 909km away.

10 Dec: SK7MW JO65

All in all a very good end to the year. My XYL was getting very fed up with me disappearing into the shack all night, every night for a week, so it was something of a relief when conditions dropped out during the evening of the 13th! **73 from G3XDY**.

From: G8DKK, Bryan in IO91AX,

[bryanharber@fastmail.co.uk] : I was active for the good conditions at the beginning of December although I made no contacts on 3cm - the tropo wasn't right for me on 10GHz. However I had a nice contact with SK7MW on 23cm in CW over a 949km path.

Low Band Microwave Contest – 28 Nov 04

Mike, G0JMI, braved the rain for the Low Band Microwave Contest. Here is his activity report:

I was located at **IO91KA**, Beacon Hill, Warnborough, Hants (approx' 10km east of Winchester, Hants).

13cm Stations Worked:

G3LTF at IO91GG Sent 5/9 Received 5/7 (36km)

G1JRU at IO90HU Sent 5/9 Received 5/9 (25km)

My QRP at 100mW SSB.

9cm Stations Worked:

G1JRU at IO90HU Sent 5/9 Received 5/9 (25km)

G3PYB/P at IO90LU Sent 5/9 Received 5/8 (20km)

My QRP 10mW SSB

I also tried with G8BKE/P in the New Forest but nothing heard on 13 or 9 cm. **73 from Mike, G0JMI**

From: G8AYY, Paul, <p.gaskin@tiscali.co.uk>

Birmingham: I did come on 23cm but couldn't hear any activity even though I had specially raised the Versatower for the contest. Band conditions must have been poor as the GB3MHL beacon was much weaker than normal.

GENERAL ACTIVITY NEWS

A letter from **Doug, GW3ATM, Monmouthshire, (IO81)**, describes his 10GHz results over 2004 using a flyswatter antenna. He does not have a good location

and so the following results are even more encouraging and may hopefully spur others to have a try with a flyswatter antenna. He had 70 contacts with 13 separate stations. John, G4EAT was his best DX at 230km. 90% of his contacts have been via rainscatter, for which the flyswatter is very effective. He changed to an FT817 as an IF for his 10GHz transverter and is pleased with it, He installed CW filter in the 817 and it certainly helps to bring the weak signals out of the noise.

LASER COMMUNICATIONS

There's growing interest in working with the low cost laser diodes that are widely available, under £4 each, as laser pointers. The latest recruit to the Northern laser group is Gordon, G0EWN. As reported in the last issue he made his first successful test across a short 0.6km path but, on Thursday 2nd December, he and Barry G8AGN tried a longer path. Here's Barry's report:

**From: G8AGN, Barry,
<B.Chambers@sheffield.ac.uk> (1093)**

Well, we nearly did freeze to death last night ! Gordon G0EWN and I tried a 2 way test over a 9.5km path between Grenoside NW of Sheffield and Roper Hill W of Sheffield. It was fun(?) to see the frost forming on the car etc. I was using my Mk1 Tx plus lever system and my Mk1 Rx both mounted together for the first time on my big tripod. Gordon was using his G0MRF Tx and 10" Fresnel Rx. He received my signals OK despite condensation on the big lens but still needs to do some work on his Tx pointing arrangements as I only got a few "pings" as he moved through. At least we both learned something and will try the same path again soon - hopefully when it's not so cold!

That's all the activity news for this month.

WEATHERMEN THREATENED BY OFCOM PLANS FOR MICROWAVES!

The BBC NEWS website carried a most interesting article on the 17th December last year. Here's a précis of it ... it looks like we have Michael Fish, John Ketley and the other weathermen on our side!

According to the article, UK meteorologists fear they are losing one of their essential forecasting tools - microwave frequencies uniquely able to "see" through clouds (+ *ionosphere?..ed*) from

satellites.

They believe commercial activities such as mobile phones, wireless networks, remote triggering devices, military activities and collision avoidance systems are causing intolerable interference to their weather satellite data.

Not only weather forecasting is put at risk but also a better understanding of how climate change is developing.

