An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

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

2006 July-August

Readers might be forgiven for thinking this is a photo of some UK soccer supporters at the recent World Cup but in fact they are a bunch of dedicated microwave and VHF types who visited the Friedrichshaven hamfest in June this year! They all enjoyed themselves a great deal as you can read later in this issue. The UK Microwave Group "flag"was flown by UKuG Committee member Paul, M0EYT and Mike, G0MJW (extreme left and right in the photo). Another photo appears in this issue with the full account of the event.

In this issue ...

Latest News ...

- **First UK 24GHz EME contacts made by G4NNS**
- **New UK 10GHz DX record**
- **Microwaver G3PYB becomes President of BATC**
- **More Beginners' Workshops**
- **3.4GHz "First : GM to OZ**

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

UK Microwave Group Contact Information

Peter Day, G3PHO Chairman and Scatterpoint Editor	Ian Lamb, G8KQW Secretary	Steve Davies, G4KNZ Treasurer
Email: microwaves@blueyonder.co.uk **Located:** Sheffield (IO93GJ) **Address:** 146 Springvale Road, SHEFFIELD, S6 3NU, United Kingdom **Home Tel:** ++44 (0)114-2816701	**Email:** ianlamb@btconnect.com **Located:** Hindhead, Surrey **Address:** Little Court, Churt Road, Hindhead, Surrey, GU26 6PD, United Kingdom **Home Tel:** ++44 (0)1428 608844	**Email:** steve.davies@nokia.com **Located:** Bracknell (IO91PJ) **Address:** 17 Haywood, Haversham Park,, BRACKNELL, RG12 7WG, United Kingdom **Home Tel:++**44 (0)1344-484744

From the Editor's Desk

Welcome back! I hope you have all had a good Summer holiday (if you're in the Northern Hemisphere that is) and that you have enjoyed the good propagation that graced our microwave bands in July.

While all this was going on, there have been some extremely important developments in the UK microwave scene. Discussions continue to take place between the RSGB, UKuG and Ofcom and various papers have been published. You need to go to our Group website **www.microwavers.org** to catch up on developments. There just isn't enough space in this newsletter to cover everything as the events would fill at least one issue! Of particular interest is Ofcom's decision in the new BR68 (known as Ofcom 178) to allow Foundation Licensees to operate on the 10GHz band with up to 1W output. See page 3 for further details. Here is a wonderful opportunity to attract new microwavers! Get down to your local club and start a simple microwave project or at least give them a talk and show how easy it is to get started! Other "radio politic" news involves the millimetre bands where we are fighting to retain our allocations and the 10GHz spectrum auction. Again, please visit out website for the latest news. All the news and developments will, of course, be discussed at the Martlesham Microwave Round Table in mid November. Be sure to attend!

G3PHO: Email: microwaves@blueyonder.co.uk

G3PHO: Peter Day ++44 (0)114 2816701

G3PHO, Peter Day,
146 Springvale Road,
Sheffield, S6 3NU, UK

A warm welcome to new members of the UK Microwave Group

UK MICROWAVE GROUP ANNUAL GENERAL MEETING 2006

Notice is hereby given that the AGM of the UK Microwave Group will be held at 09.30 on Sunday, **12th November 2006** at the Martlesham Microwave Round Table, BT Adastral Park, Martlesham, Suffolk.

Items for consideration under "Any Other Business" should be emailed or posted to the UKuG Secretary, G8KQW, whose contact details appear a the top of this page. Please submit these at least 4 weeks before the meeting.

The AGM will see the election of the Group's Committee for 2006-7, including its Officers. At the present time, most of the existing members appear willing to stand for re-election but **this should not deter anyone from putting themselves forward** as the 2006-2007 committee will be chosen by election. If you wish to stand, please submit your name, together with the name and contact details of a seconder (who must be a UKuG member) to the Secretary no later than October 12th 2006.

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

A New Dawn – by Murray G6JYB

21 August 2006 will witness a momentous change in the UK Amateur Licence with BR68 being replaced with a new liberalised rule set in the form of Ofcom-178 for any renewal *****

UKuG members, Mike Dixon G3PFR, Peter Day G3PHO and Murray Niman G6JYB all contributed to a major RSGB team effort via the Spectrum Forum which is headed by Spectrum Director Colin Thomas G3PSM. This is one occasion where Ofcom's 'lighter touch' should prove to be really beneficial.

Key features for microwavers are:

- 10GHz, 1-Watt Access has been granted to Foundation Licensees, as well as Satellite access.
- Kits for Foundation merely need to be 'commercially available' as per IR2028
- Intermediates now get all higher Microwave Bands, preventing the loss of 76GHz+ access
- Greater Clarity has been introduced for unattended Personal Beacons in the new Schedule-2
- Full licensees have unprecedented scope in Section 10 for unattended and remotely operated stations and beacons (for personal use) via secure links that may use Internet, Wifi or other amateur bands. Hilltop personal relays anyone?
- Callsign suffixes have been changed and are now optional (along with Club prefixes).
- /A (Alternative fixed station) has been reintroduced and /P & /M are now more clearly defined for temporary and mobile stations
- Restrictions on emission types abolished, permitting greater experimentation
- Logbooks no longer mandatory, except for interference investigations

We are pleased to see our requests on Foundation and Intermediate schedules being granted. Foundation microwave access is in the same educational spirit that 10GHz was available in the former UK Novice licence. The above promises exciting new possibilities for increasing and innovative microwave activity and broadening understanding of high frequencies. The new remote flexibility may need a review of contest rules to ensure fairness though!

***** NB: Your own licence must be 'renewed' to benefit, otherwise BR68 will still apply. It is not a synchronised October 1st change for everyone.

European Microwave Week Manchester, UK Sept 10-15

Includes 4 Conferences and a **FREE EXHIBITION** in GMEX by 200+ companies

Primary URL:
www.eumw2006.com/

Free Exhibition Registration:
www.eumwregistration.com/mttselfreg/PaidExhOnly.asp

You might not be able to afford the conference fees, but the free and huge exhibition may give you the freebies!

Attending the Exhibition is FREE! You can Pre-register on-line at www.eumw2006.com and click on `Registration' but pre-registration is not essential for attendance.

The exhibition itself is on:

Tues 12 September: 09.30-17.30
Wed 13 September: 09.30-17.30
Thurs 14 September:09.30-16.30

A small group of UKuG members is planning to be there on the Tuesday.

URGENT!! WANTED FOR GB3FNM

Two half (or one) watt 24GHz PA modules ...

If you have one or two gathering dust on your shelf please contact Ian, G8KQW, who will gently twist (break?) your arm to let him purchase them for this important beacon. Please email him at:

ianlamb@btconnect.com

Comb generator – 1 MHz marker

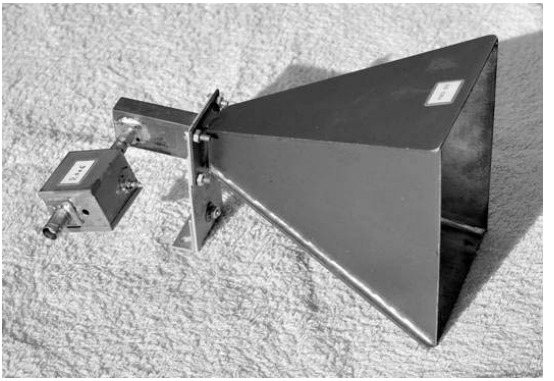
Gil Féraud, F5CAU & André Jamet, F9HX

Introduction

This kind of small device, already described |1,2,3], is devoted to calibration of receivers up to microwave bands. It is quite easy to find sources to get a very precise 10MHz signal, for example, Droitwich, DCF 77, TV line frequency and, the best, the GPS signal.

The direct use of a 10MHz signal is restrictive because it only allows calibration at 10MHz and the first harmonics.

The device described here is a comb generator, sometimes called a 1MHz marker, which delivers a usable signal every megahertz, up to at least 10GHz.



