An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

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2007 JANUARY

The impressive portable station of **M1CRO/P,** set up for the October 2006 IARU Region 1 UHF/ SHF Contest.

Just behind the masts and car is the sea...what a marvellous location is JO01PU!

(photo courtesy of G8APZ)

In this issue ...

Latest News ...

- **Fourth Beginners' Workshop planned for March '07**
- **G3SBV Silent key**
- **Santa brings tropo lift gift for UK/EU operators!**

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

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From the Editor's Desk

A Very Happy New Year to all of you. May 2007 bring you lots of interesting microwave contacts and the time to build those projects that you've been meaning to do until now. You might also consider adding another microwave band to your portfolio of working systems this year, that is if, like me, you still have one or two bands of uncharted territory yet to explore.

Last year saw a real surge in microwave activity in the UK, with more and more new operators taking up the challenge of the spectrum above 1GHz. As seasoned veterans, it's up to the rest of us to help these people as much as we can. If, like me, you come from the old days of klystrons and dustbin lid antennas, you'll know what a helping hand from an old timer can do. The microwave hobby is so much more technical these days and so more help is needed. Please consider becoming a member of the UKuG technical support in your area (we'll have more details of this next month) and perhaps help out at the Beginners's Workshops that are being organised this year. Why not persuade your local club to run a workshop? We especially need them in the North half of the UK....eg North Lancashire, Northumberland & Durham and the Scottish Lowlands.

Another idea you may like to consider is the building of a personal, home station microwave beacon. Again, we especially need them in the more remote corners of the country. The new licensing structure provides some added incentive in this area of microwaving.

In all these pursuits the UK Microwave Group is there to help you. Don't hesitate to ask for advice and assistance. The Chairman's and Secretary's contact details are at the top of this page... please use them!

73 from Peter, G3PHO, Editor

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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.

Our thanks to ..

Tommy, W1AUV
Sam, G4DDK,
Steve, G4DDK
Paul, W2PED,
Rick, K1DS
Brian, G4NNS,
Paul, M0EYT,
Jules, G0NZO,
Gordon, G0EWN,
John, G3XDY,
Keith, GW3TKH
John, G8ACE
Dave, WW2R
Jonathan, ON/G4KLX
Andy, G4JNT

Who have all, in some way or other, contributed material to this month's edition of Scatterpoint.

SUBSCRIPTION ENQUIRIES SHOULD BE SENT TO THE UKuG GROUP SECRETARY AT THE ADDRESS SHOWN AT THE TOP OF THIS PAGE AND NOT TO THE EDITOR OF SCATTERPOINT

Microwave Update 2007

Update 2007 is scheduled for Thursday, October 18, Friday Oct 19 and Saturday October 20th, 2007.

The conference will be held in King of Prussia, Pennsylvania, USA , between Philadelphia and historic Valley Forge.

The Mount Airy VHF Radio Club, (a.k.a "Pack Rats"), along with other area clubs and sponsors, will be planning and hosting this conference. We have booked facilities at a hotel, which is currently a Hilton but which will be undergoing a name change this month and will likely become a Wyndham. As soon as the hotel changeover is complete, you will be able to register for the conference and also be able to book rooms there at the special conference rate. Details will be listed at:

www.microwaveupdate.org

- Conference chairmen are Phil Theis, K3TUF and Dave Fleming, KB3HCL.
- Papers and speakers are being sought by program chairs Paul Drexler, W2PED (pdrexler@hotmail.com) and Marc Franco N2U (lu6dw@yahoo.com)
- Thursday 18 October is the time for a surplus tour and area sight-seeing.
- A hospitality room will be available Thursday, Friday and Saturday evenings
- Vendors will be on site.
- A Friday evening flea market is planned as well as a Big Banquet on Saturday evening.
- Plan to come with your family or significant other as there's plenty to
- see and do in the Philadelphia area.

See you there!

Rick, K1DS,
President: Pack Rats

Not been to Microwave Update before?

.. Then it's about time you did!

Now is the time to start planning your pilgrimage to the world's most prestigious gathering of amateur microwave enthusiasts. It won't be long before it will be too late to buy those cheap airline tickets, so get a move on folks!

This year's MUD will be held in Pennsylvania, an easy part of the USA to reach from Europe. You can fly directly to Philadelphia International Airport from the UK and get a shuttle bus to your final hotel destination. The conference and accommodation are all self contained in the hotel. Traders and amateur fleamarketeers will bring along a very large range of microwave goodies for you to buy or just drool over. The range of microwave lectures will be of a very high standard and you'll meet loads of well known microwavers from all over the world. The legendary surplus tour on the Thursday is not to be missed!

You can get some idea of what MUD was like when last held in Pennsylvania by visiting the following web link:

http://www.g3pho.free-online.co.uk/microwaves/update.html

24GHz waveguide-sma transitions

In the past I've had lots of folks ask me where to find WR42 (WG20)waveguide to SMA adapters... It seems they're just not all that plentiful surplus. So, I decided to design my own! The design uses a machined housing assembly, backshort and waveguide probe. I introduced these at Microwave Update last October and I have a few left. Return loss is better than 17dB and insertion loss ~0.2 dB. I have a PDF data sheet... Just email me for the datasheet, and I'll get it right out to you.

I offered these at this past Microwave Update for $55 each and thought it was only fair to extend the offer to my international friends while supplies last. So that's $55 USD plus shipping. I can accept PayPal. Please let me know if you're interested.

Stay tuned for some other offerings in the very near future....

73, Paul W2PED
<pdrexler@hotmail.com>

134GHz – A proposal for a new narrowband segment

Sam Jewell, G4DDK

For as many years as I can remember, I have been fascinated by the radio technologies used above 100GHz. However, these sub millimetre wave bands have been little-used in the UK due to perceived difficulties (and costs) associated with accessing the bands. In the last few years this situation has changed drastically due the availability of surplus parts, commercial (amateur) equipment designs and low cost sub-mm wave components. With this in mind I set out to see which band would be 'best' to get going on if I chose to build something.

In the UK we have several sub-millimetre wave bands above 100GHz:

122,250-123,000 MHz	**Secondary user**
134,000-136,000 MHz	**Primary user**
136,000-141,000 MHz	**Secondary user**
241,000-248,000 MHz	**Secondary user**
248,000-250,000 MHz	**Primary user**

These are post-January 2007.

Effectively, this amounts to 3 contiguous bands. The lowest primary band is 134 – 136GHz. I think this is a good choice to start on.

2GHz of spectrum is a wide range to 'tune' with a conventional weak signal (narrow band) receiver. For this reason it is desirable to allocate a 2MHz wide segment in which to operate narrowband modes, similar to the lower microwave bands.

