An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

Published by the UK Microwave Group

2010 SEPTEMBER

Is this the UK's oldest microwaver?

Philip, G3NEO, of Sheffield, who must be approaching or has even passed his 90th birthday (we've not asked him!) is shown here demonstrating his 10GHz system to a couple of "young 'uns" at the Finningley Microwave Roundtable in mid July. Philip has used this very simple G3JVL mixer and 'penny feed' 18 inch dish for many a year! He's out there in most of the 10GHz cumulatives so see if you can work him. You'll need 2m talkback though!

In this issue ...

Latest News ...

- **August ATV Day a success**
- **Scatterpoint email changes by end of this year**
- **UKuG member gets the shakes!**

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

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From the Editor's Desk

Welcome to all new members of the UK Microwave Group. We hope you will be with us for many years to come and enjoy what we believe to be the most up to date amateur microwave newsletter on the planet! Not only do you get news in this newsletter but we also try to provide you with technical articles as well! So our thanks go to this month's providers of articles and other items ... John W3HMS, Richard G8JVM, George G8AIM and, though they didn't know it until now, Paul M0EYT and Simon ZL4PLM.

Robin G8APZ, our Activity News editor, is also most grateful to all those who have written in with news of what they have been doing on the microwave bands. We know there are many others out there but who keep all their doings close to their chest. Come on folks ... don't be shy ... tell us all about it!

Once more, we are now devoid of technical articles folr the next issue so please put fingers to keyboard or even pen to paper if you want to see an October 2010 Scatterpoint! Photod and a short text description on any microwave related topic are also very welcome.

73 from Peter, G3PHO
Editor

News, views and articles for this newsletter are always welcome. Please send them to G3PHO (preferably by email) to the address shown above. **The CLOSING date is the FIRST day of the month** if you want your material to be published in the next issue. (***This is a change from previous dates)***

AN INVITATION

I wonder if anyone in the North America, Europe, rest of the world is planning to join us at the **Martlesham Microwave Round Table** in November this year?

The Round Table takes place on the 13th and 14th of November. Details can be found at:

http://mmrt.homedns.org/

Each year, the Martlesham Radio Society organises and runs this popular two-day microwave event. This is the 31st year of the MMRT.

If you haven't been to the MMRT previously you will experience an event with an attendance of about the same size as the annual MUD events. There is a talks programme, flea market (with some bits you don't see in the USA) and surplus prices that are still reasonable!

There will not be a formal tour this year. We want to leave that until the next event (probably in April 2011).

The 'microwave' dinner (banquet) is on the Saturday evening.

The UK prices are at their lowest in November and flights are also cheap in November. We have arranged really good accommodation prices at the hotel and best of all, there are no registration fees for MMRT. We've always been a free event.

If you are thinking of coming to EME 2012, Martlesham is just about 1 hour away from Cambridge, so this would be a good chance to have an early look around Cambridge, during the week. There are lots of things to see and do in Cambridge. The Martlesham/ Ipswich area has lots to see as well!

It would be great to see more visitors from overseas to our premier Microwave event in the UK.

If anyone wants more details of what to see and do in this area in November, drop me an e-mail at sam@g4ddk.com

73 de Sam, G4DDK,
for the Martlesham Radio Society

MMRT Supported by the UK Microwave Group

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Your personal renewal date is shown at the foot of your address label if you receive Scatterpoint in paper format. If you are an email subscriber then you will have to make a quick check with the membership secretary if you have forgotten the renewal date. Please try to renew in good time so that continuity of newsletter issues is maintained. Put a **renewal date reminder** somewhere prominent in your shack (the editor suggests having it tattooed on your forearm!).

Please also note the payment methods and be meticulous with Paypal and cheque details.

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Delivery to:	**UK £**	**US $**	**Eur €**
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*** Paypal to ukug@microwavers.org**

or

*** a cheque (drawn on a UK bank) payable to 'UK Microwave Group' and sent to the membership secretary** (or as a last resort, by cash sent to the treasurer!)

The standard membership rate for 2010 is:

UK	**£6.00**
US	**$12.00**
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This basic sum is for **UKuG membership.** For this you receive an electronic Scatterpoint for FREE. If you want a paper copy **then the higher rates apply.**

Planning and Installing a DB6NT Kuhne Electronics 500w SSPA in your station

By John Jaminet, W3HMS

For an EMEer on 1296MHz, the question of adding more power can commence early in ones moon-bounce career. There are two basic approaches: High Power Tubes and solid state power amplifiers. Unlike HF, there is no big market so choices are limited. If you go the tube route, high voltage and high current plus water- cooling enter your world. If you go the Solid State Power Amplifier (SSPA) route, you have low voltage and can have air- cooling but also few choices and BIG prices!!!

