An Amateur Radio publication for the Microwave Enthusiast

# scatterpoint

Published by the UK Microwave Group

**2008 MAY**

**F6DPH/ portable …**

This super trailer-mounted offset fed dish and transverter assembly is one good reason why Philippe puts out such a good signal during his portable microwave expeditions. Seen here at Seigy 2008, it attracted a lot of admiration from others at the event.

**In this issue …**



***Latest News …***

- **G3JMY Silent Key**
- **Bath Round Table success**
- **New Beaconspot website launched**
- **GB3KEU 5.7GHz beacon now on air from Sheffield**
- **PI7EHG beacon back on 10GHz**

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

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## From the Editor's Desk

Much of this edition of Scatterpoint was put together before you even received the April one, the reason being that I was away overseas in VK/ZL during the time it would have normally been assembled. Robin, G8APZ, has added the Activity News and several other items for this month. He's done a great job! Many thanks Robin.

I hope you all had a good time at the Bath Roundtable on 20th April and that many of you will also come up North to Sheffield for the meeting there over the weekend 12th-13th July.

If I may now make a personal plug ... the GB3KEU Sheffield 5.7GHz beacon was activated on April 6th. Details can be found elsewhere in this issue. I'd very much appreciate reception reports through the email address shown in the item about it. At the time of writing this it had been heard down in the Wiltshire and Oxfordshire region as well as across the Pennines in Shropshire and, of course, semi locally. Tim Leighfield G3KEU, was a special friend of many of us here in the UK and France and this beacon is offered as a lasting memorial to him.

Finally, a plea for more articles! We have been extremely lucky over the past four months with having a reservoir of technical articles kindly sent into us by members. The reservoir is now dry! If you want to see a June issue worth reading then please let us have your contributions as soon as possible.

**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 following the first Monday of the month** if you want your material to be published in the next issue.

### Ted Halliday G3JMY - Silent key 4/5/2008

**We have heard the sad news that Ted is no longer with us.**

**Many of you will have known and worked Ted on the microwave bands.**

**Roy, G3FYX was his lifelong friend, and he has written an obituary which appears on page 19 of this issue.**

**Our condolences to Ted's family.**

**HAVE YOU RENEWED YOUR SUBSCRIPTION YET? YOU CAN CHECK THE RENEWAL DATE ON YOUR ENVELOPE ADDRESS LABEL IF YOU RECEIVE A PRINTED SCATTERPOINT. THE DATE IS BELOW THE ADDRESS LABEL. IF YOU STILL DON'T KNOW YOUR RENEWAL DATE, PLEASE EMAIL THE SECRETARY, G8KQW, AS SOON AS POSSIBLE!**

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

## South Birmingham Radio Society Scoops Top Honours in RSGB Microwave Contests

SBRS were the winners of the May 2007 10GHz and 2.3GHz Trophy Contests staged by the RSGB. Pictured on the right of each of these photos is UKuG Secretary Ian, G8KQW, receiving the 2.3GHz G6ZR Memorial Trophy (left photo) and the 10GHz Trophy (right photo) at a recent ceremony at the Kempton Park Rally on 6th April. The 10GHz Trophy is actually awarded by UKuG to the winner of this RSGB VHFCC contest - see: **http://www.rsgb.org/committees/trophylist.php**

South Birmingham Radio Society have a very active VHF/UHF/SHF contest group covering all bands to 47GHz, operating under the callsigns G3OHM and G8OHM. Last year they also won the restricted section of VHF NFD and were awarded the Martlesham Trophy as a result.

## SHEFFIELD MICROWAVES 12-13 JULY 2008

## REGISTER NOW!

Here's a further reminder about this event, reported in last month's newsletter. Please contact G3PHO at as soon as possible if you plan to attend as prior registration is required. By now, if you need overnight accommodation, things may be difficult so get in touch with Peter as soon as you can. Details can be found at www.microwavers.org or email G3PHO at:

**sheffieldmicrowaves@g3pho.org.uk**

The Sunday Roundtable session includes talks by Richard, **G3CWI**, on Backpack 10GHz portable and SOTA, Peter, **G3PYB** , on DATV coding and Streamers and Bernie, **G4HJW**, on "Don't underestimate the humble satellite LNB". Further offers of talks are most welcome.

**Keep looking at www.microwavers.org for updates on the programme.**

**Don't forget the fleamarket... bring your junk!**

## SUBSCRIPTION RENEWALS

The past couple of months has seen our secretary working furiously trying to get forgetful members to renew their subs! Some of you are either forgetting to renew or have simply not realised that your subs are due. That's understandable but if, after two or three reminders, you haven't renewed then we have no choice but to take you off the Scatterpoint mailing list.

If you receive the paper edition, this means that you may not be able to receive any back copies you have missed if you decide to renew late. We can always supply email Scatterpoints. A large percentage of you have 1st of June renewal dates so **please renew now**, **today, after you have read this notice**!

**Many thanks!**

## CRAWLEY ROUND TABLE 14 September 2008

Allan G8LSD and Chris G0FDZ are organising things this year. There are normally three talks in the afternoon and provisionally, David G0MRF will give a talk on the 5.7GHz beacon on the satellite that is due for launch in July but that is dependant on a successful launch.

If anyone would be willing to give a talk on any microwave subject, please email Chris at **chris@g0fdz.com**

Talks can be more informal than at events such as Martlesham, say 30 to 50 mins. The Crawley club can provide a digital projector if needed. This round table has been provided by the Crawley Club for many years and we ask that the microwave community supports it.

It's not intended to be another Martlesham or Bath but a more informal meeting where people can have a good chat in the morning. A pub is nearby for lunch, and there is also the construction contest for the G3VVB trophy which is then formally presented to the winner at Martlesham.

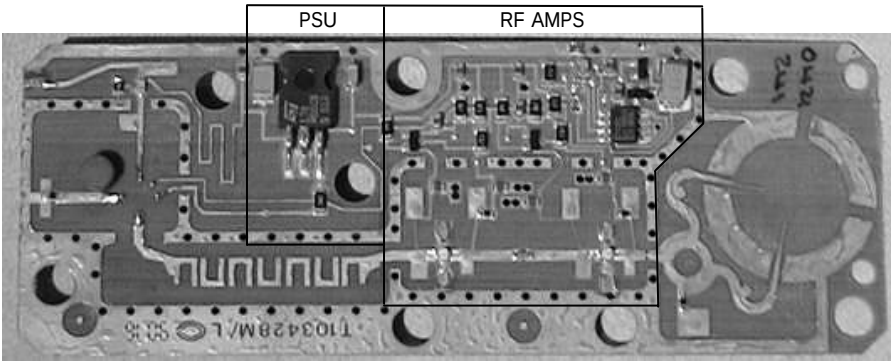
# 10GHz Amp with 20dB of gain from an LNB pcb

**David Wrigley, G6GXK**

I was building a new, lightweight 10GHz transverter and the output of the mixer was measured at -7dBm and, after the filter, the level was -12dBm. I needed -3dBm to fully drive the PA. Clearly I was 9dB short of this level of drive and I would need an amplifier of at least 9dB.

Normally this would need a pcb to be designed and made – not one of my favourite jobs. Instead I figured that it would be a lot quicker to use an existing LNB pcb and cut out the RF amps and PSU.