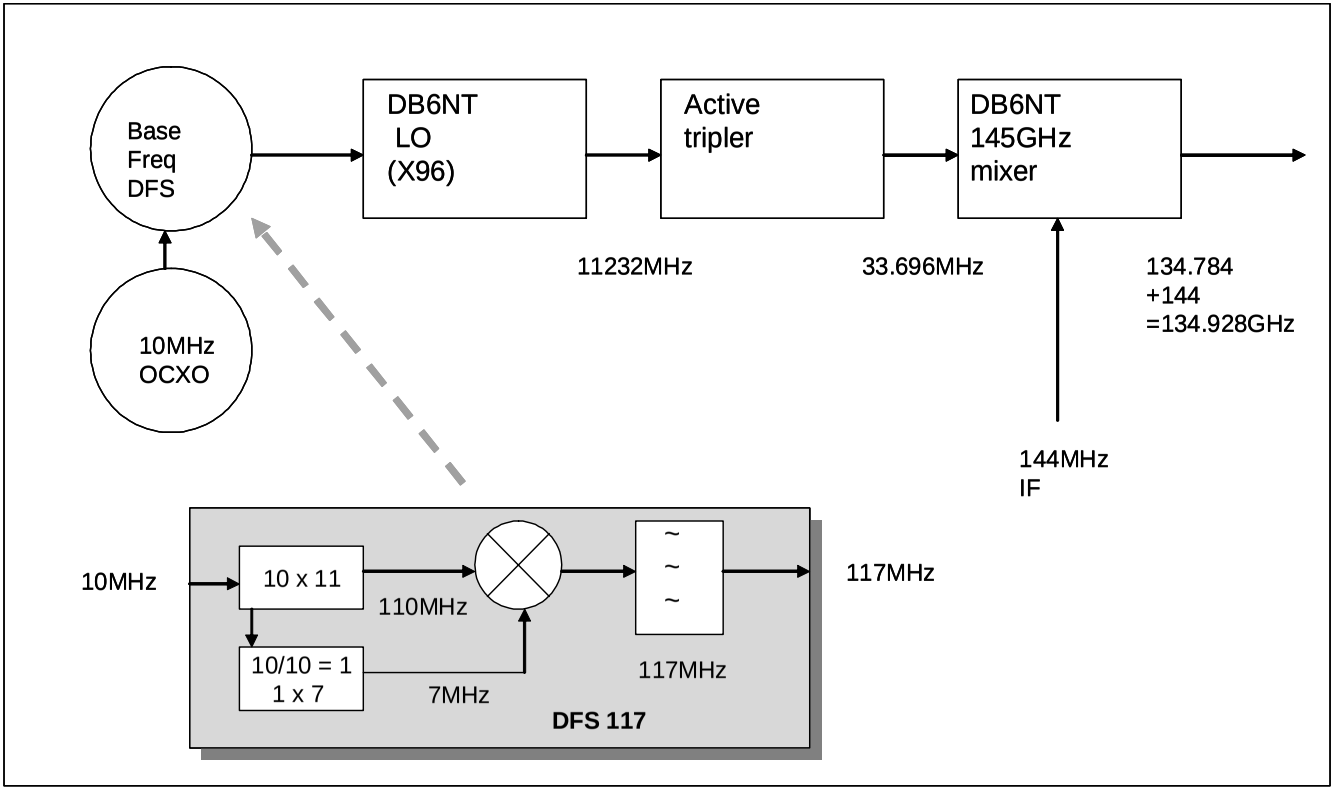
In an effort to design a suitable LO chain for this band I inquired of several of operators who I know had operated on the band, or who planned to do so. This produced some unexpected results. The only known QSO on the band was by G4FRE/G7FRE early in 2006. Dave and Meg had used 134.545GHz. I also inquired of Brian, WA1ZMS, as to what frequency range he and Pete had used in the USA. This turned out to be around 139GHz and outside the UK primary allocation. I also asked G8BKE what frequency the southern group planned to use. It appears that they had decided to use the same frequency allocation as Dave and Meg, although development had currently stopped for lack of suitable intermediate multipliers.

Examining the frequencies chosen by G4FRE/WW2R, it appeared that these were chosen because they were easy to generate via a surplus Verticom synthesizer that could be locked to a 10MHz standard. This was felt to be a good idea but finding a ready source of the Verticom synthesizers in the UK was unlikely. The southern lads planned to use a pair of G8ACE OCXOs that would be locked by a GPS disciplined Reflock. I am not a fan of this approach and looked for something else.

Being of the old school, I preferred to use a quasi analogue approach. WA1ZMS had very successfully used direct frequency synthesis (DFS) in his very successful sub-mm wave equipment because it is capable (by suitable choice of the OCXO) of the lowest phase noise performance currently available, is inherently highly stable and most important, is relatively simple and reliable to construct. There are no temperature-critical PLLs to lose lock on a cold hill top! I published my 96MHz DFS in the February 2006 issue of Scatterpoint.

The DFS has certain limitations, including the need to use integer frequencies in the generation (like the Reflock). By adding a little extra complexity, a much wider range of frequencies can be handled. With the DFS in mind, I explored a number of frequencies to be used in the generation of a 134GHz signal. The proposed frequency scheme is shown in figure 1.

This scheme assumes a 144MHz IF with the **final operating frequency at 134.928 to 134.930GHz** for 144 to 146MHz input. With this scheme, the LO ***(Continued on page 6 …)***



Possible frequency generation scheme for 134.928GHz – 134.930GHz

and image frequencies are still within the 134 to 136GHz band.

For slightly more power output, the frequency multiplier chain could generate 134.928GHz directly using the modified DB6NT 145GHz transverter as a multiplier. This would require using 117.125MHz as the base frequency. This seemingly awkward frequency can actually be generated by a DFS with only slightly more complexity than the simple 117.000MHz DFS frequency. I'll leave you to figure out how, for now.

My thoughts were to use a 33GHz multiplier to drive a modified (as G4FRE had done) DB6NT 145GHz transverter module. A DB6NT 12GHz LO driven at 117MHz from a simple 117MHz DFS would produce the drive for the surplus 33GHz multiplier at 11.232GHz. DL2AM sells 35 – 40GHz surplus multipliers at reasonable cost. It is not known if these will actually accept drive at 11.2GHz to produce 33.696GHz output. There are other suitable multipliers available as surplus in the USA. I already have a couple of these to experiment with.

WA1ZMS tells me there are some suitable low cost mixer diodes available in the USA and DL2AM sells what may be suitable diodes at acceptable cost (my last mm wave diodes, purchased in the early 1990s, were about £25 each!).

Discussions with Murray, G6JYB, elicited the fact that he had produced a paper for the IARU Vienna conference. This paper proposed some new amateur allocations above 275GHz. In all cases these would be based on 134GHz. It happens that the proposed 134GHz frequencies fits in very well with generating some nice round numbers for these new bands that might speed our access to and population of, these new bands.

I would be most interested in feedback on this proposal.