My EME station is located in waterproof and locked boxes under the 3m dish to minimize coaxial cable loss as the radio shack is about 25 meters away, in the house basement. My initial power amp was the DEMI 120 watt SSPA which gave me many fine CW and JT65C contacts but always required, in CW, that I work the "big dogs"with their large dishes and high power. For general info, I use one colour camera on the end of the 23cm feed pointing right on the moon in good WX, another colour camera on the Azimuth compass-rose and a third colour camera pointed on the inclinometer as an elevation indicator.

I was never able to hear my own echoes as the prevailing opinion said that with a 3m dish about 200 watts plus was needed to hear echoes, even occasionally.

I looked at the SSPA amps in the market and found them very costly. So I started to plan for a two -7289 rig and bought same with spare tubes and a very fine commercial power supply (PS) of 1.5KV at 1 amp. Then an opportunity to get a six-7289 amp usable with the above PS came to hand and I grabbed it!!

I then put much effort in building the cooling system and thinking about water- cooling in the cold Pennsylvania winter. Slowly, I realized that for me, high voltage, high humidity (often) and water just don't mix well. I just this instant got off the phone with Steve N4PZ (AM 3 Aug 10) who builds/sells 1.5 KW tube amps and he confirmed that big tube amps need to be close to the operator for rather constant surveillance.

To move into the SSPA world, I exchanged emails with DB6NT and obtained the prices at a point when the USD/Euro exchange rate was very bad for me ... ouch!!!

Undaunted, I looked closely at the drive requirements of the 500W SSPA at 8 watts, not exceeding 10 watts, and could see that an intermediate power amp (IPA) was needed in my set-up. I was already using the superb DB6NT 1296-28 MHz transverter disciplined by a 10MHz oscillator. Its output after the mandatory 1240 MHz IF filter was about 2.5 watts, just right for the DEMI 120W amp but too low for the DB6NT SSPA. This mandated the IPA which needs 1 watt in for up to 30W out so I use about 4dB of attenuation to achieve 8 watts drive into the SSPA.

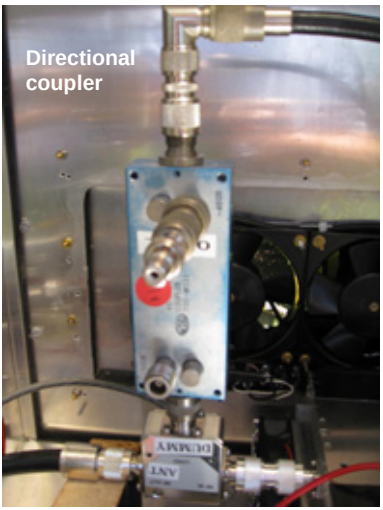
During the DB6NT production phase of about 6 weeks, I used the time to design and build switching relays for the test phase as the final version will use the DEMI sequencer.
I also built a high current fuse box using 120VAC screw -in house fuses and a series of diodes to drop 27.5 VDC to 26 VDC as DB6NT confirmed that the IPA does indeed require 26.0 VDC..

Next, I pleasantly discovered that the large aluminium cabinet, already built for the tube amp and PS, was more than adequate in size for the DB6NT, IPA, SSPA and PS with room to spare which permitted installation of twin vent fans to quickly blow the SSPA blower output from the cabinet. Usage to date has shown that even on hot summer days the cooling is adequate. The next operation during the DB6NT production phase of about 6 weeks was to write a test plan/list and equipment block diagram for the test to be set up on the indoor back porch picnic table. Hams all know that the first time, key down, test of a high-power amp may include such lovely events as blown fuses/breakers, arcs, smoke,

fire, irritating sounds and smells, electric shocks and damaged equipment. So I checked out low -level stages, coming finally to this moment of "key down truth". Wow, was I happy!!! .... there was none of these potentially devastating events as the only movement was the Bird watt meter needle climbing up to 440 watts and the quiet air flow on the IPA and SSPA.

Next, I had to install the new aluminium cabinet and PVC tubes between existing cabinets for AC, control, and drive to the amp. Then I conducted the same testing as the first time with Brad, N3OFI, helping me in the station. The tests were smooth and conclusive and I was back on EME but now with about 400 watts. I say 400 watts as I have intentionally kept the power down due to longer JT65C transmissions.

I have found that I can now hear and, even more importantly, see my echoes on Spectran which, to an EMEr, is an important milestone in their EME journey.



One major concern with high power SSPAs is the vulnerability to high SWR which can cause major damage in a fraction of a second. I posted an inquiry to Moonnet and was pleased to get many competent replies which centred on one theme: Use a 500 watt circulator designed for 1296 MHz then output to an older high- loss coax cable connected to a dummy load of about 200-300 watts capability.