The original LNB pcb is shown below with the areas of interest outlined:



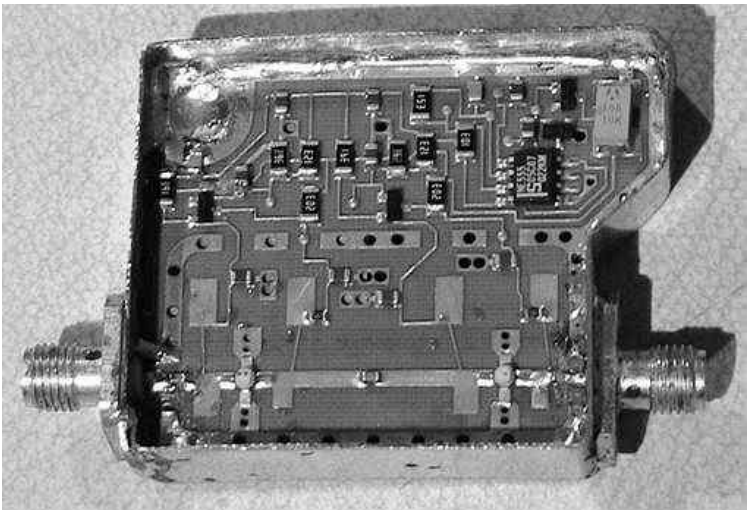
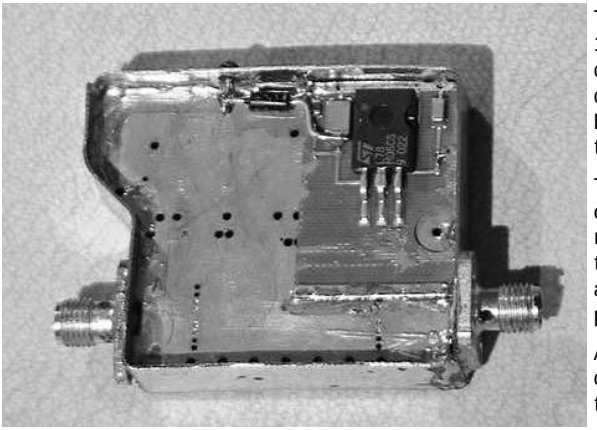



**Photo 2. RF section with tinplate sidewalls**



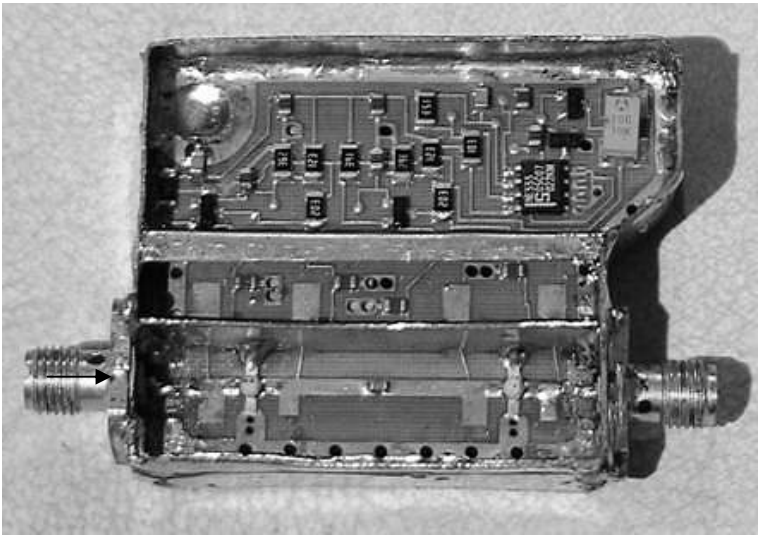
The RF bits were cut out and some 10mm deep 0.5mm tinplate was cut as sidewalls. Isolation capacitors from another LNB had to be added at each end adjacent to the SMA connectors (see photo 2).

The PSU components on their part of the pcb were soldered to the rear of the RF pcb. A 1nF feed thru cap and a series diode were added for the 12V supply as the photo (left) shows.

A single wire link is required to connect the 6V regulated output thru to the RF side.

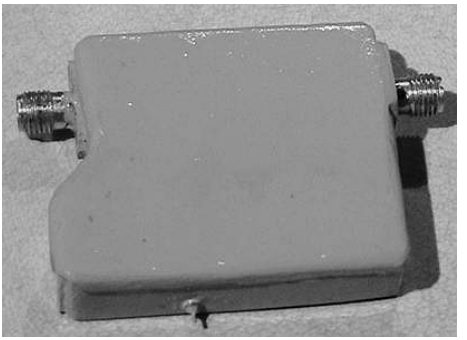
The circuit as assembled worked extremely well and showed a gain of over 20dB with a max output of over 11dBm. The PSU consumed 30mA at 12V.

I decided to cover the RF side with a tinplate cover – ah – that caused a bit of a problem in that the RF amp was now an oscillator! After a bit of trial and error with magnetic damping material and no real benefit, it was decided that the problem was caused by the enclosure acting as a waveguide. Clearly, to reduce this effect, the waveguide section would have to be restricted to a width less than 15mm (the 10GHz cut off). This was achieved by adding a strip of tinplate to act as a waveguide edge. This is shown below level with the arrow. Note that it can be seen that I had two attempts at this but when I got it narrow enough, it finally worked – resulting in a totally stable amplifier - as shown below:



And, with the cover soldered on and painted grey, it looks quite acceptable:

All in all, the overall cost was £1 for two LNB pcbs (one for the circuit and one for the additional series caps), plus £1 for the two second hand SMA connectors. I added a further feed through cap and series diode to protect against reverse polarity, cost around about 50p ... say £2.50 total. This is what I call true amateur radio ... a pleasant afternoon's work with a good result. I will measure the Noise Figure of this unit and, if it is as reasonable as I expect, I can use another of these amplifiers on the input as a LNA.



# USING SAT TV LNBs ON 10GHz NARROWBAND

## by Bernie Wright, G4HJW

*It had never occurred to me to check how stable the puck controlled LO was in any of the many satellite LNBs that had come my way. The assumption had been that they would be so unstable and rough that it wouldn't be possible to obtain an worthwhile beat note from them. Then Mike, G8VCN, showed me his portable 3cm receiver, using an LNB fed scanner portable. Good for wide-band, I thought, still not fully comprehending the shock about to come my way. Even the request for a 3cm carrier didn't really register. Only with the words, 'It's a nice scanner - it's got ssb' ,did I start to understand.*