73 de Sam, G4DDK

Steve, G1MPW (left) receives the G3VVB Trophy from Peter, G3PHO (then UKuG Chairman) for his winning entry in the home construction competition held at the Crawley microwave round table during September 2006. The trophy presentation was made at the UKuG AGM at Martlesham in November 2006. The prize winning equipment was Steve's 10GHz portable transceiver system.

Dash Sender … by Tommy, W1AUV

I wanted to solve a problem that I have for contests. I frequently have to send dashes on my 10GHz rig to allow another station to find me and peak my signal. For the last few years I have done this by hand with a straight key. Often, I have to communicate on the liaison radio while still sending dashes. This is difficult because the microphone for the liaison radio is usually too far from the key to do both. I needed a way to send dashes automatically.

Figure 1: The Dash-Sender in the Altoids box keying my FT-817 in the 10 GHz contest 2006

I could have just used a commercial keyer but, in my career as an engineer or with my hobbies, I have never turned away from a chance to apply a microcontroller to solving a problem. An inexpensive 'computer-on-a-chip', microcontrollers are incredibly versatile. I thought about using a 555 timer for this project instead of a microcontroller but during contests many other hams have asked me to send a letter instead of a dash: a 'V' for example. This would be hard(er) for a 555 timer to do. Besides, I could use an 8 pin microcontroller which is the same size as a 555 timer and far more flexible. It would also be nice to have a beacon capability: a key down period followed by my call. Mountains get crowded and in the Northeast sometimes it can almost sound like November Sweepstakes CW. A beacon mode for the Dash-Sender would help others to know who is who.

Transmit Set Select	Transmit Select		
B	**A**	**X**	**Y**
0	0	Letter Z (no character spacing)	Slow Dashes
0	1	Letter V (with a character space between)	Slow Dashes
1	0	Key down for 5 seconds DE YOUR_CALL	Slow Dashes
1	1	Slow Dots	Slow Dashes

Table 1 Dash-Sender Transmit Sets

I threw together a circuit and had a PCB made in time to be ready for the second weekend of the 2006 10 GHz and up contest (see Figure 1). The design is simple. I allow the straight key to drive my FT-817 or the output of the NPN transistor of the keyer. One set of inputs to the microcontroller is a two position switch. Each position selects one of two different transmit sets. For example, one position may send dashes and the other, a letter. I have added two dip jumpers which are optional but will provide a way to select up to four different transmit sets. As of this writing, the current transmit sets are shown in Table 1. These can also be connected to external switches if you want to change the transmit set at will.

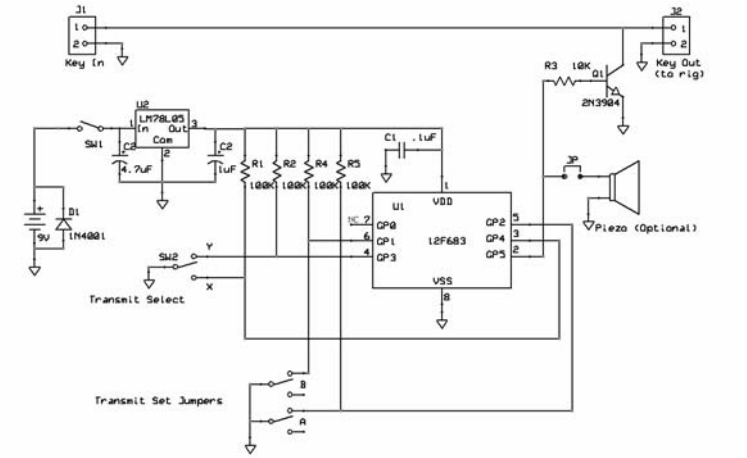


Figure 2: Dash-Sender Schematic

The schematic can be seen in **Figure 2**. When the Dash-Sender is powered off, the straight key will key the rig. If the Dash-Sender is transmitting, the NPN output transistor keys the rig. This is like the open-collector approach of ORing multiple outputs.

While I was at the New England Convention in Boxboro' this yea,r I was at a QRP booth being shown a switched capacitor filter project that was available in kit form. One of the guys at the booth said, "It's easy to build and test ... and, of course, you have to put it in an Altoids box." The Altoids box has in fact become very useful as an enclosure for small projects (and I may be the last to know about this). Other boxes could have worked but I used an Altoids box for the Dash-Sender because, well, "you have to." It's also smaller and lower profile than most commercial aluminum enclosures.

Power is supplied by, in my case, a 9 volt battery which fits inside the Altoids box. Power can also come from whatever you like up to the limits of the 78L05 regulator. The 1N4001 diode is to protect against momentary reverse polarity which can occur very easily when using 9 volt batteries. If you use external power (like a 12 volt gel cell) make sure you use a fuse too.

As I write this it is the Saturday night between the last two 10GHz and up contest days. So far the little Dash Sender has worked out very well. I can send dashes while I wander around waiting for a reply on the 2 metre band liaison or take a sip of a soda or a bite of my sandwich. ... very helpful.

If anyone is interested in a programmed chip for this project send me an email at: **w1auv@arrl.net**. There may be boards available so ask just in case.

Tommy, W1AUV

UK MICROWAVE GROUP CONTEST PROGRAMME: 2007

Aims and comments:

The calendar is fairly similar to 2006, with the same format for the combined 5.7GHz and 10GHz cumulatives, the combined 24GHz and 47GHz cumulatives and combined 1.3GHz/2.3GHz/3.4GHz events. The majority of operators have agreed these combinations work well and have helped encourage new activity on some of the less popular bands. 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 addition, at the request of a number of operators, we are introducing a short series of combined 10GHz / 24GHz winter contests (in January / February), and a series of evening 1.3 to 5.7GHz short duration evening autumn cumulatives (in November / December). The timings are chosen mainly to suit fixed stations but portable participants are also most welcome; the events are a trial, and their success or otherwise will be reviewed prior to setting the 2008 calendar.

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.

There have been various requests for specific sections but, in view of the limited number of entries for some events, rather than split the table up into several short tables, entries will continue to be listed in the one table but leading entries in certain categories will be marked and awarded certificates where appropriate. These categories include Portable, Low-power, Radio-only talkback, New entrant, Single session entry, and Wideband only. The exception is that there will continue to be a separate Restricted section for the 10GHz cumulatives.

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 2007 (there are some changes from 2006). The following contests are scheduled for 2007:

- **10GHz / 24GHz winter contests** (3 contest days) – new events.
- **Low Microwave Bands** - 1.3GHz/2.3GHz/3.4GHz (3 contest days).
- **3.4GHz Contest** (1 contest day) – new event.
- **5.7GHz Cumulatives** (5 contest days with 3 to count for scoring purposes), on the same days as the 10GHz Cumulatives.
- **10GHz Cumulatives** (5 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), on the same days as the 47GHz
- Cumulatives.
- **47GHz Cumulatives** (4 contest days with 2 to count for scoring), on the same days as the 24GHz
- Cumulatives.
- **1.3 to 5.7 Autumn Cumulatives** (5 contest days with 3 to count for scoring purposes) – new events.
- **In addition there are three non-competitive activity days**.