Description

The external 10MHz signal can be a sine or rectangular waveform. A 4046 squares it, in an unusual but effective way, (see circuit diagram, figure 1). Its input amplitude must be 500 mV_{pp} for a sine wave, or 150 mV_{pp} for a square one, in order to get a 0-5 V output without jitter. The three resistor divider at the marker inpur serves two purposes:

1 to match the input cable at 50 ohms
2 to reduce a really too high input voltage

A higher voltage than strictly required is advised as mentioned above. The jitter will become less as the 4046 input voltage is increased. The jitter causes a spectrum spread which is noticeable, once multiplied, on the microwave bands. The main signal is lower and there is a hiss for tens of kilohertz at 10 GHz.

For example, for a +13dBm OCXO output, we can choose R2=68Ω, R3 and R5 = 100Ω to get 1.4 V_{pp} at the 4046 input.

A 74390 divides by ten to get a 0-5 V signal at 1 MHz. However, its steepness is not enough to shows harmonics up to gigahertz. Therefore, this signal is differentiated and resulting pulses drive a cascade of class C transistors. The output BFP420 transition frequency is 25GHz.
The output is a comb with output every Megahertz.

Construction

The device uses SMD components, apart from the voltage regulators. They are mounted on a FR4 1.6 mm PCB single side (to see figure 2). A standard tin box contains the whole unit. The input connector can be BNC, SMA or SMB.The output one is an SMA. Figure 5 gives the pin out for the semiconductors.

Testing

First, check regulator outputs. The DC current should be around 7mA without a 10MHz input and increases up to 9mA with10MHz input.

An oscilloscope can be used to check the marker output but the result is very dependent on the

oscilloscope bandwidth. Figures 3 and 4 give oscillograms shown by oscilloscopes having two different kinds of bandwidth.

A spectrum analyser shows a –40 to – 60dBm level from 100 to 2000MHz. Above, the amplitude falls at too low value to be seen by a HP141T spectrum analyser.

Utilisation

To calibrate a receiver, the marker can be directly connected to the antenna input. However, the signal could be too high and damage the input transistor. If in doubt, insert an attenuator. On the contrary, to obtain the highest signal, remove R4.

A small antenna connected to the marker output allows good reception by a receiver provided with a similar antenna. For example, for VHF and UHF bands, a short wire will do the job. At 10GHz, as shown by the photograph, we can use a 10dB horn. With a dish, the signal can be received at 10 meters apart.

Conclusion

Connect this small device permanently to your 10MHz reference. You will have a very useful frequency standard. The accuracy only depends on the reference one.

References

[1] A Digital Calibration-Spectrum Generator, DJ4BG, (Droitwich), VHF Communications, 3/1971
[2] A UHF-SHF Marker Generator, DB6NT, VHF Communications 4/1994
[3] 10,368 MHz à 100Hz près ?, F9HX, (France Inter), HYPER 2/1998

For any further information: agit@wanadoo.fr

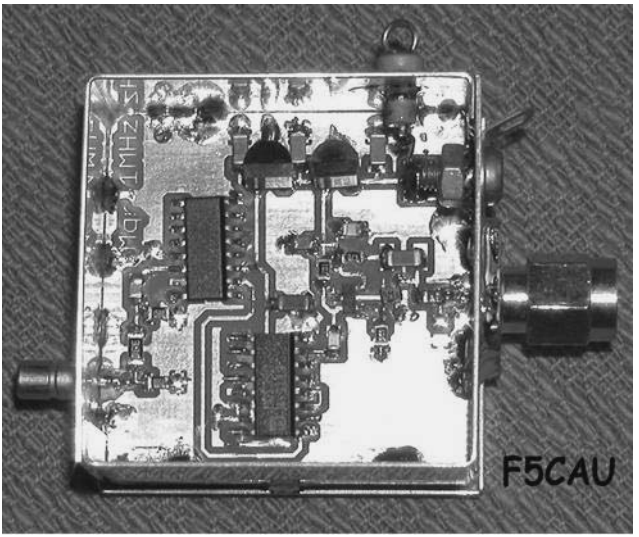


Figure 1. Comb generator-1MHz marker diagram

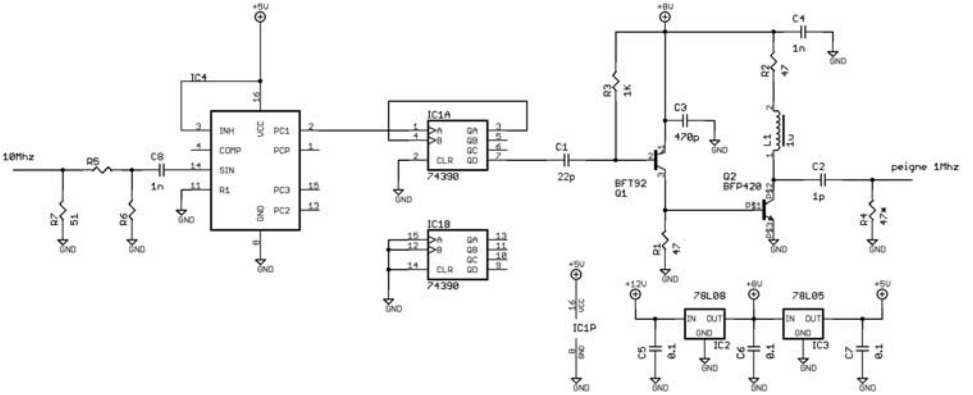
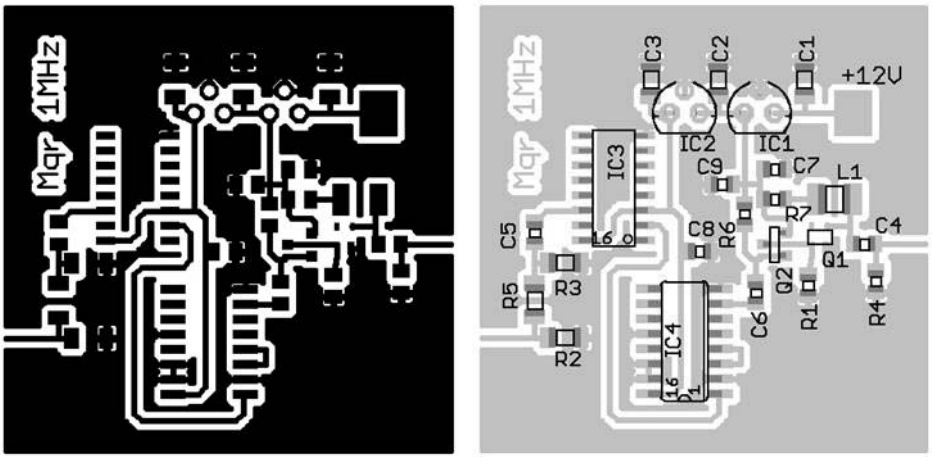


Figure 2. PCB and component layout



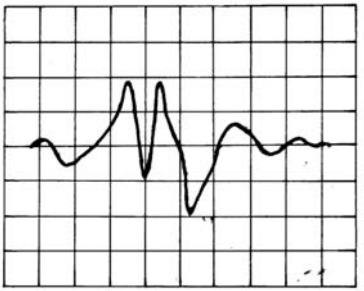


Figure 3: Output signal shown by a 100MHz oscilloscope
5ns/division
500 mV/division

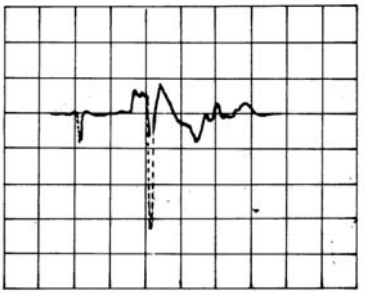
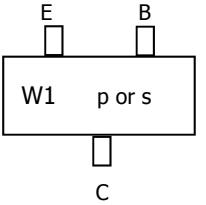