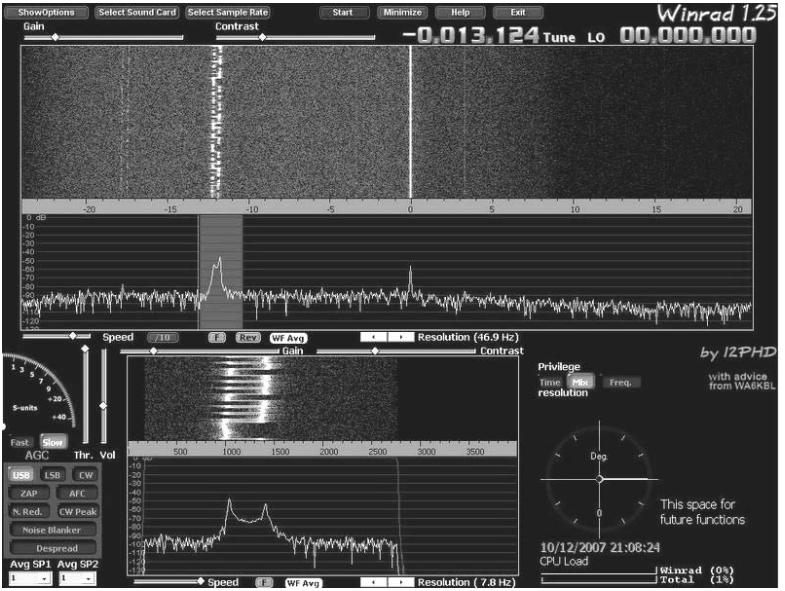
Mike's LNB was an old C-120 waveguide flange type. We had only just connected 12v to it, so the drift was quite bad, but you could still tell that the tone of the beat note was quite good as it drifted through the receiver passband.

Within a few minutes, stability was good enough to catch the beacon call-sign fully. The LNB had not been selected for good stability and a day or so later I thought it would be interesting to go through my stock of unmodified LNBs to see how they compared. All the units uncovered had 9.75 GHz LO frequencies, so the IF was going to be about 618 MHz. Initially, I had no receiver at this frequency, so to bring this down to HF, a connectorised ring mixer was put together and the HP8640 signal generator switched on. Most LNB units tested had a similar note/temperature stability but the odd one was pretty awful. However, two types had noticeably better phase noise. These were samples of the early Cambridge digi-dish unit and, best of all by far, a couple of the LNBs that Lidl had been selling a few years ago at £3.99.

The first Cambridge LNB had noticeable short term drift, even when left on for half an hour, but the the Lidl unit was much better. This Lidl unit can be seen on the waterfall display (the main signal is the standby beacon GB3CAM, running in the shed, whilst the weaker one to be left is the main unit operating 12 miles away at the QTH of G4AKD) - ignore the bright line in the centre at 0Hz:

A LNB (a G88) gave better performance, though the LO phase noise was different Cambridge noticeably worse than the Lidl units. A further four more Cambridge's behaved pretty much the same.

The waterfall display was taken after 30 minutes or so settling time for the LNB. It seemed




reasonable to repeat the test with the LNB placed outside, at which point, it also seemed interesting to see what, if anything, the domestic satellite LNB installation was picking up, so the receiver was connected to the spare IF socket of the Sky receiver. This set-up also uses a Cambridge G88, and as expected, was suffering more drift but I could still hear not only the spare beacon running in the shed but also the one 12 miles away at G4AKD. This was without moving the dish away from its Astra alignment.

Although the short term stability of the LIDL units was better than the Cambridge units, temperature runs revealed that the latter units had two or three times less temperature drift. I need to do more measurements to explain this though it occurs to me that the poorer phase noise could be caused by supply modulation from noisier voltage regulators in the Cambridge units. The note from the LIDL units is remarkably pure.

For anyone still curious, there are further waterfall displays and audio recordings at:

**http://www.earf.co.uk/lnb_unmod.html**

LIDL LNB audio: **http://www.earf.co.uk/LNB_puck_lo1.wav**

Cambridge G88 LNB audio: **http://www.earf.co.uk/cambridge_lnb.wav**

I suspect that the humble LNB may offer a useful introduction to many otherwise non-equipped 3cm interested amateur. An SDR module/LNB combination, centred on the beacon portion of the band and outputting as a waterfall display could be useful, particularly in locations where a strong local beacon could be used to provide calibration.

**73 from Bernie Wright, G4HJW**

# A Six Band switching system

## David Robinson G4FRE

When I moved into the Malvern accommodation I quickly realised that, to run antennas for more than one band in the loft, I would need some way of feeding all bands remotely. To protect any preamps 2 lines would be required, one for receive and 1 for transmit. This would require a pair of 1P6T RF relays in the loft and a pair in the shack. At this point, I came across some SMA 1P6T relays (for RX) and some N type 1P6T relays with auxiliary switching contacts for which I paid $80 total, so construction could begin. The circuit diagram shown in Figure 1 shows how it was done with an example of my 2 band configurations; masthead preamp and masthead transverter. Note the Transverters do not need a PTT signal, TX/RX switching is done by sending 9V on TX up the IF cable. Not shown are the diodes across the relay coils.

RL1 and RL3 are 1P6T SMA RF relays with six 28V coils I used DowKey type 146C70100-8 relays.

RL2 and RL4 are 1P6T 28V N relays with six 28V coils and 6 auxiliary contacts. I used Quantraton CS-18N16-6 relays.

RL1/1, RL2/1, RL3/1 and RL4/1 are the RF contacts. RL4/2 is the auxiliary switching contacts. Note there is no failsafe position on any of the relays; with no power all paths are open circuit

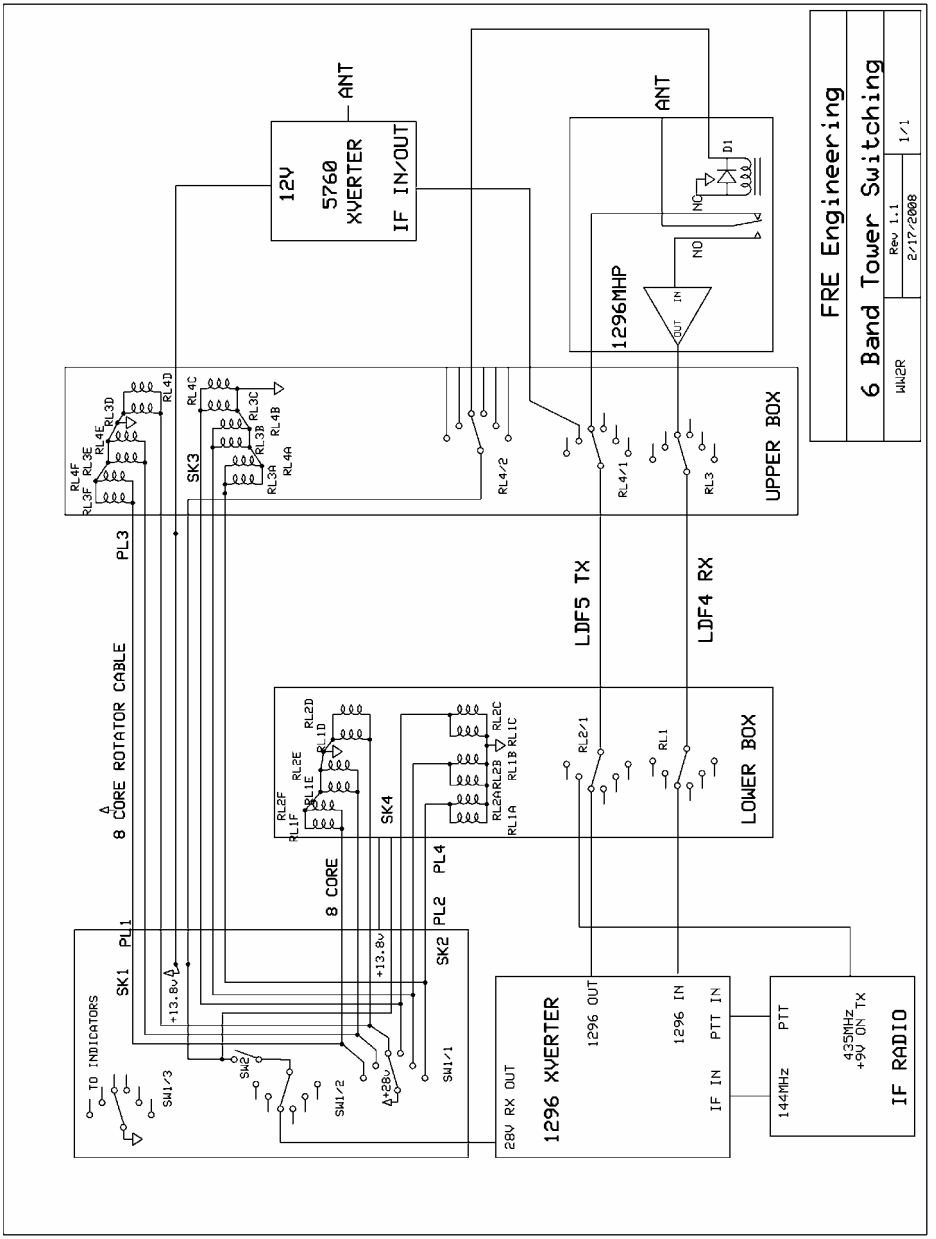
SW1 is a 3P6T ceramic switch. SW1/1 switches volts to the appropriate RF relay. SW1/2 selects the appropriate 28V on receive to send to the masthead preamp from the band transverter. SW1/3 drives a visual band indicator, in my case a large double 7 segment display which shows “43” “12” “23” “34” “57” or “10” generated using a diode matrix and a 7447 Binary/7 segment decoder. SW2 turns power off to the masthead preamp box, enabling a check for an increase in RX noise to be observed