The full contest program and rules are published in the January 2007 issue of the Scatterpoint Microwave Newsletter and are also available on the Internet at: http://www.g3pho.org.uk/ and on the UKuG website at http://www.microwavers.org/

General Rules (applicable to all events)

The Contests organized by the UK Microwave Group are open to all comers - you do not have to be a UK Microwave Group or RSGB member. Stations located outside of the UK (G, GW, GM, GI, GD, GU, GJ) may enter a contest, and will be tabulated within the overall results tables, but will only be eligible for their own awards. 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, /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.
Talkback: Talkback can be used to assist in setting up a QSO but note that the contest exchange must be made via the microwave band. It is not permissible to use the talkback as a means of checking the report or serial number – they must be copied via microwaves – **and after the QSO is complete, care should be taken to avoid accidentally repeating the exchange via talkback**. There is no restriction on the talkback methods that can be used – other amateur band, internet, phone, etc. In setting up the QSO, it is also permissible to send back received audio to the other station, for example to help with antenna alignment. An exception is that our contests do allow one way (cross-band) QSOs for half points, and in this case, the talkback band can be used by one of the stations for the contest exchange.
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 a summary / cover sheet 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 the microwave band(s). 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.
To be eligible for a certificate as the leading station in any of the categories that are applicable for the contest (e.g. fixed, portable, low-power, radio-only talkback, new entrant, single session entry) then it should be clearly stated on the entry which categories it falls into.
Where Locator squares and / or countries are used as multipliers for bonus points, a summary list of the squares and / or 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 or self-prepared contest sheets, or electronically 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. 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 will be awarded to stations in certain categories, as indicated in the rules for each event. 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. For 2007, there are three of these events, in March, April and June. The March event is a shorter duration event, timed to overlap with the last 4 hours of UHF/SHF events in other IARU Region 1 countries, and it aimed more at home stations, though portable operators are, of course, welcome to enter. The April and June events are more likely to suit portable operators, and the June event is also timed to overlap with UHF/SHF events in other IARU Region 1 countries.
1. The General Rules listed above apply.
2. There are three contests, one in March, one in April, and one in June. The March event runs from 1000 to 1500 UTC, and the April and June events run from 0900 to 2000 UTC.

3. There is one section, but the leading stations in a number of categories will marked in the results table, with certificates awarded (see below).
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 event will be scored separately - there are no cumulative scores.
6. For each session, certificates will be awarded to the leading entry plus runner-up on each band, the overall leading entry and runner-up across the three bands, plus for each band the leading stations in each of the following categories: home station, portable station, and new entrant.
7. All logs should be sent to the contest adjudicator, Steve Davies, G4KNZ, within 16 days of the end of each of the four contests.

3.4GHz May Contest Rules:

For 2007, a 3.4GHz only event will be run, timed to overlap with the first part of UHF/SHF events in the IARU Region 1 (and also concurrent with the 10GHz Trophy, organized by the RGSB VHFCC).
1. The General Rules listed above apply.
2. There is one event, in May, from 1400 to 2000 UTC on a Saturday.
3. There is one section, but the leading stations in a number of categories will marked in the results table, with certificates awarded (see below).
4. Certificates will be awarded to the leading entry and runner-up, plus the leading stations in each of the following categories: home station, portable station, and new entrant.
5. All logs should be sent to the contest adjudicator, Steve Davies, G4KNZ, within 16 days of the end of each of the four 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 5 days, and any three days submitted for either band.
1. The general rules shown above apply.
2. There are five, monthly, events, from May to September inclusive, and the events run from 0900 to 2000 UTC on a Sunday.
3. Any three of the five events may be used for final scoring purposes. Logs for all events entered should be submitted.
4. There is one section, but the leading stations in a number of categories will marked in the results table, with certificates awarded (see below).
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 five 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. 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 leading stations in each of the following categories: home station, portable station, low-power (1W or less), radio-only talkback, new entrant, and single session entry. 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 5 days, and any three days submitted for either band.
1. The general rules shown above apply.
2. There are five, monthly, events, from May to September inclusive, and the events run from 0900 to 2000 UTC on a Sunday.
3. Any three of the five 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.
In addition, for both sections, stations in a number of categories will marked in the results table, with certificates awarded (see below).
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 five 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
- certificates to the leading home station, portable station, radio-only talkback station, new entrant, single session entry, and wideband only 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:

For the last three years, the 24GHz and 47GHz cumulatives have been run concurrently, and this format is repeated for 2007. 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 mainly fall in the summer months; the exception is October, where is date is chosen to overlap 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, and the events run from 0900 to 1700 UTC on a Sunday. The best two sessions out of four will be used for scoring purposes.
3. There is one section, but the leading stations in a number of categories will marked in the results table, with certificates awarded (see below).
4. Operation may be from portable sites or home stations.
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. The 24GHz Trophy will be awarded to the leading station and certificates to the runner-up for the two sessions combined, plus certificates to the leading home station, portable station, new entrant, and single session entry
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:

For the last three years, the 24GHz and 47GHz cumulatives have been run concurrently, and this format is repeated for 2007. 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 mainly fall in the summer months; the exception is October, where is date is chosen to overlap 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, and the events run from 0900 to 1700 UTC on a Sunday. The best two sessions out of four will be used for scoring purposes.
3. There is one section, but the leading stations in a number of categories will marked in the results table, with certificates awarded (see below).
4. Operation may be from portable sites or home stations.
5. Moving location during the contest is allowed - the Rover concept is applicable.
6. The 47GHz Trophy will be awarded to the leading station and certificates to the runner-up for the two

sessions combined, plus certificates to the leading home station, portable station, new entrant and single session entry.
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. (His address details are on page 2 of every Scatterpoint, under Treasurer)

10/24GHz Winter Contests Rules:

At the request of a number of operators, we are introducing a short series of combined 10GHz / 24GHz winter contests (in January / February). Although at this time of the year, home stations are more likely to participate, the timing is such that portable operation is feasible, and the events are short duration to concentrate the activity into the afternoon. The events are a trial, and their success or otherwise will be reviewed prior to setting the 2008 calendar.

1. The General Rules listed above apply.
2. There are three separate events in January and early February, and the events run from 1300 to 1700 UTC on a Sunday. Each event is scored individually.
3. There is one section, but the leading stations in a number of categories will marked in the results table, with certificates awarded (see below).
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, plus the leading home station and portable station.
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.