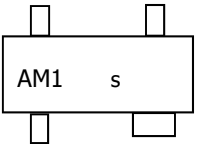
Figure4: Output signal shown by a 1GHz Oscilloscope
5ns/division
500 mV/division

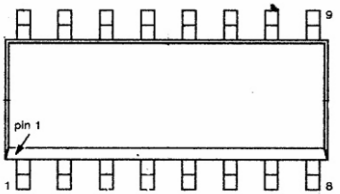
Figure 5: Device pin outs

BFT – 92 PNP f_T = 5 GHz



BFP – 420 NPN f_T = 25 GHz





74HCT

A simple high-performance Optimised Dual-Mode Feed for 10GHz

Chris Bartram GW4DGU

The standard W2IMU dual-mode feed has a very good reputation as a feed for dishes with effective f/D in the range 0.5 – 0.7, such as most TV satellite dishes. It is widely used for EME from 1.3 to 10GHz. However, unless you are able to find exactly the right plumbing fitting for the conically tapered section, or can get someone to machine one for you, it can be quite daunting – although not impossible, to make properly, particularly for 10GHz and above. The effect of a non-optimum taper will be incorrect phase and amplitude components at the input to the large circular waveguide. That will lead to incomplete cancellation of the currents flowing at the edge of the horn and thus unwanted sidelobes.

One spin-off from my need to feed a 2.4m 0.935f/D Prodelin offset dish properly for 10GHz EME has been an introduction by Paul, W1GHZ, to a paper which describes a more modern, optimised way of designing dual-mode feed horns using a waveguide step rather than a conical flare to generate the TE11 and TM11 waves with the right phase/amplitude relationship.[(1)].

A second useful break has been a client who has, as a favour, allowed me to use a professional 3D electromagnetic modelling programme to analyse some waveguide designs, both for antennas and preamps.

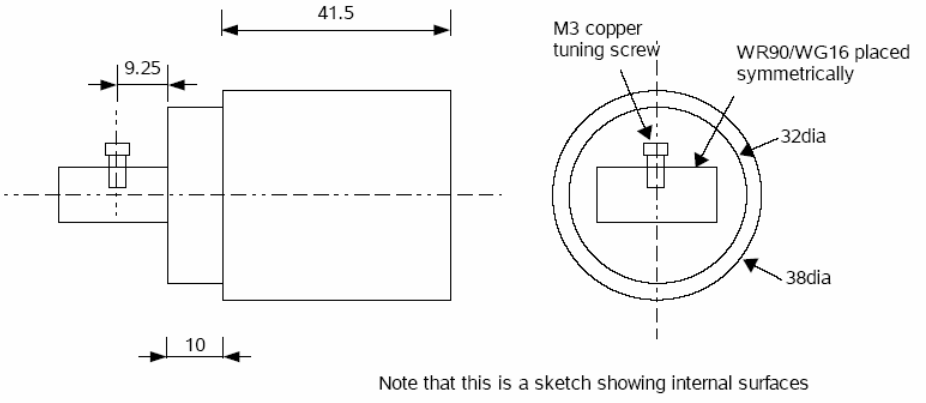
The Skobelev paper is easy to follow and all of the design information is presented graphically. Based on my simulations it is possible, by taking the output aperture down to the point where the conical horn, suggested by the paper, becomes a uniform length of circular waveguide to use the data to design an improved 1.3λ aperture 'W2IMU' feed.

I'll write-up the feed for the EME antenna, which uses a conical dual-mode horn and a three step transformer to match to 20mm circular WG, when I've finished evaluating it. My first impressions are that it's very good indeed. This note describes a simple 10GHz dual-mode feedhorn for 0.5 – 0.6 f/D dishes with direct WR90/WG16 feed. This is based on extrapolated Skobelev data. It currently exists only as a model, as I've no need for such a feed at the moment but my confidence in the simulation is sufficient to suggest that, if you are in the market for an excellent linearly polarised feed for an offset dish, it is worth consideration. As it introduces a major simplification to the existing W2IMU design, it also seems a good idea to put the design into the public domain for other people to play with. I'd be interested to hear of anyone's experience in making one.

The design uses two tube sizes. 38mm id copper tube is easily obtainable from plumbing suppliers, while 32mm tube may be more difficult to get. It wouldn't be difficult to literally 'roll your own' by cutting a section from the diameter of a short length of 38mm tube, hard soldering the join and then rolling the resultant tube back to circularity on the bench with a length of 25mm steel tube used as a rolling-pin! Of course, it would be a doddle to machine a horn using this approach, as the need to turn the taper is eliminated.

The simulated half-power and -10dB beamwidths are 54 and 108º, with good symmetry in both E and H planes. All sidelobes are below -20dB wrt boresight. This is much like the 'traditional' W2IMU design. With the WR90 feed the return loss should be 20dB or better over a 200MHz bandwidth. The matching screw can be adjusted for best RL at the operating frequency.

Any attempt to modify the design for other frequencies will need to take into account the relatively narrow-band nature of the WR90 to circular guide transition



10.368GHz Dual Mode Feedhorn for f/D = 0.5 – 0.6 dishes using Step to Excite TM_{11} mode

References:

(1) Skobelev., S.P et al. 'Optimum Geometry and Performance of a Dual-Mode Horn Modification'. IEEE Antennas and Propagation Magazine. Vol.43, No.1. February 2001.
(2) Paul Wade W1GHZ. 'Antenna Handbook'

SOFTWARE DEFINED RADIO WEBSITE

Courtesy of ON/G4KLX, the uWSDR web site has appeared at **<http://uwsdr.berlios.de>** It's not finished yet, so don't complain!

This is the web site of a non-hierarchical, multinational group of volunteers who are contributing their skills to an Open Project which aims to provide hardware and software designs for a new generation of amateur microwave equipment (we adopt a very broad definition of microwaves...) which will be available for everyone - including manufacturers - under GPL and Creative Commons Licences. We believe this to be very much in the historical spirit of the amateur radio hobby.

The technology has now reached a point where it's not really possible for an individual to design a high performance system working alone in a reasonable time. Working cooperatively, we can do so much more.

Our tentative poster presentation at RAL generated quite a lot of interest from potential beta-testers. If you would like become involved on any level from hardware and software design, and design reviews, to technical writing, to web-site management, we'd be pleased to hear from you!

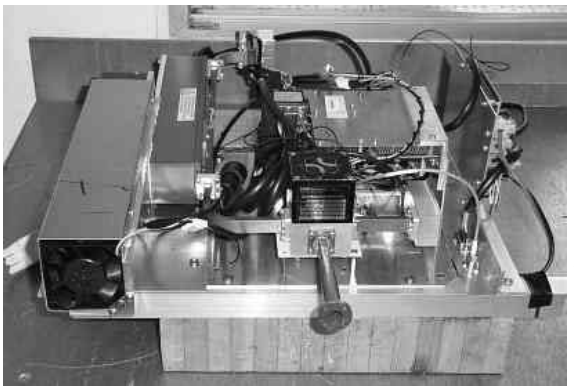
Vy 73, Chris GW4DGU

24GHz EME
… by Brian Coleman G4NNS

I've been thinking about getting going on 24GHz EME for some time, in fact more or less since I acquired the 3.7m dish in 2000. The manufacturer's specification suggested it would be ok on that band but a number of challenges stood in the way of the objective. Not least of these was the generation of sufficient power, circa 20W, to get to the moon and back at 24GHz. The final breakthrough came when Johannes DF1OI visited Southampton on a training course. We arranged to meet and when we did he was clutching a small blue object he had bought for me. After dinner he explained how this 12GHz 2W TWT could be converted to produce up to **40W** at 24GHz. Yes I did say it was a 2W 12GHz tube ! I was amazed that this was possible and even more amazed at the simplicity and elegance of the conversion Johannes went on to describe. I had earlier obtained a 90W tube from Paul Drexler via Al Ward W5LUA but its power requirement had stumped me. It needed 13KV on the Helix which the TWT experts will know means that the heater supply and collector supply float at –13KV because the Helix is at ground potential. I had collected a big TWT amplifier with power supply from Paris in the hope that I could use it to power the 90W tube but this proved to be too difficult. (The big TWT amp and spare tubes have gone on loan to the Flight Refuelling group who will, I hope, use it to make a very big signal on 10GHz EME maybe 200W +).