The RX and TX line are FSJ4 chosen for its flexibility. The control cable that goes into the loft (PL1/PL3) to the upper box is a 40’ 8 core rotator cable, one of the thicker cores is used to feed 13.8V to the loft mounted Transverters. The cable has an 8 pin connector on each end. The cable to the lower box (PL2/PL4), located in the shack uses a short length of 8 core screened cable. It is only 6’ long so voltage drop is not a concern. It has identical connectors to the long cable so it doesn’t matter which cable is plugged into SK1 or SK2 as they are wired identically.

### Construction

The lower box is a 7x3x5” diecast box and has 2 relays and an 8 pin power connector.

**Figure 1 Circuit of 6 Band switching system**



The upper box is 7x3x5" diecast box and has 2 relays a power connector and 6 Phono sockets to get the 28V on RX signals from RL4/2 to the preamps.

The control circuitry and indicator are mounted in an 8x6x3" aluminum box.

# DUTCH 10GHz BEACON BACK ON AIR

Hanz, PA0EHG, has reminded us that some readers may not have realised that the PI7EHG 10GHz beacon of Schipol Airport fame has been back on air for a while now. After Hans was forced to take down all his beacons at the airport, in spite of support and official protests from others in Europe, not the least UKuG, he had some problems finding a new location. The following email from Hans updates the situation ...

Some of you may not you know that the 3 cm beacon PI7EHG is QRV again now from my home site.

**Data:** PI7EHG, 10368.180MHz, 50 W ERP Omni antenna at 10m above ground with good take off from JO22HC.

Further info can be found on my website: **www.pa0ehg.com**

I will try to get some more beacons on air in the next few months, first a 13cm beacon, then the 6cm beacon and then a 24 GHz beacon. The beacons will be remotely controllable over the internet and can be switched off and on by authorised users.

# GB3KEU ... IO93GH38
# A team effort

**Frequency:** 5760.925MHz

**Location:** Meadowhead, Sheffield. IO93GH38. NGR SK350811

**Antenna:** 10dB gain slotted waveguide. Omni pattern.

**Power:** 25 watts ERP

**Keying:** FSK c. 400Hz shift. 1 minute sequence: Callsign and locator twice, followed by 25 seconds plain carrier

On Sunday, 6th April this year, the 5.7GHz Sheffield beacon GB3KEU was finally switched ,on after a long period of uncertainty of where it was to be located. The idea of a beacon in memory of the late Tim Leighfield, G3KEU, came soon after his death in May 2002 but, for various reasons, it's taken your scribe almost 6 years to turn an idea into something that can now be heard!

Initial plans were to build and locate it, along with a 24GHz beacon GB3BNL in honour of the late Les Sharrock, G3BNL, at Alport Height (IO93FB). However, there were a couple of problems that prevented this, one being the installation of a 5GHz broadband system at the site and it also struck me that having beacons on a commercial tower, though rent free in this case, would not be good in that I could not readily access them at times convenient to myself. Lack of time to build the two beacons then followed as the writer became Chairman of UKuG and as the present chairman only knows too well, that job (with this newsletter editorship in addition) does not leave much time for anything else!

During this period, Peter, G3LRP, very generously donated a ready made DB6NT beacon "sender" and a DB6NT 5W PA that he had bought to set up a home station attended beacon. In addition, the GB3ZME 5.7GHz beacon had had two slotted waveguide antennas made and one became ours due to the generosity of Martyn, G3UKV and the Telford club. I provided a G8ACE ovened oscillator kit I'd purchased some time earlier from John, a coax to waveguide transition plus power supply, mast, cables and mounting brackets. A local club member gave me a brand new waterproof plastic box for the beacon enclosure but time was still in short supply. Chris, G8BKE kindly programmed and made up the PIC keyer.

One day, Peter Blakeborough, G3PYB, was at my house when I mentioned my lack of time to assemble the beacon and he immediately offered to take the OCXO kit home and build it up for me! This was a great time saver of course and in a short time we had the main modules of the beacon on my bench and running in the shack.... truly a great team effort by several people, to whom I'm eternally grateful. The G8ACE oscillator appeared to be extremely stable when listening at the 120MHz crystal frequency.

By this time, early Autumn 2007, we already had a beacon application in the pipeline but the OFCOM wheels were still turning a little slowly (but much faster than a year ago!). Then suddenly, at the end of last year, things got a move on and the NoV arrived at the end of January this year and so I just had to get the beacon up and running before the statutory three months were up before the NoV become null and void.

The site for the beacon remained a problem until the middle of last year until I casually mentioned it at our local radio club. The chairman suggested we might approach the management of the Sports Club where we rent club premises. They seemed agreeable that we install the beacon on the roof of our club shack, near to other antennas we already had there. The site is at NGR 350811, approximately 190m above sea level, with the actual beacon some 12m or so above ground at the present time. Where we have fixed it to the roof at present is not ideal as part of the Sports Club building blocks the take off to the west. We plan to raise the beacon height in the coming months. Still, it's a fairly good take off in the other directions. On its first day on air it was heard v ia rainscatter at G4BRK in IO91 and also over the Pennines in Shropshire, IO83RR, by G3UKV (it's worse direction). Hopefully other reports will come in in due course. After installing the beacon, with the help of club members Steve, M1ERS and Trevor, M0TWS, I drove 50-60 miles around the Sheffield area, for 2 hours, to listen for it. The receiver was my 5.7GHz transverter with a WA5VJB pcb log periodic 2-6GHz antenna into an FT290 as the I.F., both on the floor of my van! I could hear the beacon in the most unlikely places, in the bottom of deep, steep sided valleys and behind large hills. Huge Doppler effects made the whole 5.7GHz mobile experience something quite memorable!