1.3 to 5.7GHz Autumn Cumulative Rules:

These are new events, introduced as the request of a number of operators, and success or otherwise will be reviewed prior to setting the 2008 calendar. The timings are chosen mainly to suit fixed stations, but portable participants are also most welcome. The Tuesday session is timed to coincide with a VHFCC 1.3/2.3GHz contest.
1. The general rules shown above apply.
2. There are five events, spaced 8 days apart, during November and early December, and the events run from 2000 to 2230 UTC on various days of the week.
3. Each band will be scored separately, and for each band, any three of the five events may be used for final scoring purposes. The scores will be normalized for each session, and the normalized scores are added to determine overall rankings. Logs for all events entered should be submitted.
4. For each band, there is one section, but the leading stations in a number of categories will marked in the results table, with certificates awarded (see below).
5. Certificates will be awarded to the leading station and runner-up, plus leading stations in each of the following categories: home station, portable station, and single session entry.
6. 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.

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.

UKuG MICROWAVE CONTEST CALENDAR 2007

Dates 2007	Time UTC	Contest name	Certificates
14 Jan	1300 - 1700	10/24GHz Winter Contest 1	Fixed, Portable
28 Jan	1300 - 1700	10/24GHz Winter Contest 2	Fixed, Portable
11 Feb	1300 - 1700	10/24GHz Winter Contest 3	Fixed, Portable
04 Mar	1000 - 1500	1.3GHz/2.3GHz/3.4GHz	Fixed, Portable, New entrant
18 Mar	0900 - 2000	All-band Activity Day	Non competitive
01 Apr	0900 - 2000	1.3GHz/2.3GHz/3.4GHz	Fixed, Portable, New entrant
22 Apr	0900 - 2000	All-band Activity Day	Non competitive
05 May	1400 - 2000	3.4GHz	Fixed, Portable, New entrant
20 May	0900 - 2000	1st 5.7GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry
20 May	0900 - 2000	1st 10GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry, Wideband only
03 Jun	0900 - 2000	1.3GHz/2.3GHz/3.4GHz	Fixed, Portable, New entrant
17 Jun	0900 - 2000	2nd 5.7GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry
17 Jun	0900 - 2000	2nd 10GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry, Wide band only
01 Jul	0900 - 1700	1st 24GHz Cumulative	Fixed, Portable, New entrant, Single session entry
01 Jul	0900 - 1700	1st 47GHz Cumulative	Fixed, Portable, New entrant, Single session entry
22 Jul	0900 - 2000	3rd 5.7GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry
22 Jul	0900 - 2000	3rd 10GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry, Wideband only
05 Aug	0900 - 1700	2nd 24GHz Cumulative	Fixed, Portable, New entrant, Single session entry
05 Aug	0900 - 1700	2nd 47GHz Cumulative	Fixed, Portable, New entrant, Single session entry
19 Aug	0900 - 2000	4th 5.7GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry
19 Aug	0900 - 2000	4th 10GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry, Wideband only
09 Sep	0900 - 1700	3rd 24GHz Cumulative	Fixed, Portable, New entrant, Single session entry
09 Sep	0900 - 1700	3rd 47GHz Cumulative	Fixed, Portable, New entrant, Single session entry
23 Sep	0900 - 2000	5th 5.7GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry
23 Sep	0900 - 2000	5th 10GHz Cumulative	Fixed, Portable, Low-power, Radio-only talk back, New entrant, Single session entry, Wideband only
07 Oct	0900 - 1700	4th 24GHz Cumulative	Fixed, Portable, New entrant, Single session entry
07 Oct	0900 - 1700	4th 47GHz Cumulative	Fixed, Portable, New entrant, Single session entry
04 Nov	2000 - 2230	1.3 to 5.7 Autumn Cumulative	Fixed, Portable, Single session entry
12 Nov	2000 - 2230	1.3 to 5.7 Autumn Cumulative	Fixed, Portable, Single session entry
20 Nov	2000 - 2230	1.3 to 5.7 Autumn Cumulative	Fixed, Portable, Single session entry
28 Nov	2000 - 2230	1.3 to 5.7 Autumn Cumulative	Fixed, Portable, Single session entry
06 Dec	2000 - 2230	1.3 to 5.7 Autumn Cumulative	Fixed, Portable, Single session entry
30 Dec	0900 - 2000	All-band Activity Day	Non competitive

UK Microwave Group – Beginners' Workshop 4

MICROWAVE RADIO WORKSHOP FOR BEGINNERS

Date:	**Saturday, 3 March 2007**
Venue:	**Telford and District Amateur Radio Society** **Dawley Bank Community Centre,** **Bank Road, Dawley, Telford, Shropshire.** **TF4 2AZ**
Time:	**10.30am to 4.30pm**
Fees:	**Radio Workshop fee – Free!!!**

Please spread this news around interested radio amateurs in your area.....

Following three highly successful events held in 2006, the Telford and District Amateur Radio Society will be hosting the next workshop in a series being held around the country on Saturday 3rd March 2007. The event is suitable for all newcomers to the microwave bands, with no previous experience necessary. Richard Herbert M1KRH is coordinating the event.

If you are interested in trying out the microwave bands but so far haven't done so, or are just getting set up for the bands, then this event is a great opportunity to kick start your activities.

The day will be structured around a series of introductory talks and practical demonstrations of microwave stations and operation. There will be a number of experienced microwave operators on hand over the day so that all your questions can be answered.

The workshop will be an introduction to amateur microwaves. Please note that it is NOT intended for those already experienced in this part of the spectrum.

Each attendee will receive, among other information, a useful CD containing all the day's presentations and a wealth of useful software.

We expect that the workshop will appeal to those living in the Shropshire, Cheshire, Hereford, Wales, Worcestershire, Staffordshire and the West Midlands, but attendees from other regions are very welcome.

It is anticipated that the event will be run **free of charge** at the TDARS QTH.

Space is limited so please register your interest directly with Richard Herbert M1RKH at: microwaves@herbert.gb.com as soon as possible.

G3SBV SILENT KEY

Harry, G3SBV passed away, after a long struggle with cancer, on Thursday afternoon, 7 December 2006. .The service and burial took place a week later at St. Stevens Church at Lympne, Kent. Our thoughts are with his wife and family at this time.

Harry was very well known around the South of England. He was active on HF, VHF and 23 Cm and lived in South London with his son Alan G4GLN. They were always building equipment, (mainly for their good of their local Radio club, Addiscombe (G4ALE) who were into contesting) including a 23cm PA using a ring of 2C39A valves.

Harry was an active member of the RSGB and was always one of the people, who asked the "wrong" questions at the annual general meeting!

When he retired, Harry moved down to the Romney Marshes in Kent. The horizon was never the same again with a large mast and VHF, UHF antennas, etc.

Denis G0OLX

Since our last round up of activity news there have been some more exciting microwave conditions. To have two trop lifts in two months is quite something these days!

First of all though let us see what has been happening on the EME scene...