I asked for availability on these 3 items and found that I needed to buy the circulator from DB6NT, get the coax locally (thanks K3SWZ) and search for a wattmeter. I had cabinet space for 25 feet of coax and I finally found a large MILSPEC wattmeter built like a battleship and rated at 200 watts key down forever it appears, thanks again to K3SWZ.

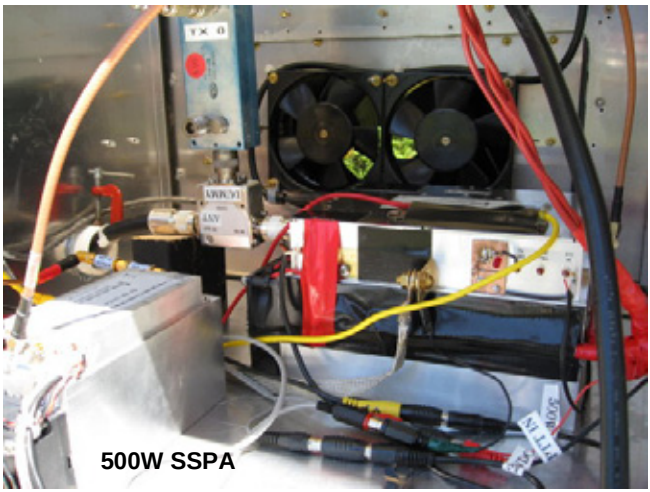
Another major concern for me in a remote configuration is metering where physical surveillance is not feasible. I say this as an 85 foot promenade in snow in January is to me indeed not feasible, HI!!

With the 120 watt DEMI amp configuration, I metered the following using one wire in a control cable for each function below and the common ground. Each meter is a digital voltmeter good for 0-20 VDC and, thankfully, purchased on sale:

Bus VDC 13.8
Amplifier Output power via MONITOR diode showing a relative DC voltage
Transverter Output power via MONITOR diode showing a relative DC voltage
Temperature on the SSPA heat sink

To these I added additional digital meters in an easy to scan bank of 7 meters. Once again each meter uses one metering lead against a common ground:

IPA MONITOR Diode for IPA RF output as a relative DC voltage
Directional Coupler Reverse SWR as a DC voltage
27.4 VDC Power supply. The 0-20 VDC meter uses a series resistor so that 27.5 VDC appears as 2.75 VDC.

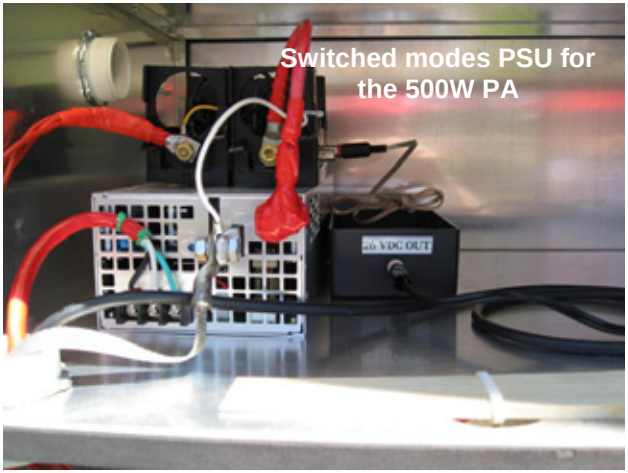


In summary, I am just delighted with the quiet dependability of this amp at high- power levels which it seems to handle with ease, like a rugged QRO rig at just 5 watts.

I very quickly worked several stations on my EME "To be worked List" and was so very pleased with the increased signal reports I received.

My totals now stand at 18 DX, 5 continents, 50 initials and 121 QSOs on EME on 1296 MHz. All this was a very big help in achieving the 1296MHz VUCC certificate I recently received.

If there are any questions or comments, I am available at W3HMS@aol.com. 73, John, W3HMS



28VDC Power supply ...notes and experiences
Richard Bown, G7JVM

I needed 28V for the masthead transverter and PA, it takes nearly 9 A on Tx on 13cms. The big problem I had was when using 723 based supplies the chips die when you get more than 40V on the supply.

Previously I had doctored the windings on transformers to try and get about 38V after rectification. The only transformers I had that were nearly capable were all 50 V AC and had been used in a Coutant PSU, not one of their better designs, with an LM723 in a shunt configuration where the current capability was increased by biasing four 2N3773 s and connecting all the emitters together. That was pulled down in a not very nice shunt configuration with just a single TIP32, they even put that poor little device on its own heatsink about 30 mm square. Needless to say there are many that ended up in the scrap bin!

28V linear supplies are a headache as nearly all the regulator devices have a maximum input voltage of 30V. The LM317 series has a limit of 40V difference between input and output but it will take a bit of abuse if it's done very quickly.