I should explain that I was right at the bottom of a very steep learning curve with regard to TWTs and was being "mentored" by Peter G3PYB and Ian G8KQW.

During his visit I noticed that Johannes was very interested in the 90W 24GHz tube. A few days later, after Johannes had returned home, a package arrived from Germany containing another small blue TWT complete with power supply. It had come from Johannes's friend Ulli DK3UC who had done much of the "development " work for the conversion to 24GHz. This solved the last major problem and I was very happy to send the big tube off to Ulli who, with much more experience with TWTs than I have should be able to put it to good use.



Next, and with the help of Ian, G8CPJ, who has a well equipped machine shop and the skill to match, the necessary metalwork was made for the TWT conversion. This involves removal of SMA input and output connections, some matching and fitting of waveguide, with sliding shorts, over the output probes. This done, final configuration of the system could commence. Measuring power at 24GHz at that level posed another challenge, but with the loan of a 20dB WG20 coupler from John G8ACE work could start in earnest to tune for "maximum smoke". In the end I was limited by available drive of 1 W. For the full 40W potential output 2W of drive is require. So I ended with about 25W output. Meanwhile all power supply problems had been solved by the other gift from Ulli, a compact switched mode unit that, with key down, drew just 5A from an unregulated 48V nominal DC supply. With the antenna gain estimated at ~ 56dB at 24GHz the EIRP works out at something over 7MW. I made some simple circuits to provide remote monitoring of Helix and Collector current, Alarm indication and reset, in the shack some 20m from the antenna and was ready to commence testing.

My dish is of the cassegrain variety and in 2003 when I, or should I say the team, had done

some receive only tests on 24GHz, we made a feed system modelled on the professional Ku Band feed which came with the dish **(see photo left).** The Ku band feed consists of circular dual mode waveguide feeding a conical choked horn at the (virtual) focus of the dish so as to illuminate the cassegrain sub reflector **(see photo right).** We could not replicate the choked horn so Ian G8CPJ made a plain one. In the end he was limited by the length of taper he could turn on his lathe, but it was close enough. Finding, or should I say guessing, where the phase centre of the horn was was not easy. I could find no reference to the phase centre of conical dual mode horns so it was found by trial and error. These tests and adjustments were done using the sun. The fact that with an antenna of this size the sun is not a point source (I.e., the sun is bigger than the beam width of the correctly focused antenna) makes it difficult to identify the correct focus. (Antenna beam width about 0.25 degrees, the Sun subtends about 0.5 degrees). Noise tests using "black body" radiation from the Sun and Moon followed to check the receive performance. One of John G8ACE's pre amps was used for this purpose before changing to a DB6NT MKU243 RX2 pre amp which gave slightly better performance. I won't mention what happened when, against my own careful documentation, I used the wrong set of interlock contacts on the waveguide switch ! @ ! But fortunately this happened on the bench.

With the system in place I found echoes as soon as I had dialled up the correct offset for Doppler shift which, of course, is substantially more than on 10GHz. Fortunately the tracking software developed with Robin G8APZ, in addition to providing reliable tracking of the moon, sun or celestial co-ordinates, also calculates the Doppler shift of lunar echoes on any selected band and updates it every 10 seconds.

On 23rd June I made my first QSO with Willi LX1DB exchanging O / RO reports. Willi was using a solid state PA probably a first for EME at this frequency. Next day, 24th , I tested with Al W5LUA, exchanging O/RM reports. We were both transmitting on 24048.100 and I was receiving Al on about 24048.107MHz whilst my own echoes were on 24048.070MHz. Spectral spreading is of course even more severe than on 10GHz, up to 200 or even 300Hz. I like to receive microwave eme signals in the full CW bandwidth of ~2.4KHz as I find the ringing of a narrower filter makes the resulting signal un-readable. The ability of the human ear to decode what is essentially keyed white noise is quite remarkable.

In addition to the greatly increased Doppler shift, I noticed that sun and moon noise can fluctuate rapidly, presumably as a function of humidity and turbulence in the troposphere.
I have some more pictures and recordings on my web page at
http://myweb.tiscali.co.uk/g4nns/ .

System statistics:

Power out ~25W
Sun Noise 13.46dB Varies a lot with clouds and humidity. Moon Noise 1.58dB Varies a bit with clouds and humidity. Ground noise ~ 2.8dB
All these figures should be taken as "on a good day" basis !

Friedrichshafen HamRadio Report
… by Jules G0NZO

Another contingent of UKuG members descended on the HamRadio show in Friedrichshafen again this year: Paul M0ETY, Sharron M3INP, Mike M0MJW, John G7ACD, and myself. The HamRadio event is a 3 day show, Friday through till Sunday. We had planned to be in the area for 6 days, giving us some time for sight seeing and drinking beer (probably more of the latter!).

We also had a table booked in the flea market section of the show, from which Mike did a grand job of distributed UKuG leaflets and back issues of Scatterpoint **(see photo right).** There was a surprising amount of genuine interest shown by our colleagues on the continent and I expect we will see some new callsigns listed in the front of the next editions of this newsletter. The other benefit of having a trade table, was to get in to the trading halls ahead of time and look around whilst it was quiet.

The show was well attended by traders, big and small, with lots of new shiny kit for sale, well below UK prices. In the flea market there were plenty of surplus traders, smaller amateur equipment and kit suppliers, component and connector stalls a plenty and not too many tables full of domestic consumer gear. There were also no 'Flowers and Fudge' stalls as we seem to get at the UK rallies! I have to mention the size of the trading halls... they are big, very big, aircraft hanger size and shape (probably styled so, as the area has its history in Zeppelin manufacture). Three of these halls were fleamarket and one for main dealers. I'm not sure how many canteens there are, but we ate in a different one each day. The Germans do seem to take their food far more seriously than we do in the UK and, of course, you can by a beer in all of them, which probably accounts for a few of my afternoon purchases!

There were rumours of very cheap 50W 10GHz SSPAs for sale but these rumors came from Paul, who found it amusing to watch us scurrying to find them. As a result, when Mike discovered some 23cms 50W PAs for 20 Euro, we didn't believe him!

There was the annual pilgrimage to the Kuhne stand on the Saturday, for a microwavers meeting and photo shoot. Michael seemed to be doing a brisk trade but I did manage to quiz him over the finer points of his 3cm transverter design. I also treated myself to a late Christmas present, another of his transverter kits, 13cms this time. At 2pm, we met up with Palle OZ8AFC, Geoff G7RMG and Paul G8GJA, for a photograph **(see front page).** It was a little too warm in that hall, so we were forced to go outside, where there were picnic tables and beer.

The Saturday evening BBQ is well worth a visit. The catering was second to none and at reasonable prices too. There were lots of beer and the Ham Band (all licensed amateurs) playing Rock 'n Roll during the evening. The BBQ did not seem to be as busy as last year, which was probably something to do with the football but the weather was far kinder to us than the torrential storm we had last year.

On the Sunday we had a last half day to sweep up any bargains, last minute buys and junk that the traders didn't want to carry home. By lunch time, many of the traders were packing up, so we decided to call it a day.

The remaining three days were spent visiting the local area, drinking beer and chain eating ice-cream. Friedrichshafen lies on the edge of Lake Konstanz. There are ferries running a regular service between all the local towns and across to Switzerland, which is a very nice way to explore the area.

If you do a little research and stay outside Friedrichshafen, you can find cheap hotels, but book in good time. Also, keeping an eye on the Ryan Air web site can turn up some cheap deals, usually around mid April. We got return flights for only £35 per person but be prepared to pay a premium if you want to fly on a Monday or Friday as they are always full fare.