ANOTHER 10GHz EME"FIRST" FOR G4NNS

Brian, G4NNS (IO91FF), reports as follows:
Redenham December 31st 2006. Happy New Year!
I was interested to see how the tracking system on the 3.7m dish would cope with the gales last evening (30th) and was checking moon noise on **10GHz** to indicate this when I heard Czeslaw SP7JSG echo testing (see **http://sp7dcs.vgj.pl/sp7jsg/**). I gave him a call and a nice random QSO, O - RO resulted. I believe this was a first from **G to SP on EME** and my #25 on that band. The distance is about 1416Km or 700,00Km depending on your point of view.

The big advantage of EME over Terrestrial microwave operation is of course that you only need to beam in one direction - at the moon!

Later I heard and Called IK2RTI without success.
73 from Brian. ***(Many congratulations ...editor)***

REPORTS HELD OVER FROM LAST MONTH

From: Jules Smith G0NZO (IO80)
October 2006 UHF and Up Contest 23cm & 13cm
Operators: G0NZO, G3YGF, G3PFM
For this event, **the FRARS contest group** were running from Bell Hill. This time from a field a little further to the east, hence the new locator IO80UV. This site is on the other side of a clump of trees, which have shadowed some of the better DX on previous contests.
The setup was:
23cm: 4x37ele yagi at 24ft, with 40W at the feed.
13cm: 1mtr mesh dish at 20ft (co-located on 23cm mast), with 70W at the feed.
6/3cm – 1.8m offset at 7ft, with 13W 3cm and 20W 6cm.
Although we have equipment for 9cm, this band was omitted due to lack of manpower and drive rigs.

Conditions were flat and UK stations seemed to be very thin on the ground. This was even more acute on the Sunday, when we considered packing up early. How glad we were that we didn't! In the last hour of the contest, DL0GTH came back to a random CQ on 13cm. When I had got back up off the floor, we completed with a 59/57 exchange. This was our first indication of the lift into Germany. Going back to 23cm, all the stations we heard had already been worked, albeit the hard way, were now crashing in at S9+. So, apart from PI4Z and DH9NFM, the lower bands were only used as talkback for 6/3cm QSOs.

Despite the general lack of activity, great fun was had. The WX stayed warm and dry for the whole event, which must be a first for the October contest. **73 from Jules**

M0EYT/P FRARS Contest Group:
October UHF and Up contest report
The M0EYT/P 5.7GHz and 10GHz station was active for the weekend of the 7th/8th October from IO80UV which is a site only a few hundred yards from the Bell Hill beacon complex. The whole station was run by Paul M0EYT and Julian G3YGF, with Tony G3PFM joining us on Sunday morning. Jules G0NZO/P was also on site with 1.3GHz and 2.3GHz (see his separate report above).

Saturday the 7th was very quiet in terms of contacts, with only 10 stations being worked, and the best DX being G3LRP at 308Km. 7 stations were worked on 5.7GHz, again with the best DX being G3LRP. The number of UK stations operational during this contest was exceptionally low which was surprising. On Sunday the 8th, the first QSO was around 9 am local despite the station being operational since 7 am; again the turn out from UK operators was very disappointing indeed. It did however allow a bit of rag-chewing with other contest operators and some hours listening to beacons - all very exciting. The new Manchester beacon was checked a few times during the morning and varied in strength between S1 and S5, but generally easy to copy. Before lunch, only 4 stations were worked on 5.7GHz, with 6 being worked on 10GHz. After lunch, due to the bands being so quiet, preparations were being made to disassemble the station in order to head off early. This changed at around 13:10 local, when G3PFM who was calling CQ on 2.3GHz worked DL0GTH at a distance of 920Km. Shortly afterwards, I managed to work this station on both 5.7GHz and 10GHz, giving DL0GTH his all time ODX which was pretty cool. There is a recording of the 10GHz contact online at http://www.uhf-satcom.com/dl0gth.mp3 Needless to say, I was pretty chuffed with this

QSO, but a few minutes later, DM7A was worked on both bands at 1074Km, with a 55 report being received on 10GHz and a 59+++ on 5.7GHz. After that, Julian G3YGF and Tony G3PFM finished with a QSO on 10GHz with PI4TUE at only 543km! Overall, an interesting contest with some really excellent conditions, albeit only for a short time. The only major disappointment was the distinct lack of UK stations.
Regards, Paul M0EYT.

From Gordon, G0EWN/P(IO93FB)
Subject: [ukmicrowaves] Report on the final 24/47GHz cumulative (Oct 2006)
Thanks to all who braved the cold wind to provide contacts to Alport Height.

24GHz from Alport
G8KQW/P 96km
G7MRF/P 29km
G3UYM/P 117km best DX. 58/58
G3PHO/P 28km
GW8VZT/P 100km
GW3ZME/P 100km
G3ZME/P 79km
G8VZT/P 79km **8 contacts**.

47GHz from Alport
This was the first foray on the band--final solder connections made Saturday night. As usual some gremlins (PLL failed to lock--worked every time on the bench!!)/ plus lack of familiarity with this gear--well alright so I did forget the waveguide had to be switched manually--doh!
G3PHO/P 28km - (Merryton Low Trig area)
G8KQW/P 96km - just glad Ian was so relaxed about the faff time.
With some experience some changes will soon be made.
73 and Best wishes to all, Gordon , G0EWN

From: Keith, GW3TKH@aol.com:
Beacons heard in IO81JM, 6/7 November 2006
Things looked promising at 0700 on the 6th November when GB3IOW and GB3FM were both audible and the South Coast beacons were stronger than normal, particularly GB3SCS.
Then it got better; signals rose fast from 1300 on. The following were heard:

23cm:
HB9EME; JN37.
F5XBK; JN18.
GB3MHL; JO02.
GB3FM; IO91.
F1ZTF; IN95.
F1XBC; JN06.
GB3IOW; IO90.
GB3NO; JO02.
GB3PS; IO92.

6cm:
GB3SCC; IO80.

13cm:
F6DWG/F6DPH; JN09.
F5ZMF; JN06.
GB3SCS; IO80.
GB3MHS; JO02.

9cm:
GB3SCF; IO80.
GB3MHS; JO02.

3cm:
GB3SCX; IO80.

Closed at 0115.

On the 7th November, Phil, GW3PPF & I drove to Mynydd Eglwysilan in IO81IO.
We took gear for 23, 6 & 3cm. and set up by 1000. The following were heard:

23cm:
GB3MHL; JO02.
F5XBK; JN18.
ON0SHF; JO01.
DB0JK; JO30.
DB0OS; JN40.
DB0YI; JO42.
PI7QHN; JO22.
HB9EME; JN37.
DK2MN; JO32.

6cm:
GB3SCC; IO80.
F1XBB; JN07.
GB3MHC; JO02.

3cm:
GB3SEE; IO91.
GB3SCX; IO80.
ON0RUG; JO11.
DX1DB; JN39.
GB3MHX; JO02.