After stripping off some turns on the secondary of another of the transformers, I have about 55V after bridge rectification and 10,000uF across it. I used a near standard higher current application but I've increased the input series resistor to 33 ohms and used a TIP36C just to turn on the four 2N3055s.

For anyone not familiar with this application, as the current demand increases so does the voltage across R3 and turns on Q6 which supplies current to the four series pass transistors Q1 to Q4. The LM317 in the loop controls the output voltage level. To protect the LM317 if the output is pulled very low, e.g by a short circuit, there is a 500mA polyfuse and a diode in series with its output. Also the voltage drop across R3 increases.

In my application, if the PA at masthead takes too much current I want the supply to shut down, fast! In the negative supply line there is a 0.1 ohm resistor and the voltage across it is used to trigger a SCR which turns off Q5, so the whole supply is shut down. It will remain in this state until C2 has discharged. I've over engineered this supply, so hopefully one of the 2N3055s does not go s/c emitter -collector.

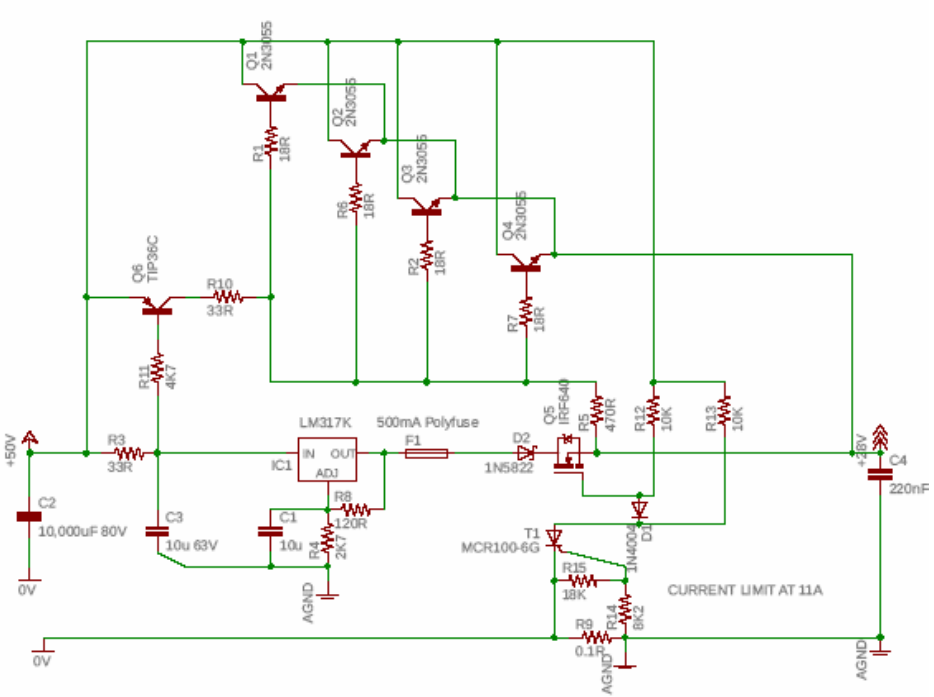
The ripple is is about 10mV on full load. I was limited by the transformer not being able to supply enough current but, with the current trip set at 11A, I was able to short the output terminals with heavy pliers without apparent damage. The output can be restored by shorting the gate of T1 to ground, or let everything discharge.

Just thought I'd chuck it in the pipe, using this type of application does allow putting the supply at the top of the tower, avoiding the problems with voltage drop on supply cables and putting noisy switch mode supplies at masthead.

I do have a very clean 1 KW 50V supply which I use for the 2 metre amp. I'm considering putting 50V up the tower, not having to worry about the voltage drop, and use this to drop it down to 28V for the 13 cm PA.

-- Best wishes Richard Bown G8JVM

The circuit diagram for this PSU is on the next page .....



24GHz LNB ...perhaps?

I bought a couple of cheap Ka band LNBs off Ebay the other week and, having now opened one and looked at the front end, it's possible they may be useable at 24GHz. They were originally designed for 20GHz use.

I've taken a reasonably good picture of the PCB, online at:
http://pjm.dyndns.org/ka_lnb_pcb.jpg

I was wondering if anyone else has seen these LNB's and in fact have played with them as front ends for 24GHz? I guess they are using pretty modern Ka band devices.

Oh incidentally, they are listed under "Hughes Net Satellite LNB FSS 19.7 20.2 GHz". Obviously I have no connection with the seller. I've bought a couple of these and retuned them to the various Ka band satellite downlink bands where they work very well indeed!

Regards and 73,

Paul M0EYT.

The Forecast for the Weekend is Dry with Light Winds
Or "Up periscope!"