Jules, G0NZO

Crawley Microwave Round Table

This popular event will take place on **Sunday 17th September 2006** at the Crawley Radio Club HQ, Hut 18 Tilgate Forest Recreational Centre,Tilgate Forest, Crawley from 10:00 hours.

The theme this year will be 'millimetric equipment' and anyone attending with equipment for 24GHz or higher, is asked to bring along their equipment for others to look at and chat about.

The formal program will include the **UK uWave Group construction contest** in the morning. Last year we had a very successful contest with many entries. Please bring your microwave equipment for inclusion and judging.

Last year's winner, Sam G4DDK, was very surprised by the outcome and this year it could be you collecting the **G3VVB trophy**!

An afternoon program of talks and lectures is being arranged and full details will be published in due course. It is hoped to provide power measurement and possibly noise figure measurement facilities again this year but more details on this nearer the time

There will be all the usual opportunities for plenty of chat with fellow microwavers, together with the excellent food and drink as ever provided by members of the Crawley Club.

Details of the venue, updates on the day's programme and information about the Crawley Club can all be found at their website at:

http://www.carc.org.uk

G3PYB IS NEW BATC PRESIDENT

Microwavers throughout the UK will be delighted to hear that UKuG member and long time microwaver Peter Blakeborough, G3PYB, will become President of the British Amateur TV Club in September this year. Not only is Peter extremely well qualified to be in the position (he has many years experience in commercial TV engineering and is an active ATVer from his home in Portsmouth) but he is a 'dyed in the wool' microwaver. Indeed he is co-holder of the UK 76GHz DX record.

UKuG and BATC now have a really good opportunity to cement relations that should have been made many years ago. ATVers on the 23cm, 10GHz and 24GHz bands are, of course, microwavers!

FOR YOUR DIARY

Microwave Workshop visits Dorset

The UK Microwave Group is hosting a microwave workshop for beginners in Wimborne, Dorset, on Saturday 30 September 2006. This is the second in series of microwave events the group plans to hold around the country. Organised this time by UK Microwave Group committee member Paul, M0EYT, the Wimborne workshop will provide attendees with an introduction to amateur microwaves. The event is not intended for those already experienced in this part of the spectrum but for those who want to try out the microwave bands for the first time.

The full programme of activities has not yet been finalised but will include an introductory presentation on microwaves and talks on simple 10GHz transceivers, microwave antennas suitable for radio amateurs and the Dorset-based microwave beacon complex. There will also be practical demonstrations of microwave contacts at 10GHz.

The event takes place at the Flight Refuelling Amateur Radio Society's venue at CobhamSports and Social Club in Wimborne. Further information about the event and the UK Microwave Group can found on the web at:

www.microwavers.org.

MARTLESHAM MICROWAVE ROUND TABLE

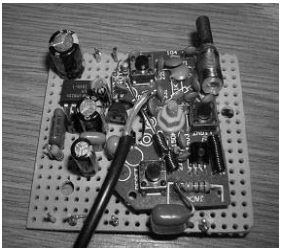
12/13 November 2006

Details next month!

MICROWAVE WORKSHOPS FOR BEGINNERS … THE SEEDS ARE SOWN AND THE CROP IS GROWING!

Most readers will already know of the very successful Beginners' Workshop held in Sheffield in May this year. This one event produced half a dozen new UKuG members alone! In the Sheffield area, for example, it soon spawned new microwave activity in the form of Colin M5FRA (Eyam, Derbyshire), Andy M0GAV(Sheffield), Chris M0JRQ(West Yorkshire) and Steve M1ERS (Sheffield) as well as in other regions of the UK.

Within a few weeks of the event, Colin, M5FRA, who lives in Eyam, North Derbyshire, had made a 10GHz wideband FM system and, as M5FRA/P, made his first QSO on that band with G3PHO/P over a short path across the eastern part of the Peak National Park. His neat and compact wideband equipment is shown in the photos on the right. It uses a Solfan Doppler module feeding a modified Poundshop FM Radio IF at 30MHz. Microwaves could not be cheaper! Since then he has built up a DB6NT 10GHz narrowband transverter and has acquired the 10GHz portable equipment of one of our long standing UKuG members who unfortunately has had to curtail his /P activities due to health problems. The member concerned made a most generous gift of this gear, via your Chairman, to anyone who had attended the Beginners' Workshop and Colin was the grateful recipient … true Amateur Spirit!



A very kind donation of equipment was also made by another of our members who was upgrading his 23cm nb equipment and offered his existing gear to any workshop attendee who who wished to make a start in microwaves. This time it was Steve, M1ERS (Sheffield) who benefited and he is now busy reassembling the modules into a working 23cm ssb/cw home station.

Andy, M0GAV (Sheffield) took the DB6NT transverter route and made his first narrowband contact, with G3PHO/P, during the July 10GHz cumulative, when his gear was literally propped up in his drive at home! He had previously made a first wideband contact across the school yard at the Sheffield Workshop in May (see last month's front cover photo).

Two things emerge from all this. Firstly, there **are** people out there who want to have a go at microwaves and secondly there are microwavers who are most willing to help them! If you have redundant microwave equipment that is cluttering your shack then why not give it (or sell cheaply) to a new microwaver? OK, so we all expect our "brethren" to build their own gear but just think … your donation could be the very spark that finally gets the "newbie" on the air. You could be the reason why another station is active on a microwave band. If you are willing to help in this way then contact me, Peter, G3PHO (address on page 2) as I have a long list of workshop attendees and will have an even longer one after the two other workshops that will be taking place in a few months' time. I will put your offer around my email list of workshop attendees and leave them to contact you directly.

You may also know, if you have looked at the UKuG webpages, that we have a small list of "elmers" or mentors (people you go to for help and advice), spread around the country. We'd like this to grow so that there are experienced microwavers available in easy reach of most beginners. Some regions of the country are desperately short of an elmer or two. The North West and North East of England are prime examples. To be an elmer all you need is your microwave experience and some basic test gear that can be used to check out a beginner's equipment. Of course it helps if you are patient and tolerant! Remember that you had to start once and not all folk have university degrees in electronics!

More workshops are now on the calendar this year:

Saturday 30th September: Flight Refuelling Radio Society, Wimborne, Dorset (see p.13 this issue)
Saturday 11th November: Martlesham Round Table Beginners Workshop (more details next month)

ITALIAN MICROWAVE ROUND TABLE ...

The following photos were received from our UKuG member Roberto, IW5BSF. You can find out more about this interesting event, held in May 2006 at **Bagnara**, at the following website: **www.crb.it**

Many thanks Roberto. It looks like everyone had a great time!

NEW BEACONS IN NORWAY

Good news from LA4SHF/B. The Norwegian beacon LA4SHF will shortly have more frequencies. In addition to the present 1296.890MHz and 10368.850MHz beacons, from around 1st of July 2006 it should also be on:

5760.850MHz (1.5 Watt rf) 15W erp
3400.850MHz (200 mWatt rf) 2W erp
2320.850MHz (200 mWatt rf) 2W erp

The call sign LA4SHF will be the same for all beacons from 23cm to 3cm.

These are all new BAKE units ordered from DB6NT. They will be at the same qth, JO28UO, 170m asl and will be radiating in the south to southwest direction.

As of yet, no antennas have been made for them ... maybe double sided PCB log periodic would be ok to start with ... does anyone know where I can buy some readymade ones? Anyone like to donate an antenna for one of these beacons?

There is also room for 24GHz or 47GHz beacons if anyone is willing to donate one.

I would like to thank everyone who has been reporting reception of these beacons on DX summit. Keep those reports coming. Anyone wanting a qsl confirmation please contact me at LUSTRUP@START.NO

I hope my beacons will bring enjoyment to all and maybe start a local interest for new hams to try out microwaves her in the south westcoast of Norway (more new hams on the bands=more QSOs for everyone) and, of course, to have you readers keeping your antennas towards LA as much as possible! Please let me know is the slow keying is good or if it should be stepped up in speed. I have already had some complaints that its keying is too slow to be decoded on some PC cw programs. The reason for its slowness is to give as much time a possible for a long keydown period, so that integration programs like "Spectran" can have time to build up a signal to display on the screen.