Closed at 1500.
An interesting couple of days monitoring, let's hope we get some more soon.
73 from Keith GW3TKH

From: "John Hazell" <hazell@dsl.pipex.com>
Subject: UK Lowband Contest Sunday 22nd October 2006
I operated from the home qth for the October Lowbands contest on all three bands. Just a few stations worked: eleven on 23cm, six on 13cm and 4 on 9cm. All were fixed stations. On 13 and 9cm the going was generally easier with better signals in some cases than on 23cm and this is thought to be due to the rain helping, the signals on 9cm having noticeably broad dish headings. The difficulties in the main for 23cm were my low power, 12w and small antenna, F9FT yagi. A compromise has to be made somewhere with antennas for seven bands on the house roof/chimney however. **73 from John, G8ACE**

From: John, G3XDY <g3xdy@btinternet.com>
Subject:Activity Report
October UHF Contest
The October contest was blessed with good tropo on the Sunday. Notable QSOs included:

1296MHz: DF9IC (JN48), DK6AS (JO52), F2CT (IN93), F2JR/P (JN03), F4CKV/P (JN16), DK9IP (JN48), DL0GTH (JO50), DM7A (JO60), OL4A (JO60), DH9NFM (JO50), OK4W (JO60) and DF0YY (JO62)

2320MHz: DK6AS (JO52), F6KPL (IN99), DF9IC (JN48), DL3IAS (JN49), DL0GTH (JO50), DM7A (JO60). DM7A and DL0GTH could be heard easily on the side of the dish whilst beaming South.

3400MHz: DL0GTH (JO50) and DM7A (JO60). OK1DFC (at the OL4A site) in JO60RN was worked for the first G - OK QSO on 9cm shortly after the end of the contest.

5760MHz: DM7A (JO60)

10368MHz: DL0GTH (JO50), OK4W (JO60) and DM7A (JO60)

There was some tropo to SM on 15th October with SM6ESG (JO67) and SM7GEP(JO77) worked on 23cm.

I was in Atlanta USA during the tropo at the end of October, but was around for the next **big opening on 6/7 November**. Best QSOs were:

1296MHz: F6FGO (JN25), F1EZQ (JN27), F6FHP (IN94) all worked on the evening of the 6th. DK3WG (JO72), OE5VRL/5 (JN78) on the morning of the 7th. DL7VTX (JO62), DL0VV (JO64), DK1KR (JO53), DL1SUN (JO53), DK7BT (JO43) on the evening of the 7th.

2320MHz: GW3TKH (IO81), OE5VRL/5 (JN78), DL1SUZ (JO53), DL1SUN (JO53)

3400MHz: GW3TKH (IO81) (My 10th country on 9cm), DL1SUZ (JO53), DL1SUN (JO53)

5760MHz: OE5VRL/5 (JN78), DL1SUZ (JO53), DL1SUN (JO53)

10368MHz: OK7RA (JO60), F6FHP (IN94) on the evening of the 6th. OE5VRL/5 (JN78), DJ6JJ (JO31), on the morning of the 7th. DK2MN (JO32), DK1KR (JO53), DL1SUZ (JO53) on the evening of the 7th. OE5VRL/5 was a remarkable signal, 59++ on all bands including 3cm at just over 1000km but the ducting was quite selective. **73 John G3XDY**

DECEMBER TROPO OPENING

A few days around Christmas saw yet another tropo opening develop. While it was not as good or as widespread as the early November one, it still gave several UK operators some excellent DX ...

From: Robin G8APZ, <robin.lucas@ntlworld.com>
I got a few nice ones in the log over Xmas. The OE was a new square, new country and new Best DX on 23/6/3cm. The TX output on all 3 bands was 10W.

24/12/06 1296MHz GM3UAG 58 SSB IO87XJ (20Km N. Aberdeen) (663Km)
26/12/06 1296MHz OE5VRL/5 58 SSB JN78DK (1061Km)
26/12/06 5760MHz OE5VRL/5 52 SSB JN78DK (1061Km)
26/12/06 10368MHz OE5VRL/5 52 SSB JN78DK (1061Km)
73 Robin G8APZ JO01DO (Brentwood, Essex)
From: GW3TKH@aol.com

Subject: Tropo 23rd December
There was a short tropo opening on 23rd December 2006. 70cm had been going well into Europe most of the afternoon. In IO81JM, GB3MHL (JO02PB) was normal strength, about 2-5 dB above the noise.

Running 12W to a 34 element log/log yagi on 23cm, between 1600 and 1800. I worked:
DL3YEE (JO42GE) 810km
DK7QX (JO42KH) 833km
DK3WG (JO72GI) 1220km
These and seven other DK/DL stations were also worked on 70cm during this period.
At 0615 on 24th December DL3YEE was worked again on 70cm but not 23cm this time.
Happy new year to all. **73 Keith, GW3TKH**

Christmas Opening 23rd-26th December 2006: A report from Gordon, G0EWN (IO93FK)
The year ended with some more good conditions following a period of very high pressure (1046mB). Fortunately I had more or less completed a basic system for 23cm consisting of a 15w TX, RX NF>1.0db. Due to other restrictions I pressed into use my 60cm dish, normally reserved for 3 and 6cm--despite its rather low gain of perhaps 13dBd at 23cm with the following results;

23cm:
IO93 G8GXP, G3NEO
JO02 G3XDY
JO60 OK7RA
JO42 DL3YEE, DC7BQ
JO32 DF8XR
JO41 DL5YET
JO52 DK6AS
JO30 DJ5BV, DG1KJG
JO11 PA0GHB
JO21 PA3DZL
JO01 G4EAT
JN37 HB9AMH/P
JN48 DF9IC
The main ducting seemed fairly fixed to the S.E. even heard low-powered 2m beacon HB9HB located nr Locarno on the far side of the Alps. Whilst activity seemed focused more on VHF/UHF I did also work a couple of 3cms contacts
3cm: DJ6JJ JO31 and DG1KJG JO30.

Review of 2006: G0EWN IO93FK
Its just over a year since I started to operate from my home location at microwave frequencies using a 60cm dish **fastened** just outside an attic window on a gable wall. Whilst the dish can be turned through 180degrees the neighbour's house further restricts the workable azimuth to around 90degrees but this arc covers the best take-off directions -- including Europe from OZ down to HB9.