Data collected by the satellites is the key to making progress in both forecasting and climate studies.

Many of these observations depend, in turn, on using microwave frequency bands, which are increasingly in demand for terrestrial use.

"We're in a David and Goliath situation, arguing to the ITU for the safety and humanitarian uses of frequencies against some applications with very strong financial backing" said Dr Steve Foreman of the Met Office.

Dr Stephen English, manager of the satellite radiance assimilation group at the UK Met Office told the BBC:

"Microwave observations are vital because they see through cloud (+ *ionosphere?..ed*) - this is not possible in any other frequency band.

"We only need a few narrow-frequency bands for Earth remote-sensing but most of these are unique, so there is no alternative. These bands are primarily used for temperature, water vapour, sea ice, clouds (ice and liquid), and rainfall and snowfall estimation. We also use them for monitoring surface snowpack, soil moisture and sea surface temperature."

A meteorologists' working group on frequency management says protecting key regions of the microwave spectrum for passive remote-sensing is "a dramatic challenge", because of "the huge pressure of the commercial and military telecoms".

Two important bands (6.8 GHz and 10.7 GHz) have been lost already for use over land, but in the next few years the threat is likely to spread to other bands.

There is particular concern about protecting the 23.6-24 GHz band, which has the unique property of being sensitive to water vapour but not to liquid water. Dr English said: **"There is no other frequency where this occurs. But car 'radars' will now be allowed to broadcast in this frequency band."**

An instrument called the advanced microwave scanning radiometer, carried on Nasa's Aqua satellite, monitors rainfall as it "sees through" the cloud above the rain.

Land and sea look very different at this frequency the ocean appears black where it is not raining and magenta or blue where it is.

Blobs of red and yellow over the main urban areas show radio frequency interference (RFI), which is much hotter than actual surface or atmospheric temperatures over the UK in October. Dr English said: **"The 'hot spots' are easy to spot, but more worrying is the fact that smaller variations may be RFI**, or they may be due to rain. The truth is we can't tell. Therefore the channel is rendered useless not only in the hot spots but everywhere, because we can no longer uniquely interpret the variations in terms of rainfall. We still regard this channel as useful over the ocean but it's no longer useful over land."

Experts say this band should not be jeopardised under any circumstances, and all emissions able to cause interference should be prohibited.

Dr Steve Foreman of the Met Office told the BBC: "We're in a David and Goliath situation, arguing to the ITU for the safety and humanitarian uses of frequencies against some applications with very strong financial backing."

So fellow amateur microwavers ... it looks like we have a useful ally in our fight against the commercial pollution of our microwave bands!

German 23cm Beacon back on air

From: "G3XDY" <g3xdy@btinternet.com>
24 Nov 2004

One of the best indicators of propagation to Germany is back on the air again after a long absence. DB0JO is in JO31SL and is on 1296.854MHz, beaming West.

73 from John G3XDY

TELFORD BEACON UPDATE 5 January 2005

The Telford **GB3ZME** Beacon on **3400.910MHz** is now back on after a 2 week break. An Ionica 15 watt PA has now been installed. The Ionica 120 deg. beamwidth antenna is centred about S.E. (135 degrees)

The frequency is about 2kHz LF, by my reckoning - but it moves a bit HF on warmer days (normal DB6NT inverse temp. shift!)

Email reports please to **ukv@ukv.me.uk**
The original 200 mW beacon had been heard in Hampshire occasionally. It should now cover most UK active areas for most of the time. The Locator is IO82SQ, Telford.

Both the other beacons (1 watt on 24048.910MHz and 200mW on 5760.910MHz) are running fine, although I believe the 24GHz may have QSYd 50 or 60 KHz LF, since the Xtal was not properly aged before it was installed last year.

The loss of the multiple of 1152MHz, due to the move down to 24.048 from 24.192MHz, has given me problems for cross-checking frequency accuracy on the lower segment of 24GHz. I will check and fix if required when warmer weather arrives.