By the time you read this more pictures will be available on my website **at www.g3pho.org.uk.** Just follow the link in the navigation bar on the home page.

**Reports please to me at gb3keu@g3pho.org.uk and/or spot the beacon at www.beaconspot.eu**

# BATH ROUND TABLE
# 20 April 2008

This new event in the microwave calendar was held at Bath University, where the UKuG were the guests of the Department of Electrical Engineering. This event replaced the RAL Round Table in the 2008 calendar. The success of the event can be measured by the attendance with a very pleasing total of 88 persons registered and over 80 actually attended.

The weekend started during the afternoon of Saturday 19th April, with a gathering at the G4NNS QTH near Andover where an antenna test range was set up. Eleven antennas were listed for the test session, and the results are tabulated below:

**10GHz Antennas**

| | | |
|---|---|---|
| Black horn | G4LDR | 19.1dBi |
| Grey horn | G6GXK | 17.3dBi |
| Sectoral horn | G6GXK | 16.1dBi |
| 1.2M dish | G4LDR | 38.2dBi |
| 60cm dish | G8DKK | 30.1dBi |
| Sectoral horn | G8ACE | 16.1dBi |
| Homebrew small horn | G4NNS | 14.2dBi |

**24GHz Antennas**

| | | |
|---|---|---|
| RFS 30cm (F117963) | G8KQW | 32.5dBi |
| RFS 30cm (F117967) | G8KQW | 33.0dBi |
| Andrew BCA090 | | |
| 285V 0AMP sector | G8ACE | n/a * |
| Slotted w/g Omni | G8KQW | n/a * |

*= Unable to measure (see p.19)

The Round Table dinner was held during the evening at a local hostelry, with 20 diners. Plenty of acquaintances were renewed, and a very enjoyable and convivial time was had by all. The food was excellent and a number of attendees had booked rooms in the adjoining chalet complex.

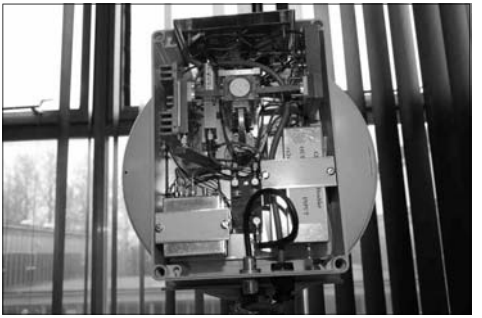
Saturday evening dinner - the chat continues!

The following morning, those who had stayed as G4NNS guests were treated to a superb breakfast, and an early start was made for the trip to Bath, about an hour and a half away.

Bath University is a large campus sited on top of a big hill on the SW outskirts of Bath, and the doors opened at 10pm on the Sunday.

The traders tables seemed busy for most of the morning, with plenty of useful items on sale.

G4DDK and G8KQW check the 1.2M G4LDR dish



G8ACE 24GHz portable transverter and dish

Several exhibits for 24GHz on display included a few units based on parts from the surplus Alcatel “boite blanche”. The picture on the previous page shows the unit made by John, G8ACE. In the test equipment room, Sam, G4DDK and Lehane, G8KMH had set up the gain and noise figure measuring equipment, and a good number of preamps were checked.

Nearby was the bar and restaurant which opened at 12:30 and on offer was a very good carvery which over 50 of the attendees took advantage of. This was as good as any high street outlet, and a credit to the University.


Keith Winnard GW3TKH with his 3 certificates

Brian, G4NNS - UKuG Chairman opened the proceedings in the afternoon with a welcome speech, before presenting the winners certificates and trophies for the 2007 UKuG contests.

He welcomed the President of the RSGB, Colin Thomas G3PSM who then presented some awards on behalf of RSGB. One of these was the Ostermeyer Trophy which was presented jointly to Ian, G8KQW and Brian, G4NNS for the 3cm Quickstarter article in RadCom. Colin’s visit marked the second Presidential visit to a Round Table event.


G8KQW G4NNS G3PSM

Brian introduced and thanked Dr. Watson, the Head of the Electrical Engineering Department, who was scheduled to give the first talk in which he outlined some of the projects the University were involved in. In his talk, he paid a compliment to the microwave fraternity in saying that from what he had seen, he could not understand why we called ourselves “amateurs” since much of our equipment was built to very high standards!

One of the projects he described in detail was a 38GHz tropo link which was received via a number of lens horn antennas (an interferometer). The PhD project was to study the angle of arrival of the signals due to atmospheric refraction, and had shown some very interesting results.

Ian, G8KQW gave a talk on the millimetre bands, mainly on 47GHz and 76GHz, and discussed the various ways of building for these bands, including suggesting which surplus items may be of use in conversion projects. Ian demonstrated reception of a 76Ghz signal across the room.

The final talk was by Robin, G8APZ on the new Beacon spotting website. The background to the project was explored, and the main points of the website introduced.

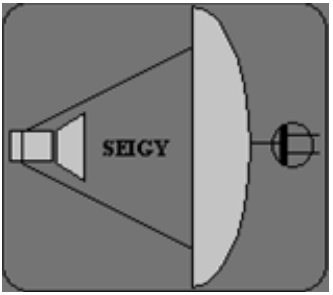
The Bath Round Table closed shortly after 16:30 and was considered to be a great success.

**CREDITS - We thank the following whose efforts were very much appreciated:**

Lehane Kellet, G8KMH who, as at Martlesham, was the provider of most of the test gear.
Sam Jewell, G4DDK who provided the noise factor measuring equipment.
Brian Coleman, G4NNS for providing the facilities and hospitality on Saturday. Brian also arranged the dinner, negotiated the facilities with Bath University, and undertook all the arrangements.
Dr. Watson and the University of Bath for being our hosts and providing the facilities.
Ralph Bird, G4ALY who kindly supplied all of the photographs used in this article.

# Seigy - CJ2008 - 29 March 2008

**Robin Lucas, G8APZ / F1VJQ**




Seigy is a small village in the Loire Valley, on the River Cher and every year, it hosts the big event in the French microwave calendar. The village of Seigy is close to Saint Aignan sur Cher, in the département of Loir et Cher, midway between TOURS and VIERZON on the N76.

The recently renovated salle des fêtes in Seigy provides plenty of indoor facilities, including bar and refreshments with plenty of space outdoors for the flea-market and the excellent lunchtime buffet.

This year marked the 18th meeting and it was organised by Michel F5FLN, Gilles F5JCB, and Philippe F6ETI.

This was the first time I was able to attend, and I found it to be similar in many ways to our own events, but very different in many others! The main meeting takes place on the Saturday, but many arrive on the Friday afternoon, in plenty of time for the dinner in nearby St Aignan on the Friday evening. The hotel dining room provides a maximum of 100 places, which must be pre-booked, and I was lucky to get one of the last six.