I will give up to date news on the beacon's homepage at: **http://home.no.net/jhhl/beacon/index.html**

73 from Jan Lustrup, LA3EQ, Stavanger, Norway
Telephone: 0047 93846090
Email: **LUSTRUP@START.NO and JHHL@START.NO**
Member of UKuG

Cheap & Cheerful L Band Synthesiser ...

For those who have attempted the L band synthesiser in the June 2006 Scatterpoint, the following additional information may be useful:

Cricklewood Electronics at:
http://www.cricklewoodelectronics.com
have a small quantity of the TSA5055T and TSA5512T synth. chip in stock which seem to work satisfactorily in the circuit.

(Thanks to Chris G8BKE for this info)

Data sheets can be downloaded from:
http://www.alldatasheet.com/datasheet-pdf/pdf/77204/MITEL/SP5055.html -
Mitel

http://www.alldatasheet.com/datasheet-pdf/pdf/19768/PHILIPS/TSA5511.html -
Philips

There is no U6239 listing

(Thanks to Andy, G4JNT, for this information)

New 10GHz UK Distance Record

During the excellent tropo conditions in mid July Ian Lamb, G8KQW, broke the long standing 10GHz UK DX record of 1275km, held for over a decade by Bob G3GNR, by working SM4DHN over a staggering ***1347km!*** *Many congratulations to Ian and here's his own account of this exciting event in his microwave life...*

Late last week I had been looking at the "Hepburn Tropo Index" which was forecasting strong tropo ducting from UK to Europe on Saturday 15th July.

Looking at the ON4KST microwave chat (KST) on Saturday 15th I noticed that stations in IO93 (e.g. G0EWN) were experiencing well above average propagation on 10GHz into ON, DL and SM compared to the south and south east of England.

Early on Saturday evening conditions on 144 and 432MHz were rapidly improving at my QTH in IO91 and I was working OK, OZ and SM on these bands but hearing nothing on 1296MHz or higher.

By midnight I was working OZ and SM on 1296MHz at 59 both ways (65W + 35el) and I concluded (and hoped and prayed) that the propagation was moving southerly due to these improving conditions on VHF / UHF. I decided to sleep and rise early on Sunday in the hope that the ducting had moved far south enough for me to take advantage of working 1296MHz and 10GHz.

I woke at 5h30 on Sunday (16th July) morning and on checking KST found that G4EAT had worked SM4DHN on 10GHz, my heart sank because my immediate thought was that the duct had become coastal and, as normal, wouldn't be workable from several hundred kilometres inland.

A quick tune around the bands ensued and the Emley Moor beacons on 432 and 1296MHz were end stop (and more). The Martlesham 1296MHz beacon was 10dB up on normal (nothing received on 10GHz) so there was clearly very enhanced propagation over land plus a seemingly strong northerly duct. No SM or LA beacons could be heard.

At 6h20 I asked **Lars-Bertil SM4DHN** to test on 1296.210MHz via KST and was amazed to find his signals 59+ same as the Emley Moor beacon. **We QSY'd to 10368.200 and worked very easily on CW with no repeat information at 539 – 559.**

This was an unbelievable contact for me, not only because of the sheer distance involved at **1347km** but also because both Lars-Bertil and I are located several hundred kilometres inland at either end of the path.

I then worked other coastal SM stations that were logged into KST

SM6AFV 59+ on 1296MHz and 559 – 549 on 10GHz at 1192km.

SM6HYG 59+ on 1296MHz and 559 – 559 on 10GHz at 1118km

At 7h30 I worked SM6VTZ on 1296 at 559 – 559 but signals dropped during the QSO. By 07h40 all beacons on all bands were at normal strengths.

Throughout this one hour ten minutes of madness, John Wood G4EAT was spotting SM4DHN's exact 1296MHz frequency for other stations in IO91 but sadly none of them were able to hear his signal.

Looking at the radio sonde data over Nottingham at midnight last Saturday it is clear that there was an elevated duct at 1300m, possibly a lower duct at 750m in addition to some 'subsiding high' lift conditions.

The radio sonde data over Schleswig (near the German / Danish border and pretty much mid path) at midnight shows a surface duct and an elevated duct at the same time.

The Emley Moor beacon antennas are ~ 600m amsl and it could be that they were coupling directly into one of these ducts being the same duct as I was coupling into thus explaining the extraordinary received signal strength of GB3MLE on 1296MHz. I may also have been able to couple into the duct more easily than other stations because I was using a relatively small dish with a larger aperture than is commonly used nowadays.

I hope to understand this particular occurrence further, maybe there is a propagation expert lurking who is interested to interpret /provide further data to try and explain exactly what occurred?

These contacts were all made with my second 10GHz system which comprises IC271E + Mutek, DB6NT transverter + DB6NT 2W SSPA and a Procom fed 48cm dish at 14m above ground. This system is usually used portable on a small tripod for alignment of antennas before 24GHz contacts but is presently installed on my home station mast whilst I am modifying my regular dual-band 6/3cms transverter.

This was a very thought provoking event!

Conclusion - right place at the right time!

UK EME NEWS

It's very good to read of two more UK EME enthusiasts achieving great things this month. The big story is, of course, the first **24GHz EME QSOs from the UK**, done by **Brian, G4NNS**, during the last few days in June this year. You can read the full story on pages 10 and 11 of this edition of Scatterpoint. We must all congratulate him on a superb job. He joins the ranks of the very few EMers who have made two way contacts on 24GHz. Now you've "been there, done that and got the T shirt", are you looking to 47GHz now Brian :-)

At the other end of the microwave EME spectrum, **Sam, G4DDK,** reached #25 by working SM6CKU on 23cm EME CW on the 28th June . He's now achieved his first self-imposed milestone for small dish operating. All but two were on CW or SSB. The remaining two were on JT65C. Well done Sam!

VK2AXA (5.7GHz EME record holder) to visit UK

We are considering visiting Will, W0EOM and then coming over to Martlesham in November then on to Germany. I am working on two Hughes 47GHz units which I got from Will. They have two stage Impatt diode PAs giving 250 mW, so hopefully I can get the Australian record later this year. There's a lot of hardware work to mount everything!
73 Alan VK2AXA

SATELLITE DISASTER

What was to have been the largest ever launch of Amateur Digital Satellites has ended in failure.

There were 14 Amateur satellites onboard the DNEPR-1LV rocket which was launched on Wednesday 26 July 2006. Tragically it seems all of them have been lost due to a failure in the second stage of the rocket. It is rumoured that two of the other satellites on the launch may also have contained payloads operating on Amateur frequencies. For a video of the launch see:
http://polysat.calpoly.edu/DNEPR-BelkA.wmv
For additional news see:
http://www.cubesat.calpoly.edu/

Martlesham GB3MH* Beacon Update

We have now installed the GB3MHC 5.7GHz beacon outside Look for it on 5760.830MHz. It runs 2.5W ERP (DB6NT multiplier/PA into a slotted WG antenna) from locator JO02PB. It has similar take off to the 10GHz beacon, ie it is screened to the West by the concrete tower. Reports are very welcome, either via DXCluster or direct by email.

At the same time I checked the 9cm beacon following reports that the West beam was weaker than expected. After dismantling and measuring the power at various points in the system, we have regained 2dB of power on that antenna but without finding any particular reason for the change. Reports again are welcome, and we will keep it under observation.