When you have a difficulty there is usually a way round the problem. After moving QTH, I applied for planning permission (do it right!) for my 40 foot Tenna mast. O dear! I suddenly found myself dealing with people who had no idea of amateur radio and who could not see why someone would want to do this for a hobby. The neighbours were wonderful and the planning department hopeless but, eventually, I gained temporary permission for one year with the following provisos:

* no rotor cage
* the Tenna mast to be painted a dark grey
* the aerials when not in used must be below the roof height and **no dishes** to be fitted to it.

Permission is now permanent but the restrictions still apply.

As you can see above, I have a reasonable set of aerials for 2m and 70cm on the end of the house. On the Tenna mast, 4x35 el Tonna for 23cm, 1x66 loop for 13cm, 1x120 ele loop for 9cm but no 10GHz!

My interest in 10GHz goes way back to the good old days of wide band FM with my very good mate G8MWR (sadly no longer with us). Our first 10GHz contact was from Glen's dining room to the lounge, a distance of some 20'. I've been around too long to give up and, although I have done portable, I've got to be honest I never been that keen. So what to do? Well, the shack is in the loft space. Now the brain started to work. Since the Velux window opens vertically, I could poke a small dish up through the window on a pole. Then it became clear to me whilst I was trawling eBay (for radio bits). I spotted a Clark 20 foot pneumatic mast, with 5 sections and not too heavy. I thought ... get it up to the loft, find a way of fitting into place when required, pop a dish on the top and pump (that involved a trip to Halfords).

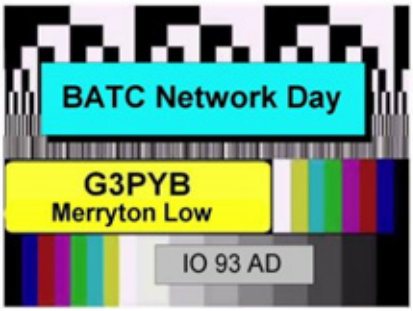
Whilst demonstrating my new masterpiece to my wife, who had a slightly bemused look, she asked what happens if you get a puncture? "You keep pumping dear", was the reply.

Now those of you who may be reading this, can see how the article got its title because, if it starts to rain there is a slight problem, yes, the gear has to come down pretty quickly!

It occurred to me that, by fitting a small mounting plate below the 10GHz dish, I could mount a small unit for 5.7GHz .... hey presto, another stroke of genius. The 10GHz unit is a basic DB6NT 200mW to a Procom dish. 5.7GHz has a Downeastmicrowave transverter to a 10W Ferranti PA, both units mounted on the rear of the dish.

What about rotating this lot? Well, as I sit crouched over my 2 x FT290s I only have to reach up and turn the bottom section. Simple! No computer program, no compass, just line up on 144.175, aim and point the dishes. OK, it's not the 'bee's knees' but it works. I wonder if I could get on 24GHz as well?

73 from George, G8AIM



ATV NETWORK DAY

… a report

Sunday 22nd August saw the second BATC/UKuG combined microwave weekend take place. The 2009 event was a bit of a washout as the weather was really atrocious but this year the story was completely different ... sunshine and blue skies!

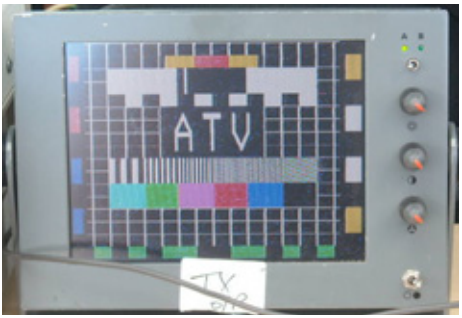
A good number of portable and fixed station ATV operators had promised to be on and this, combined with the UKuG 5.7GHz to 24GHz cumulative day, offered a great opportunity to let others see, in real time, just what microwavers get up to!

G3PYB and G3PHO set up /P stations at Merryton Low Triangle in Staffordshire, IO93AD51. Peter G3PHO had recently let go of his mobile microwave station on wheels, a 13 year old red SWB VW Transporter which had been fitted with two operating benches and power outlets, in favour of an almost new VW Caddy Maxi Life seven seater people carrier. This newer vehicle has less interior space than the Transporter, so much so that carrying the 1.2m dish and the usual microwave gear was out of the question. So, at great expense but always thinking of the benefits to amateur microwaving, a 6 foot x 4 foot trailer plus a towbar were also purchased and tried out for the first time during this event. Lots of lessons were learned and should be put into practise next time!