I was one of the first to arrive at the hotel, with Rainer DF6NA and had the pleasure of chatting to a number of well known French microwavers, so I was able to put faces to callsigns. One of the first things we were amused to find out was that since the dinner booking was made, the Grand Hotel had been sold, and the previous owners had taken all the kitchen fittings with them! That problem was solved by employing an outside caterer to bring their own cooking equipment with them and, in due course, the food and drink started to appear. Dining in France is an all evening affair and this dinner proved to be no different. I think we probably had our last course around 11pm, although it was still in full flow well after midnight when I decided that I needed some sleep - in past years the dinner has been known to continue until 5am! Apart from the copious supply of wine, there were various eau-de-vies in circulation brought by attendees, and which was offered to all.

Grand Hotel, St Aignan

On the Saturday, the doors opened at 8:30 but, by the time I arrived at 9am, there were hundreds of people already searching for bargains on the fleamarket stands. The entrance charge was 4 euros, which included a souvenir half bottle of wine specially labelled CJ2008.

There was an exhibition of equipment indoors, competing in various construction categories, a noise measurement service for preamps, and a large seating area serving refreshments and snacks throughout the day. The covered fleamarket in the field outside was continuously busy, although I didn't find any "gems". I normally miss them wherever I am, so no change there!

Ralph, G4ALY, was at the meeting and was kept busy chatting to many of his French friends. I didn't have time to seek out the lectures, nor to stay for the Saturday evening dinner but I did enjoy the event, met many people and will try to be there again next year.

**Fleamarket and Traders**

**Frank Tonna, F5SE**

**F1PYR, F2CT, F5BUU**

**F6DRO and Philippe F6DPH**

**Browsing for bargains**

**F6APE and DF6NA**

# www.beaconspot.eu

## A useful tool for propagation studies

The UKuG initiative to build a beacon spotting website was announced by Brian, G4NNS at the Martlesham 2007 Round Table as a propagation studies aid. Specification and building of the site went on during the winter months, and a team of Alpha testers helped to test the early versions whilst still in development. Once the software was ready for Beta test, a number of well known operators were invited to help in the testing, resulting in some valuable feedback.

The site was written in PHP and the database is MySQL. Both of these are server side facilities, and are used to produce the HTML pages for display on the client side (i.e. your computer). All of the microwave beacon bands from 23cm to 47GHz are covered, and site registration is required. The reason for this is to obtain and record the user's callsign and locator, so that beacon headings and distances can be calculated for each user automatically. In addition, spotting beacons to the DX cluster requires that users are identified.

Unlike the printed lists of beacons in books and on other websites, the intention is that the site will only hold data on beacons which have been spotted, and are therefore known to exist for certain! The initial beacon data was therefore obtained from spots made to the DX Cluster for the whole of 2007. Some of the nominal frequencies may not be quite correct as a result, but users have the ability to make corrections to this. The intention is that the site should be dynamic, interactive, and needs minimal intervention by an administrator. Users are able to adjust data themselves, where it may not be correct (with a few exceptions).

When a user "spots" a beacon via this website, the details are recorded on the database at the server, and the user may optionally pass a spot to the DX Cluster. If the "spotted" beacon has not been spotted previously, a beacon record is created automatically so that a user can update it with relevant details such as locator and location. When searching for beacon details, the data can be viewed as a list in frequency or alphabetic sequence, or can be viewed for the band as a whole on a Google map. When looking at "spots" the data can be viewed as a list, or as a Google map showing all spots for a specific beacon.

Beacon keepers can request a different access level, which enables them to update fields on the beacon data, and to opt for an email advice whenever their beacon is spotted.

The site was launched on 20th April at the Bath Round Table, at which time there were 42 beta users. Just one week later there were over one hundred registered users, and in mid May the user count reached 175 in eighteen DXCC countries. The more users there are, the more useful the collected data will be.


**By Robin Lucas, G8APZ**

This issue of Scatterpoint has been produced whilst Peter, G3PHO takes a well deserved holiday in VK and ZL. Having taken on the task of editing the May issue whilst Peter is away, I can only say I don't know how he does it EVERY month!

Seigy 2008 and the Bath Round table are now behind us, and the next events to look forward to are the Sheffield and Crawley Round Tables. The Sheffield event will be on the weekend of 12th/13th July and the Crawley event is provisionally set for Sunday 14th September.

Several new beacons have appeared this month, on the higher microwave bands from France and Belgium, with a number of others due to appear soon.

The contest and rainscatter seasons are in full swing, and with the onset of better weather, we should see some more microwave activity.

## CONTEST and ACTIVITY REMINDER

**May**

**24/25-May** French Journée Activite (Activity Day)
**25-May** 0900 - 2000 1st 5.7GHz Cumulative
**25-May** 0900 - 2000 1st 10GHz Cumulative
**25-May** 0900 - 2000 1st 24GHz Cumulative

**June**

**8-Jun** 0900 - 2000 June Low band 1.3/2.3/3.4GHz Aligned with some Eu events
**17-Jun** 1900 - 2130 1.3/2.3GHz Activity Contest Arranged by VHFCC (RSGB Contest)
**21/22-Jun** French Journée Activite (Activity Day)
**22-Jun** 0900 - 2000 2nd 5.7GHz Cumulative
**22-Jun** 0900 - 2000 2nd 10GHz Cumulative
**22-Jun** 0900 - 2000 2nd 24GHz Cumulative

## G-GI - A FIRST ON 3.4GHz ?

**John, G3XDY <**g3xdy@btinternet.com> looks after the records and certificates for the UKuG microwave "firsts" programme. John requested the following insertion:

"I recently received a First claim from **G3UKV** for his CW contact on **3.4GHz** with **GI4ISM/M** on 2nd October 2007 at 18:48z.

If anyone has had, or knows of a prior contact between England and Northern Ireland on **3.4GHz**, please let me know either by e-mail at the above address, or telephone on 01473 717830. If I hear nothing within 2 weeks of the publication of Scatterpoint I will issue the certificate."

## MEDITERRANEAN ACTIVITY

" La Grande Bleue" or "Big Blue" is an activity which has taken place for the past 10 years, in which participating stations are looking to exploit some very long paths across the Mediterranean made possible by maritime propagation.

Every year, during the third week of June, a lot of teams from places such as Switzerland, France, Spain, Italy, Malta, Corsica and Sicily want to prove that the "Big Blue Mediterranean" permits a lot of DX.

For example :

- World ATV record 1564 km between Calabria and Spain.

- Long DX QSO between **TK/F5BUU** and Paris on **10GHz** SSB

- **HB9DUG** made an ATV contact between Sardinia and Melilla in Spanish Morocco.

This year there are a lot of teams in the starting block:

In Corsica **TK/F1AAM** and **F5BUU**, and in Sardinia **HB9AZN**, **HB9ADJ** and **HB9RXV**. From France **F6DPH** and **F8BTP** in the Pyrénées and there will be many others....

**TK/F5BUU** will be very happy to find **G, DL**, **ON**, or **PA** to increase his record.

On the internet, you will find some news at www.swissatv.ch (Use the menu "la grande bleue 2008").

The activity will be focussed around the French JA (activity days) between June 20th and 28th.