I hope to mount a mesh dish for the lower microwave bands fastened to a chimney stack later next year--this will extend my workable azimuth range

a little further, but due to rapidly rising ground/ thick forest from N. round to W, tropo contacts in these directions are almost non-starters at VHF and above. So I'll have to make the most of the more favourable directions which in 2006 produced the following:

3cm: over 160 QSOs, 20 grid squares worked plus beacons heard from another 5 squares, ODX 1076km.
6cm: over 40 QSOs 10 grid squares worked ODX 975km
23cm: 14 grid squares worked (one opening Dec 06) ODX 1100km.
24GHz: 2 QSOs both G4EAT at 241km Jan31st and Nov 6th.
47GHz: G0EWN/P ODX Alport Heights--Brown Clee G8KQW/P 98km

2006 Good tropo openings in Jan, Nov and Dec. Regularly heard DB0GHZ/b and ON0RUG/b during summer morning/ evening at 3cm plus excellent rainscatter on 3cm. It was great to work some callsigns/areas not normally heard via RS, including G4PBP (3 and 6cm), G0RRJ, G3LTF, G3LQR, F6DKW, G1GEY and DJ5BV--RS ODX 675kms. During the Nov opening conditions on 3cm were so good that I worked Brown Clee whilst beaming SE and also worked Ian G8KQW -- another station/ direction I can't normally work. Let us hope for something similar In 2007. **Best wishes to all, Gordon G0EWN**

From: Dave WW2R/ G4FRE <g4fre@g4fre.com
Subject: Activity Report G4FRE Dec 06
On my way from LGW airport to Malvern on Dec 22, I picked up the last 23 ele 1296MHz Tonna that MLS had. I was too jet lagged to assemble it that evening so I put it together on Saturday evening, Dec 23 and propped it on plastic boxes inside a bedroom. GB3MHL very loud! I then surprised G4KIY with his 1st G4FRE qso in 17 years! Then I worked G4DDK. GB3MLE was audible with no antenna connected; I called CQ a lot that way but got no replies. I had 18W output from a M57762 module and Demi xverter + IC706.

While packing up gear around midnight I heard DJ5BV JO30 on cw at 670km and worked him! I also heard GB3USK on back scatter (impossible pointing at it) and also HB9EME/B JN47 and DF0ANN/B JN59. I called CQ that way but no other replies
So I hooked up the 3400MHz RX (the old German VHF Comms interdigital one + preamp brought to Martlesham and with a Rubidium locked LO) to a 400-1200 "Xmas tree" LPY (ie not a Kent Britain pcb one). With this I heard GB3MHS ~10dBn on 3400.832 at 1900-2300z!!

On Dec 26 morning I heard GB3SCX on 10GHz RS (demi xverter+wdg preamp + 18 inch penny feed dish indoors). GB3CCX is audible all the time.

New Year's eve morning again found GB3SCX on 10GHz RS. It sure rained a lot during my visit!
On my way back to the airport, Jan 2, I visited Sam to inspect his new dish.

Now I'm back in Texas trying to snag G3LQR and GW3XYW on 1296 EME from Dallas!
73 from Dave WW2R

TO END ON AN OPTIMISTIC NOTE….

A comment from Sam, G4DDK :
I've just finished putting the column together for the March 07 Radcom. I've been taking a look at the last year's activity whilst doing so. 2006 MUST go down in the record books as one of the most exciting ever! We have had many more lifts than in ANY previous year I can remember. Lots of new records have been set, both here in Europe and elsewhere, such as WA1ZMS's mm-bands successes in the USA. New countries have appeared on the microwave bands and been worked for the first time and two-way EME QSOs have taken place with dishes as small as 2.3m diameter and at power levels as low as 5W on 23cm.

How could anyone possibly complain about activity this year? No way!

It has been outstanding and the Group's contribution to UK microwaves has been equally marked. I think we have really arrived. And we have stirred things up.....

Vale RSGB Microwave Committee. Long live the UKuG!

All the very best to everyone for 2007. Let's see everyone make a resolution to have at least one microwave band QSO every week throughout the year. **73 de Sam, G4DDK**

UK 75GHz extension in hand

For any UK Amateur under BR68 or even the new licence, you currently have lost (temporary) access to 75.5-76GHz, as the band expired (along with 142GHz) at the end of 2006

Fear not ! The matter is in hand and an updated licence schedule is in preparation following our successful input regarding EU35 and datalinks.

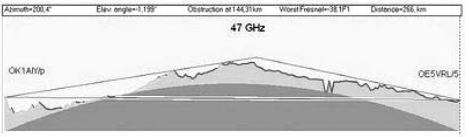
Murray G6JYB
RSGB Microwave Manager

That's all the news for this month so...

73 and good DX in 2007 from Peter, G3PHO, Editor

RECORDING BREAKING 47GHz STATIONS…

The photos above show the equipment used by OK1AIY/P (top photo) and OE5VRL/P during their **266km 47GHz contact** made in early November 2006 (see last month's Scatterpoint. The path was not line of sight, as shown in the profile below:



After a year in which some remarkable contacts were made both in Europe and the UK on 24GHz and 47GHz, the New Year should see even more advances on these higher bands. The equipment is there but is the sense of adventure to drive to remote locations in cold weather also there in the minds of UK operators? Time will tell!

ERRATA…

In last month's contest results, the callsign shown as G8IAM in the October Lowband results should read should **G8AIM.** Our apologies to George for this error…

NEW SDR DESIGN

Jonathan, ON/G4KLX sends news of yet another new SDR that should interest readers. Apparently the design for this one pre-dates the SDRIQ but unfortunately appears a bit "me too". However it does use USB 2.0 which is a definite bonus.

Highlights:

- 16 bit 130 MSPS ADC
- HPF, LPF, RF AMP Switchable Front End
- 0-31.5 dB Attenuator in 0.5 dB steps
- Cyclone II FPGA
- Two AD6620 DDC co-processors
- USB 2.0 480 Mbps High Speed Interface to PC
- 0.1 to 33 MHz coverage (0.1 to 65 MHz extended)
- RX bandwidths from 33 MHz to 1kHz
- Two independent RX channels anywhere in 0.1 to 33 MHz
- 6.00" X 4.00" board size
- Single +12V 1A supply
- Open Source Software and Hardware

A prototype picture and preliminary info can be found at:

<http://pcovington.blogspot.com/>

(Soon to follow QS1R will be the QS1T transmitter board).

Of course there is still UWSDR (Microwave SDR) which is being actively developed.

Jonathan ON/G4KLX

Audio files for testing Software Defined Radios and similar …

I've placed a number of wav file synthesis and analysis programs on my website in the software download section.

Direct access: **www.scrbg.org/g4jnt/WAVDSP.ZIP**

WAVDSP.ZIP contains, amongst others, a programme to upconvert multiple source files into one large wide bandwidth stereo I/Q (complex) file with adjustable frequency and time shifts, and amplitude weighting. The target file is aimed at image reject upconversion to RF, allowing the SDR transmit
(or receive after upconversion) process to be tested on wideband multiple carrier signals.

A PSK31 generation utility generates wav files for specified PSK31 messages; CW message to audio generation is also included, as well as FSK, QPSK, tone generation, parallel tone testing .WAV file and I/Q file analysis. Further details are given in WAVDSP.TXT, now included in the archive.

Andy G4JNT

www.scrbg.org/g4jnt <www.scrbg.org/g4jnt>