Peter, **G3PYB/P,** is also trailer based so the grassy triangle was well occupied with microwave gear! In addition, the Warrington radio club had set up a 10GHz station just a few hundred metres away! Equipment deployed from the new G3PYB trailer included analogue FM ATV, plus digital ATV on 23cm and 3cm. Digital ATV was also used on 437MHz. Most of the stations worked were on 23cm and 3cm Analogue FM. Tests were made with **G3GTZ** near Basingstoke and a good strong NB signal was seen at Basingstoke but this was not translated into a locked digital signal. Analogue activity was quite high on the N West side of the Pennines, Peter G3PYB worked 7 stations, all on analogue TV, on a mixture of 23 and 3cm bands. Stations worked include **G3ZME (see photo below right)**, **G3SMU**, **G3NWR (see photo of his received signal left)**, and a good contact with John, **GW3GJA,** above Prestatyn.

A digital 70cm test later in the day with G7LWT and G3SMU (Winter Hill IO83RO) produced a very strong, locked transport stream but with some difficulties with the encoder at G3SMU/LWT end.

The ATV Network Day was really aimed at promoting 3cm and 70cm activity. Most of the DATV appeared to be in the south of England. **G6PYE/T** from Brinkley near Cambridge use 70cm DATV and worked Noel **G8GTZ**, near



Basingstoke, on a good 87 mile path, plus **G8ASI** in Hemel Hempstead over a very obstructed 48 mile path.

G8ADM operated from his North London home using a new pump up antenna. After some initial "compressed air!!" problems David exchanged a DATV 70cm signal with **G8GTZ**, Paul **G6MNJ** and Mike **G8ASI**.

Above: Looking northwards at the G3PHO/P & G3PYB/P set up at Merryton Low Triangle in Staffordshire. The station in the foreground and the VW belong to G3PHO/P while G3PYB/P's ATV station is behind the trailer.

Above: G3PHO/P's operating position inside the VW Caddy Maxi Life. The fold up camp kitchen makes an ideal operating desk!

Above: Peter G3PYB/P operating his 10GHz ATV station and receiving solid P5 signals from G3ZME.

Above: The nicely fitted /P microwave ATV station of G3PYB/P

Left: G3PYB's offset 3cm system with 10W to a 32db gain dish for FMATV and Digital ATV at 4MS/s

Thanks to everyone who took part in this successful event.

SOUTH YORKSHIRE MICROWAVE WEEKEND FINNINGLEY: JULY 2010

The Finningley Amateur Radio Society, with a little help from UKuG, are to be congratulated on yet another excellent microwave "round table" event. Held over the whole of the second weekend in July this year, it enjoyed not only fine weather but a good attendance of well over 60. The very friendly atmosphere did not go unnoticed by several seasoned Martlesham and RAL veterans who said this event had a delightfully special character all of its own. The compact, yet well facilitated site, very close to the M18/M180 junction was certainly a factor attracting the visitors.

Located just outside the small village of Sandtoft, to the east of Doncaster, it is an ex RAF station which the amateur radio club is fortunate to have virtually rent free! There's loads of room for antennas of all types. UK microwavers benefit from the 10GHz attended beacon, G0GHK/B, that is located there.

The weekend started off with a really good fleamarket. The amount of microwave and UHF 'stuff' was a sight to be seen! The Suffolk microwavers came up once again and included Alan, G3NYK, who had a good selection of tinplate boxes on offer at modest prices. Much of the fleamarket material came from the massive amount that Finningley ARS already had stored in the large shed that housed the main tables. In addition there were also a few amateur traders who set up on the grass outside the shed.

While the more experienced microwaver was spending his savings at the fleamarket, some 20 or so newcomers to this part of the spectrum spent the morning and part of the afternoon with messrs G3PYB, G3PHO and G4HJW in a Beginners Microwave Workshop. This one was a little different from the previous 8 workshops held in the UK in that it adopted a more hands on approach. After short explanations about microwaves in general, gear for 23 and 3cm, and microwave antennas, the attendees had the chance to listen to and operate microwave transverters set up in the grounds outside the building. G0EWN kindly came on 10GHz ssb from his home in Sheffield, some 50 or so km away and made an impressive contact with G3PHO/P located next to the main building at FARS. The nearby trees and terrain obstructions along the path made for an interesting time! By chance, there was one of G4HJW's "Bernie Box" 10GHz LNB receivers on a table just outside the FARS building. G0EWN's signals

were loud and clear on that, even though it had no dish antenna attached to it! Across the field, G6GXK was also receiving good G0EWN ssb signals on his slot antenna and receiver.

Bernie, G4HJW, ran an SMD workshop in parallel. This was highly praised by all who took part and especially by those who came away with a working SDR module built by their very own hands! Kevin, G3AAF of FARS, had made sure everyone at the SMD workshop had a good soldering iron and this interesting tool pictured left. Various versions were on show but basically it's a golf ball mounted on a slideable, thin metal rod. Pointed at the lower end, it's used to hold SMD components in place while you are making the soldered joints to the PCB!