**73 Yoann F4DRU and Paul HB9RXV**
paschmid@bluewin.ch

## BEACONS

I noticed that there was a "spot" for one of the **10GHz** beacons in **IN88**, but there was something strange about it. The spot was for **F1XAO** but was on **10GHz** (**F1XAO** is the **5.7GHz** beacon). I checked with **G4ALY** who confirmed that the beacon was indeed sending the wrong call!

Ralph also checked the **6cm** beacon, to find that was sending **F1XAP**! An email to the chaps who look after the beacons quickly produced a changeover of the keyers!

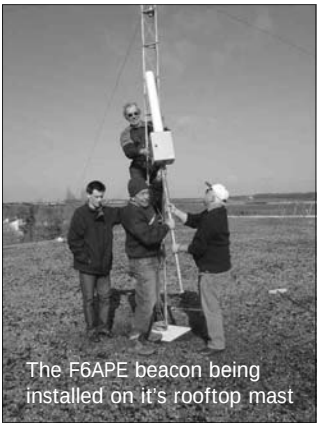

The F6APE beacon being installed on it's rooftop mast

Photo F6APE

Several new beacons have appeared this month. The **F6APE 6cm** beacon has moved from Jean-Noel's QTH where is was on test to a new location in Angers, **IN97RL** andit can be found on 5760.949

The beacon still uses his personal call, but an official beacon call will be applied for. Thanks to **G4ALY** and **F6APE** for the information.

On 5th May, **ON4IY** announced some new Belgian beacons. The **ON0GHZ** microwave beacons are in **JO20KV**, and the first two of these are on **13cm** (2320.975) and **6cm** (5670.975) and are both QRV.

The next two beacons are planned for **10GHz** on 10368.925 and **24GHz** on 24048.050 with the 24GHz beacon possibly scheduled for as early as September 2008.

## GI QRV on 23cm

**From: Gordon Curry, GI6ATZ (IO74AJ)**

Just before Christmas 2007 I bought myself an early present of a second-hand Icom 910H which had a **23cms** module fitted.

Now all had to do was get an antenna. I thought I had a **G3JVL** Quad Loop from my previous exploits but couldn't find it anywhere. I've given up building antennas these days as it's hard enough to find the time to operate never mind building antennas so decided to buy a Wimo 67 ele yagi. It took an age to arrive and then it took me quite a few weeks to get it up in the air. It is currently on a 20' pole at the back of my shack feed with Westflex 103 but I do intend to put it on my tower when I'm next doing some work on my antennas.

So far I've had 15 attempted QSO and 13 of them successful. The first evening of the 6th March was very good with **GM4CXM** giving me my first QSO in CW. That was quickly followed by lots of requests on the cluster and then managed an SSB QSO with **G4PBP**. Best DX to date is **G3XDY** at 543kms. Nothing outside the UK so far but conditions seem to have been pretty flat.

Currently the system is 10watts from the Icom 910H, Wimo 67 ele @ 21' with Westflex feeder. When I put the antenna on the tower it will be fed with about 60' of LDF450 and I hope to increase my power to about 100watts. My QTH is about 600' ASL with a reasonably good take-off in all directions apart from South which has Slieve Croob (1700') and the Mourne Mountains in the way!
**73, Gordon**

Gordon's log contains the following:
06/04/2008 **GM4CXM**(IO75) **G4PBP**(IO82) **G3XDY**(JO02) **G0DJA**(IO93) **G4BRK**(IO91) **G0DJA**(IO93) **G4BAO**(JO02).
15/04/2008 **GM4CXM**(IO75) **GI0GDP** (IO74) **GW8ASD** (IO83) **G3OHH** (IO83).
03/05/2008, **GM3HAM/P** (IO74) **GD0EMG** (IO74) **G3CKR/P** (IO93).

Geoff, **GI0GDP** now has **23cm** on the mast and as we can see from Gordon's log he is also QRV on **23cm**. Both stations should be much in demand when conditions are up. Now we just need some regular activity from EI.

## MAY IARU CONTEST

**G8KQW** operated from Shenlow Hill near Banbury (**IO92GB**) with the South Birmingham group. In the **10GHz** Trophy they made 21 contacts at an average 145km/QSO, ODX was **F6DWG/P** at 385km. Conditions were awful, way below average for this site. The activity was well down on previous years, many fixed stations not active - possibly due to this contest being organised on a UK Bank Holiday weekend.

In the May IARU **10GHz** they made 27 contacts at an average 173km/QSO, ODX was **ON4HRT/P** at 467km.

There was a slight opening to **ON** early on Sunday morning but conditions were generally poor and activity so low that the station was closed down 3 hours before the end of the contest.

In the IARU **24GHz** they made 5 contacts at an average 83km/QSO, best DX being **G4EAT** at 148km. Other contacts were made with **G3UYM/P** at 93km, **G8ACE/P** and **G8BKE/P** both at 40km, and **G3ZME/P** at 92km. They were heard by **G4BAO** but no contact resulted.

On **47GHz** they had two contacts with **G8ACE/P** and **G8BKE/P** at 40km, and the same stations were worked on **76GHz**.

**M1CRO/p** (**JO01PU**) took part in the **10GHz** Trophy contest section and made 31 QSOs, the best DX being **GD0EMG** at 470km. Conditions were not too bad from the East coast, with seven QSOs in excess of 300km. **M1CRO/p**, **G4EAT**, and **G3XDY** all reported good activity this year, whereas stations further inland were not impressed by the conditions or the activity.

## EME - 23cm FIRSTS FROM G

Michael **DL1YMK** and his wife Monika operated from Uruguay from May 1st-12th as **DL1YMK/CX**. They had struggled for almost a year to get a fully legal high power permit for operating from **CX** on **23cm** and **13cm** moonbounce.

At 07:13 on 1st May, 2008 Howard, **G4CCH** worked **DL1YMK/CX** via EME on **23cm** and reported FB signals. Peter, **G3LTF** also worked the DXpedition on 1st May.

On 4th May at 06:50 **G4CCH** used JT65c to work **T7/HB9EHJ** (**DL3OCH**) in San Marino for the First **G** to **T7**. Bodo was -22dB at best, and was using only 100W and a 59 ele long yagi.

## MILLIMETRE BANDS ACTIVITY

John **G8ACE**, Chris **G8BKE** and Ian, **G8KQW** set up their own mm-band activity day on, Monday 12th May. **G8ACE/p** operated from Walbury PMR (**IO91GI51**), **G8BKE/p** from Lane End (**IO91JA37**) and **G8KQW/p** was at Butser Hill triangle (**IO90MX12**).

Contacts were made on all bands **24**, **47** & **76GHz**. The **G8KQW/p 76GHz** contact to **G8ACE/P** extended his previous best DX to 53km, and was made using transverters at both ends (ie: no high power sources). There was between 3 and 6dB in hand on the path which is close to the limits of our their current equipment for the conditions on the day.

**G8KQW/p** also heard several **24GHz** beacons from Butser triangle. **GB3SCK** was 599+ at 92km on an obstructed path, and **GB3FNM** 529 at 32km via a highly obstructed path.

## FRENCH ACTIVITY DAYS

The French activity over the weekend of 26/27th April produced some good distances worked. On 26th April, Marc **F6DWG/P** (JN19AJ) worked Guy, **F2CT/P** in **IN93HG** on **3cm** at 730km. **F6APE** (IN97QI) worked **G4ALY (**IO70vl) on **23cm** and **6cm** at 435km.