73 Martyn G3UKV
(NoV GB3ZME beacons)

The Other Man's Station - VK2DVZ



On the 12th October 2004, **Nick ZL1IU** succeeded in having a 23cm QSO with **Ross, VK2DVZ**.

When ZL stations work VK on 1296 MHz, Ross VK2DVZ is one of the most active stations. His station consists of an Icom 1271 23cm transmitter feeding a 120 watt water-cooled 2C39 PA in the shack, while, on RX, a masthead PHEMT preamp feeds a RX converter to 144MHz, then to 28MHz, which then feeds a Kenwood TS850S, used as a receiver. The antenna (shown above) is a homemade VE4MA scalar horn feed, feeding a **2.5m** solid dish at 6.5m agl. (Gain ~ 27 dB). Coax used is Andrews LDF550 and LDF450.

Our thanks to ZL1UJG and NZART's Break In VHF Scene(Nov/Dec 2004) for this item ... editor

USEFUL MAPS

The **OS Travel Maps - Road** are the latest version of the 1:250,000 series of OS maps. They are excellent value at £4.99 each as their sheet area is 40% greater than that of the Landranger 1:50,000 Maps. They are very useful for checking microwave paths and for planning cross-country journeys. It is nice to have the route from Birmingham to Ipswich (Martlesham Heath) on one sheet of paper!

73 Paul G8AYY

Roy, G3FYX operating 47GHz and 24GHz portable at Tog Hill near Bristol during the final millimetre band Cumulative Contest on the 5th September 2004 – our thanks to G8BKE for the photo



47GHz Cumulatives 2004

UK Microwave Group 47GHz Cumulatives 2004

	04-Apr	09-May	06-Jun	05-Sep	QSOs	Best DX	Points
1 G3PHO/P	0	149	89	310	6	94km	459
2= G8ACE/P	0	0	0	174	3	92km	174
2= G3PYB/P	0	0	0	174	3	92km	174
4 G8BKE/P	0	32	0	139	2	61km	171
5 G3FYX/P	0	0	0	139	3	61km	139
6 G3UKV/P	0	74	44	0	3	89km	118

Note: QSOs is the scoring QSOs in the best 2 activity periods

The above table is a revised version of the one published last month and shows G8BKE now at fourth position.

NOVEMBER 2004 LOW BAND MICROWAVE CONTEST RESULTS

OVERALL RESULT	1.3	2.3	3.4	Total
G3XDY	797	1000	1000	2797
G4BRK	1000	703	659	2362
M0GHZ	736	356	542	1634
G4HUP	201	15	0	216

B A N D S C O R E S

1.3GHz	Best DX	Located	Distance	QSOs	Score
G4BRK	DG1KJG	JO30NT	622	12	2538
G3XDY	DG1KJG	JO30NT	433	12	2022
M0GHZ	M0DTS	IO94TL	344	11	1868
G4HUP	G0RRJ	IO91FE	220	5	510

2.3GHz	Best DX	Located	Distance	QSOs	Score
G3XDY	ON4IY	JO20IV	275	8	1034
G4BRK	G4DDK	JO02PA	211	6	727
M0GHZ	G3XDY	JO02OB	246	4	368
G4HUP	G4DDK	JO02PA	9	2	16

3.4GHz	Best DX	Located	Distance	QSOs	Score
G3XDY	M0GHZ	IO81VK	246	4	577
G4BRK	G3XDY	JO02OB	206	4	380
M0GHZ	G3XDY	JO02OB	246	3	313

Adjudicator's Comments:

Activity was poor and the number of entries was quite low, about half the number received for the similar March event. This was partly due to a number of the regular operators being unavailable. Thanks to those who sent in entries.

John G3XDY was the leader on 2.3 and 3.4GHz, and also the overall winner. **Neil G4BRK** was leader on 1.3GHz, and second overall. Conditions were described as disappointing, although Neil did manage a 622km best DX on 1.3GHz.

The first low-band contest of 2005 has been scheduled a little later, in April, after the clocks have changed, and hopefully will generate a little more activity and entries.

Regards, Steve Davies G4KNZ, adjudicator