On Saturday evening a large group enjoyed a good pub meal at the Green Tree, just a mile or two down the road. It was warm enough for a group of us to sit outside for our meal. Food and drink always taste nicer in that environment!

Sunday saw the lecture programme. This included an excellent talk on Backyard EME by Howard, G4CCH, pictured left. His fine dish antenna system led to several queries about how he got on with the neighbours and the local planning authority. The fact that a former mayor of Gainsborough lived next door seem to have helped!

Sam, G4DDK (right), provided a detailed and very interesting update on his 23cm preamp while Bryan G8DDK's talk enlightened us all about LNA Parameters.

Extra activities included the G6GXK antenna test range and a very useful noise source demonstration by Martin Gawthorpe. Bryan, G8DDK, also brought up some nice test gear for anyone who wished to get their own equipment checked out.

UKuG wish to thank all at FARS who gave their time and labour freely to make the weekend the great success that it was. In particular we thank the ladies who kept us very well fed and watered for two days with delicious food, much of it home made.

If you didn't come along this year you missed a treat! Do try to come in 2011 ... see you there!

DISASTER STRIKES UKuG MEMBER !

….. some observations by Peter G3PHO

Most readers will have read about and seen TV coverage of the recent earthquake (and the many aftershocks) that hit Christchurch, in the South Island of New Zealand, at 4.36am local time on Saturday, the 4th of September. Measuring 7.1 on the Richter scale, it was apparently the strongest 'quake since 1931 when the city of Napier, on the east coast of the North Island, was devastated by a similar event and many lives were lost in the process. Fortunately the Christchurch "shake", while very damaging to property, was not so harmful to human life, due in large measure to the time of day, when almost everyone in the city was in bed, and also to much improved building techniques.

Simon Lewis, ZL4PLM (ex GM4PLM), would certainly have already known that NZ experiences thousands of tremors every year, most of them going unnoticed by the general population but certainly recorded by the NZ seismologists. Having lived for over seven years as ZL2BDA and ZL2LA in that beautiful country myself, I'm very aware of the constant danger one is in when one's home is within a few kilometres of a major fault line. In fact, I was in a Richter 6.3 earthquake myself in early 1966 when I lived in Gisborne on the NE coast of the North Island. To see the ground rippling like the sea and to hear overhead power and telephone lines twanging like Les Paul's guitar is quite an experience. So, I was very interested to read of Simon's earthquake! New Zealanders, especially those who live along the major plate boundary fault that runs from the NE end of the North Island, right through Wellington (the capital) at the southern end of that island and then south into the South Island, live with this every day of their lives. Like Californians, they are usually quite blasée about the situation and just get on with their lives. Not so the Amateur Radio clubs! They are usually tooled up to become an emergency communications organisation at times like these, even if they are not immediately needed . Such was the case at Christchurch just a week or two ago, as this email copy I received via ZL1BGB in New Zealand shows ….

"Sent: Sunday, September 05, 2010 1:50 PM: Subject: AREC at Ready!!

AREC at the ready following big earthquake

So far, AREC (Amateur Radio Emergency Communications) volunteers have not been required in any major way to assist, following the earthquake that hit Christchurch in New Zealand. The magnitude 7.1 earthquake occurred at 4.36am local time Saturday 4 September, while most people were asleep in their homes. The result was extensive building damage in New Zealand's second largest city, Christchurch, with only two people seriously hurt and no one reported trapped or missing.

AREC Deputy Director, Geoff Chapman ZL3PX who lives in Christchurch, said that while AREC was at the Civil Defence Headquarters, there has been no requirement for it to pass any emergency traffic. That is due to restoration of telephone and power to the majority of the affected areas. While water and sewerage systems have been affected there has been no reported major loss of roads or bridges. However AREC is ready, as the situation could worsen with the weather bureau issuing a warning of very strong winds with gusts up to 130km/h and heavy rain posing new threats to already damaged buildings. Adding to the danger are numerous aftershocks with authorities advising that these will continue for many days or weeks.

The quake is New Zealand's most damaging since the one which hit Napier (Hawke's Bay) in February 1931, that saw radio amateurs extensively provide emergency communications. That led to the formation by the IARU national radio society, the New Zealand Amateur Radio Transmitters (NZART) of what is today known as AREC."

After the earthquake, Simon GM4PLM posted a couple of messages in the UKuG's Internet reflector and also some photographs on the Group's Yahoo site. Being just 6 kilometres from the epicentre of an earthquake of that magnitude, I must admit I was expecting to see pictures of his

house completely demolished and all his precious test gear smashed up! Fortunately this was not quite the case. The photos on this page show serious damage to his some of his equipment and to the house but miraculously and thankfully no one was not hurt.