On 27th April, Philippe, **F1BZG** (JN07vu) worked **G4ALY** (IO70vl) at 525km on **23cm** and **6cm** for his best DX of the day.

## RAINSCATTER

There were a number of minor events during late April for UK stations. On 28th April, Richard, **G3CWI/p** (**IO93AD**) worked several stations including **G4BRK**, and **G3VKV** and was heard by **G8DKK.**

The "rainscatter season" is now well under way in continental Europe, and there is almost daily activity in France as stations look for the rain cells. The high temperatures (and high rain) required for the longest paths should start to be seen soon. In such events, it is possible to achieve forward scatter from rain cells around 450km away.

## EARLY MAY OPENINGS

Extended ducting and tropo openings were in abundance during the first few weeks of May. Scandinavian beacons were much in evidence, as a high pressure system hovered across most of the UK.

**G8KQW** worked the following on the evening of 7th and early morning of 8th May: **SM6EAN** on **23cm** (1097km), **OZ1FF** on **23cm**, **6cm** & **3cm** (774km), **OZ5BZ** on **13cm** & **3cm** (846km), and **SM6HYG** on **23cm**, **13cm**, **9cm** & **6cm** (1118km).

## AND FINALLY....

The first few weeks of May have produced some good tropo and rainscatter in one part of the country or another on most days, but we have to wait until the next issue to do justice to all of this microwave activity. Without your input, the column will be empty, so please send your reports in as soon as possible.

**Good DX and 73, Robin G8APZ**

**Please send your activity news for this column to: scatterpoint@microwavers.org**

# Ted Halliday - G3JMY

## Silent Key

Ted Halliday, G3JMY died on the 4th of May 2008 in Frenchays Hospital, Bristol. He had suffered a heart attack some days before and was immediately taken into hospital where it was also found he had a lung infection. Ted had suffered for a long time from Myotonia which effected his muscles and made talking and eating difficult which he suffered without complaint.

Ted was borne in Plymouth in 1924. After receiving his Degree he was engaged in the development of Radar. In 1949 he married Marjorie and they moved to Yeovil where he taught at the college. Later he moved to the Bristol Aeroplane Company Technical College where he lectured and retired, by which time he was Head of Electrical and Computer Dept.

He had been quite active until a few months ago, looking after his wife Marjorie with care as she has great difficulty walking due also incidentally to muscle problems effecting her legs. Never the less Ted kept up his weekly swim with us (quite often discussing 10GHz as we swam around) over the last 15 years until a few months ago when things got more difficult.

I first met Ted about 50 years ago while attending a Telecomms course at the Bristol Aeroplane Technical College. He was very much into Club activities, the Redcliffe Radio club, and local RSGB where he was chairman three times. Ted's callsign was also on the Home Constructors cup many times, and he was also very active in field days especially the Longleat Mobile Rally. Ted and I started to contact more in the 70's & 80's after contacts on 144MHz when equipment was home brew and there were many tests etc. He was instrumental in the activities of the Severnside Repeater group with the 23cm and later 10GHz repeaters and encouraged me to get interested in amateur TV.

I was active on 10GHz wide band then and Ted took an immediate interest. The mechanical side had great appeal to him as he was a great model engineer, having an excellent workshop with a lot of time spent building a nice steam loco. It was the days of the start of 10GHz narrow band wave guide multipliers and he won the prize at the Model Engineers club with his nicely machined parts and dish.

Ted and I spent a lot of time out and about on 10GHz wide band, then with the coming of 10ghz narrow band and the JVL designs thoughts turned to home stations with us both setting up roof dish systems attached to the house involving lots of mechanical work, this was where Ted's idea of an endless wire drive from rotator to mast came in, it worked fine and my old friend Tim G3KEU also adapted it in his roof antenna system. We all eventually linked it up to 10 W TWT systems.

An example of Ted's workmanship is in the slot antenna used on GB3CCX - it is of a very high standard typical of his work. Because of the close proximity of our stations (1km) we found it best to operate together during contests and openings, and this worked out fine without causing QRM to each other. I remember during the big opening in 1994 talking with him at 3:30am looking for the DX coming in from DL and many other places (those were the days).

Ted was quiet and unassuming, a great friend and always ready to help regardless of what the problem was. He also had the unique ability to turn anything into a mathematical equation to find an answer. A constant companion was his Psion Organiser, the last thing I did for him was to take the charger for it into hospital, he was quite poorly then lapsing in and out of consciousness.

He will be sorely missed not only by his wife and family but by all of us who knew him. To all of you who have set their condolences by E-mail etc. Thank you.

Rest in Peace Ted,

**Roy Emery, G3FYX**

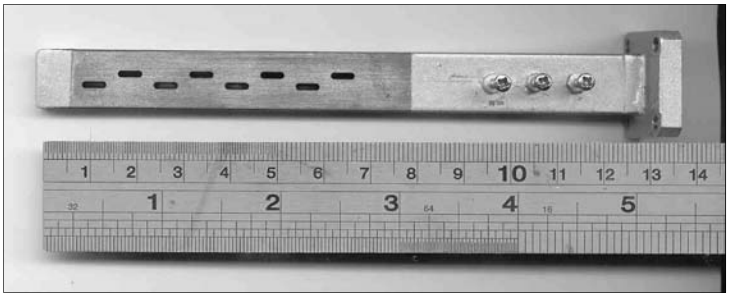
## WANTED AD .....

**Ian Gurton, G8ASP is looking for some square waveguide 16 flanges and a WG16 to WG17 adaptor. If anyone has any suitable items, please contact Ian on 01582 713770 (UK).**

# The case of the Dud 24GHz Slotted Waveguide Antenna

## Brian Coleman, G4NNS

Ian G8KQW purchased a batch of slotted waveguide antennas for 24GHz beacons. One was tuned and tested for use on the Farnham 24GHz beacon GB3FNM another for the GB3CAM Cambridge beacon. In both cases return loss was adequate and gain was measured as ~10dB in the main lobes of the "4 leaf clover" pattern.



However, Ian took another of these antennas to Bath to have it tested and the verdict was that it was a "dummy load".

After the Bath Round Table, the antenna was left with me to investigate. A quick and dirty test indicated a return loss of just a couple of dB even after spending a while trying to tune the antenna. Also it was noted that when the slots were blocked with a piece of tin the return loss hardly changed at all.

A close physical examination showed that there were some burrs on the inside of the slots and a large blob of solder at the blanked off end of the waveguide, so I decided to unsolder the blanking plate. This revealed a solder blob of about 3mm diameter. The photo opposite was taken after de-soldering.

The excess solder was removed and the inside of the waveguide cleaned with needle files. A tight fitting wad of wire wool was pushed right through the antenna several times to remove any burrs and to clean the inside surface of the waveguide. The brass blanking plate was replaced with one made from clean copper sheet and this was soldered in place using an absolute minimum of solder paste.

Upon re-testing the antenna could be tuned to a return loss of 14dB (not brilliant but adequate) and gain was measured as just over 10dB in the main lobe.

The moral of this story is .... **Beware of excess solder in your waveguide**.