Sam, G4DDK, and I also reset the frequencies of the other beacons as close to .830 as we could get. GB3MHL was left as is, as it appears to be only 100Hz high at present.
73 John G3XDY <g3xdy@btinternet.com>

NEW 24GHz Beacon

The SHF Beacon **DB0GW** in Duisburg, **JO31JK** is now QRV on **24.048850GHz** with 50mW output into a Slotted-Waveguide Antenna with 9dB Gain
73 Rolf DL4JK. E-mail: rk@uni-duisburg.de

TERRESTRIAL ACTIVITY

UK and Eu microwavers enjoyed a spell of excellent tropo conditions in mid-July, during which a new UK 10GHz record was acheived (see earlier comments) and several other >1000km QSOs were made on all bands including 10GHz. Your scribe did not get into much of this however as it was a full day before he was able to get out /P and by then the bands had levelled off somewhat!

John, G4EAT, is ideally located (JO01HR) to take advantage of the opening as this report indicates:

On 1st July I was surprised at level of activity in local European contest (coinciding with VHF NFD) on 70cm and above. Having rebuilt my 2320MHz system over the winter, I took advantage of the above average tropo and North Sea propagation to add a few new squares on 13cm: JO23, JO33, JO44. I am finding that 10W and 25ele on 13cms always goes just as far as my 50W and 4x23 ele system on 23cm. Best DX of the contest was SM6DJH JO58 at 1002km.

Several 10GHz Rain Scatter openings occurred during the month of July 3rd, 4, 5, 11, 19, 20, 22, 26 and 28th. Best DX was DB6NT (JO50) at 794km. Several openings started early afternoon and finished very late but, as always, activity and best DX is usually early evening. Arnold HB9AMH/P JN37 was 59 ssb on 22nd for more than an hour and worked many G-stations.

I worked several new French stations whose calls I have never seen on the cluster. Some of these work directly on 3cm and insist on SSB only, which can be very painful at times. There were no new squares on 3cm using RS but I tried 13cm RS for new one in JN07.

9th July was 24G Cumulative and despite about 20 tests with 8 stations failed to make a QSO. Conditions were very humid and equivalent to 0.19dB/km. A later test with G8KQW/P revealed system working well but antenna alignment in need of a tweak.

15th July saw good conditions to Scandinavia develop late in the day but mainly only on bands up to 23cm. I called it an early night to see if morning tropo improved. On 16th July morning I worked SM6AFV JO67 at 59+ SSB on 3cm. Jens was so strong we decided to test 24G even though we did not believe it possible (and it proved so!) at 1000km. Then I worked Lars SM4DHN JP60 1233km on 13cm, then on 23cm and finally 579 on 3cm. It was great to have the duct extend so far inland from the coast. SM4LMV JO79 was new on 23cm but no QSOs were possible on higher bands with Roger. Also JO45, JO58 were new on 13cm. During the evening of 16th I had a QSO with LA6LCA JO59, new 13cm but no QSO 3cm.

18th July: DJ6JJ very strong on 3cm. I tested 24G and Heino heard a signal in the noise floor but too weak for a QSO. It should be possible in winter condx.

Tuesday 18th evening: 23cm contest included OZ, SM, DL

19th: I worked GM4LBV IO86 early morning tropo for a new square on 13cms.

10GHz Cumulative (23rd July) had poor tropo condx in the morning but activity was surprisingly good after a slow start and worked I 34 stations, probably half using 2m and half via KST for talkback. During the 10G contest also tested with **G4ZXO/P IO90 on 24G and finally had a 2-way QSO for locator square # 10**. ***(Many congrats John ... editor).*** It was probably one of the most humid days of the year and a retest later in the evening failed.

29th July QSO with Chris G0FDZ/P IN69 Scilly Isles on 3cms was a repeat of last year albeit much easier due to RS enhancement.

In all a very busy month with, for me, a record number of 2m Es openings including EA8.

76GHz Activity

Saturday 8th July sawsopme welcome 76GHz activity when the following successful non-contest contacts took place:
1300z: G8ACE/P - G3PYB/P Lane End to Butser Hill - 17.2 km -
1430z: G3FYX/P - G3PYB/P Lane End to Butser Hill - 17.2 km -
1500z: G8ACE/P - G8BKE/P Lane End to Ocknells, New Forest 32.6 km
1530z: G3FYX/P - G8BKE/P Lane End to Ocknells, New Forest 32.6 km
Thanks to Ian, G8KQW for supplying the information

24/47GHz Cumulative Contest 9 July 2006

Mike, G0JMI/P sends a report in on the July 24/47GHz Contest:
I was initially at Fort Widley, Portsdown Hill, Hants at Locator **IO90LU** as G0JMI/p and worked :
24GHz: G8KQW/P and G3FYX/P both in IO90JO and 59/59 @ 30km on ssb.
I then relocated to where Peter G3PYB/P was operating on Butser Hill, (IO90MX) worked KQW and FYX again but on **47GHz,** as follows:
G8KQW/P RST 589CW and received RST 539 over the 43.3km path. G3FYX/P was also worked on 47GHz at RST529 CW with me receiving a 419 report. The same stations were worked again at RS59 on 24GHz.

I was really amazed to work Ian, G8KQW and Roy, G3FYX, on 47GHz with my home-brew mixer and 18 inch dish. It can only be giving out a few microwatts! These 47GHz QSOs represent my best DX on 47GHz to date. My thanks are passed to Peter, G3PYB/P, for helping me on 47GHz by marking my frequency on 47GHz for KQW and FYX to listen for my very weak signal.
73 from Mike G0JMI

Another Mike, G0MJW/P, was not so happy ...

I think that was the last 24GHz contest I will do.
I spent the whole morning at Bury Down(IO91) hoping to work the North and Midlands and did not hear a single station on the 144MHz talkback, except for G4EAT who I unsuccessfully tried to work. I called and called to the North but nothing at all. The most Northerly station I heard from Bury Down was myself. GB3ANG was a good signal so it wasn't the conditions.

In disgust I nearly went home, but went to Walbury just to try and work a few. I managed 5 in the end, best DX being G8KQW/P and G3FYX/P at Ventnor. Most of them had only just got onto site by lunchtime due to high wind and drizzle, etc. I failed again with G4EAT and surprisingly also with G3UYM/P who was almost inaudible on 2m, so there must have been something in the way.

Most of the Southern stations were spending most of their time on 47GHz and up with little 24GHz operation. With this level of activity, it really isn't worth going out.

July 10/5.7GHz Cumulative Contest reports

G8KQW (IO91OC) sends his summary of results:
34 QSOs in 11 Locator squares - IO70, 80, 81, 82, 90, 91, 92, 93, 94, JO01 and 02 yet again nothing from IO83 or JO03 - JO00 is unworkable from his QTH.
There were lots of long quiet periods and there is certainly room for lot's more! Regarding talkback, 16 came off 144MHz, 14 came off KST, 3 were made directly on 3cm with no talkback and 1 came off Skype Best DX was G1GEY @ 429km

Paul, M0EYT/P (IO80UV) reports as follows:
The contest got off to a wet start down on Bell Hill, despite weeks of hot and sunny wx! The station was assembled as per usual but issues were found with the 5.7GHz system ... it had gone pop! Subsequent investigation revealed that the crystal inside the DF9LN OCXO had failed.

We (Tony G3PFM 2m op and Paul M0EYT 10/5.7GHz op) managed to finally get on air at 11.30z which was a bit late. The conditions started off with usual stations being worked, although we heard some comment on 144.175 that 10GHz conditions were improving. After an 'arm chair' copy with G3PHO/P @ 355km, we were called by F6DKW and proceeded to work him in SSB, with 5/5 reports being exchanged each way. We managed to work 27 stations on 10GHz which isn't bad going - a few new callsigns were also heard on air which was pleasing. The highlight for me was a test with DJ5BV at around 650Km from Bell Hill. Signals were heard in both directions, but it was not possible to make a full contest exchange, perhaps next month we'll have more success. We ended up packing the station away at 17.30z. Work is ongoing to mend the 5.7GHz transverter ready for the next activity!

G8VOI/P (IO90MX) reports: With the changes to access to the top of Butser Hill, now restricted to where I can operate from, I found a spot with good take-off to S/E and S/W, but unfortunately the tower and earth bank obstruct the path to Bristol, making contacts in that direction very difficult, but have to try and make the most of the site. Maybe getting the 10GHz dish up on a mast might help, will look into that in the future.
I worked: 7 on 5.7GHz, G3PHO/P at 329km best DX
20 on 10GHz, F6DKW at 334km best DX
Conditions seemed generally poor and activity low (it usually is in July from what I can remember), also it was not co-ordinated with the French days.

3.4GHz "First"

Brian OZ1CTZ and myself managed to complete a contact on 9cm this morning, 5 July 06 at 0558 utc) or a **first OZ/GM on 3400.000MHz**. It also happened to be my first contact on the band too :-) Regards **Nick, GM4OGI** ***(Congrats Nick! ..ed)***

JO03 square to be active on 10GHz in September

I've just received permission from the farmer so it looks = possible that G1MPW + G6KIE will, if the rest of the plans go ok, be operating from JO 03 AD for the September cumulative .
73 from Steve - G1MPW

Sorry folks but's that's all we have room for this time. If your report has not been used this month it will be carried over to the September issue. Thanks for a "bumper" postbag this time! **73 Peter, G3PHO**

JUNE 2006 LOWBAND CONTEST RESULTS

There were only 7 entries, 5 portable and 2 fixed stations, about half as many as received in April, though activity was more or less at a similar level, if measured by QSOs and leading scores on each band. It seems fewer operators than usual wanted to send in an entry, or perhaps forgotto do so - unusually there were no reminders sent out this time, due to the adjudicator being away.

There appeared to be some good activity from mainland Europe, especially from Germany,but this DX was mostly only accessible to those in the East, and some stations thought activity was a little low, despite the event being timed to coincide with a European contest.

Conditions were generally reported as average, the exception that G3XDY reported above average conditions from E. Anglia to Germany, with some good DX worked.

John G3XDY was the leader on each band, with very convincing wins on both 1.3 and 2.3GHz, and just managing to beat **G3PHO/P** on 3.4GHz. Thus **John was also the overall winner,** by quite a large margin over **the Runner Up G3PHO/P**

There were some comments about talkback again, and some operators had the impression that nobody was using 2m for arranging contacts, instead preferring to closely watch KST.

Again, thanks to those who sent in entries, and please remember to support the remaing low-band events, and to send in your entry, however small.

Regards, Steve Davies G4KNZ.

Overall Scores	1.3	2.3	3.4	Total
G3XDY	1000	1000	1000	3000
G3PHO/P	402	0	995	1397
G8VOI/P	277	308	314	899
M0EYT/P	0	255	418	673
G0NZO/P	290	0	0	290
GM4CXM	284	0	0	284
G0JMI/P	41	37	143	221

1.3GHz	Best DX	Located	Distance	QSOs	Score
G3XDY	DM7A	JO60LK	837	23	9043
G3PHO/P	G0NZO/P	IO80UV	355	16	3635
G0NZO/P	GM4CXM	IO75TW	580	16	2625
GM4CXM	G0NZO/P	IO80UU	580	7	2564
G8VOI/P	DR5A	JO30EM	518	15	2509
G0JMI/P	G4ALY	IO70VL	220	5	368

2.3GHz	Best DX	Located	Distance	QSOs	Score
G3XDY	DL0GTH	JO50JP	684	13	4004
G8VOI/P	ON7WR	JO20EP	376	9	1234
M0EYT/P	G4DDK	JO02PA	278	9	1022
G0JMI/P	G0EYT/P	IO80UV	77	4	148

3.4GHz	Best DX	Located	Distance	QSOs	Score
G3XDY	DL0GTH	JO50JP	684	8	2630
G3PHO/P	G4ALY	IO70VL	453	10	2617
M0EYT/P	G3PHO/P	IO93PW	355	10	1099
G8VOI/P	G3PHO/P	IO93PW	329	7	826
G0JMI/P	G4ALY	IO70VL	220	6	375

GPS Display module - another correction

In the version of the GPS display software posted on my website recently, the factor for generating the speed in miles-per-hour from knots as supplied from the GPS is wrong; the conversion factor is upside down. If you use this version speed (in mph only) will indicate high by a factor of 1.32. The speed in m/s is correct.

I originally spotted this when I went for a drive to test the car's speedo, came back home corrected it, went for another drive to check, but didn't copy the corrected version of the PIC code to the USB stick I subsequently used for uploading to the website.

So, if you already have downloaded the code go to the assembly file, do a search and replace to change both occurrences of 3559 to 4714 then reassemble the .hex data.

The correct conversion factor was there, but inverted. The values come from :

4714 = 1852 [metres / naut mi.]/1609.344 [metres / mile] * 4096, the incorrect value of 3559 = 1609.344/1852 * 4096.

Tnx to Joe, G3LLV, for spotting this. A corrected version of the .ASM and .HEX files has been posted to the website **www.scrbg.org/g4jnt/**

PICs already sent out ALREADY HAVE THE CORRECT VALUE as they were programmed straight from the same HEX data as in my own unit. (The car speedo reads 2 mph high at 70)

Andy G4JNT

UKuG PROCEEDINGS 2006

We still have a small number of copies available for purchase by post. To obtain one, please do the following:

(1) email G3PHO to reserve your copy.

(2) send the total required (see below) to Steve Davies, G4KNZ, UKuG Treasurer, whose address is on page 2 of every copy of Scatterpoint, or email him at [steve.davies@nokia.com]. Money should be send in any one of the following formats:

either: PAYPAL (contact Steve first to obtain PayPal account info)
or: Cash Euros or US dollars (if you wish to take the risk!)
or: UK Sterling cheque
or: Bank draft (contact Steve first about this)

Once your funds have arrived, your book will be posted to you immediately.

If you are a UK resident, you can send a UK bank cheque (payable to UK Microwave Group) direct to:

G3PHO, Peter Day, 146 Springvale Road, Sheffield S6 3NU, U.K.

Doing things this way is the fastest method of getting your copy! This is only for UK residents. Overseas purchasers MUST pay via G4KNZ but reserve their book by emailing G3PHO as well.

PRICES:(inclusive of packaging and First Class or airmail postage):

UK: £7.00 (7 UK Pounds)
EUROPE: £8.00 (8 UK Pounds) or 12 Euro
REST OF WORLD: £10 (10 UK Pounds) or $18 US

SURFACE MAIL PRICES TO REST OF WORLD (outside Eu): £8 (8 UK Pounds) or $14 US

Sorry... no credit or debit cards.

If you use PayPal please add 4% as Steve will otherwise have to bear the charges on his account.

The European and US dollar prices have been rounded up to the nearest dollar (only a few cents difference!) to facilitate sending cash notes if you wish to chance it. If you do this we suggest you wrap the notes in metal foil or put inside a folded card to make detection difficult.

WEAR YOUR BADGE WITH PRIDE !

UKuG is pleased to announce the immediate availability of its handsome LAPEL BADGE. These are similar in size to the standard RSGB lapel badge and those of other national societies. We think they are extremely nice badges with their blue background, black lettering and gold trim. They come in an enamelled metal finish with a simple-to-use pin fastener.

They are available to UKuG members only.

If you want one (or two?) then email our Secretary, Ian Lamb, G8KQW at: **ianlamb@btconnect.com** for more details or, if you are in the UK, simply send him a cheque for £2.50, **payable to UK Microwave Group**. This price includes first class postage within the UK. Ian's postal address is on page 2 of this issue.

Overseas members should email Ian for details of postal charges to their country.

GPRS/3G INTERNET CONNECTION FOR ON4KST

For anyone using KST running Vodafone Mobile connect and a PCMCIA datacard plus laptop you may be interested to know that I have just upgraded my Vodafone dashboard software to the latest version 6.01.001 and downloaded the latest PCMCIA card firmware upgrade from **www.vodafone.com**.

The connection reliability and system stability is far superior using this version than the previous version 3.0 software level!

73 .. Ian, G8KQW