Simon emigrated to NZ some time ago and, with his sister, set up an outdoor pursuits business specialising in adventure expeditions into the Southern Alps. He's also been busy trying to increase the support for amateur microwave radio in his region. His email to the Group reflector certainly got us all thinking the worse, as you can read here ....

" Just to let you guys know we are safe after the quake yesterday here. I am located in West Melton, about 6km from the epicentre at Darfield (RE66DL). Well, my place is totally trashed. Not one cupboard has its contents ... all on the floor... Amazing power of the quake - it threw the microwave oven across the kitchen around 15 ft away! Much of the house is torn, ripped and distorted but essentially remains structurally sound - thanks to NZ for being anal about building codes and quake safety.

My shack is totalled .. most of the radios on the floor, covered in PSUs, amps etc! Test bench on the floor, etc.

Workshop also totalled .... drill mill chop saw, etc, all on the floor. The quake was so strong it tipped over a compressor that I can barely lift on my own! It was so strong it threw me out of bed onto to the floor & it took all my strength to get up and hide under the door frame till the first phase passed then I legged it out of the door into the street. We survived alive and intact!

I spent most of yesterday camped in the yard - we have no power and no water, heating, etc, so out with the camping gear! Luckily, it was a reasonably warm spring day - though today we have a storm forecast with 130 km/hour winds.

Many houses are damaged here ... some very bad especially the old part of the city. It's lucky no one was killed and serious injuries limited.

I'll post some pics of my shack once I have power again and some lighting in the work shop / shack, etc ....
So far we are safe - that's all that matters

73 from Simon ZL4PLM, Christchurch "

That's good news indeed and I'm sure all members of UKuG wish him and his sister all the very best for a speedy return to normality.

More 'quake photos can be found at:
http://www.nzboards.com/news-views-and-issues/christchurch-earthquake-pictures-91511/

By Robin Lucas, G8APZ

CONTEST and ACTIVITY REMINDER

September

21-Sep 1900-2130 1.3/2.3GHz Activity Contest
Arranged by VHFCC (RSGB Contest)
26-Sep 0900-2000 5th 5.7GHz Cumulative
26-Sep 0900-2000 5th 10GHz Cumulative
26-Sep 0900-2000 5th 24GHz Cumulative

October

2-Oct 1400-2200 1.3 & 2.3GHz Trophies
Arranged by VHFCC (RSGB Contest)
2/3-Oct 1400-1400 432MHz & up
Arranged by VHFCC (IARU/RSGB Contest)
3-Oct 0900-1700 3rd 24/47/76GHz Cumulative
Aligned with IARU date
19-Oct 1900-2130 1.3/2.3GHz Activity Contest
Arranged by VHFCC (RSGB Contest)
31-Oct 0900-2000 All-band Activity Day

November

16-Nov 2000-2230 1.3/2.3GHz Activity Contest
Arranged by VHFCC (RSGB Contest)
28-Nov 0900-2000 Low band 1.3/2.3/3.4GHz

21-Dec 2000-2230 1.3/2.3GHz Activity Contest
Arranged by VHFCC (RSGB Contest)
26-Dec 0900-2000 All-band Activity Day
Non competitive, last Sunday in month

FRENCH JOURNEES d'ACTIVITE (JA)

25/26-Sep Activity weekend - 26th matches UKuG
30/31-Oct Activity weekend - 31st matches UKuG

Duration of all JAs is 1700 Saturday - 1700 Sunday

JULY CUMULATIVE SESSION

Steve **G1MPW** and Dave **G6KIE** went to their usual spot at Firle Beacon (JO00) for the July cumulative. Activity on **10GHz** was a bit slow - and **24GHz** even slower. 144MHz talkback was doing much better than an unusually unreliable connection to '**KST**'. Having settled for a quiet afternoon after lunch, out of the blue (or out of the noise to be accurate) , **F1NPX/p** (JN27) called CQ on 2m talkback. Although the signals were weak on **3cm**, they were ok for SSB.

Dom **F1NPX** was very pleased with the QSOs and so were Steve and Dave on checking the distance .... a best ever 514km. A total of 12 QSOs on **3cm** and one on **24GHz** rounded off the day.

Dominique, **F1NPX** wrote his report on the French reflector. *[I have translated and edited it and we pick it up with an unhappy Dom...]*

..A big disappointment, I can't hear the beacons in départements 60 (Oise, Picardy), and 77 (Seine-et-Marne, Île-de-France), Hummm ....a bad sign, moreover it is approximately 12:10 and the talkback channel is deserted.

Despite everything, I succeeded in contacting some regulars **F6DKW**, **F1RJ**, **F6APE** and **F6FAX/p** in Dept 43 despite being practically blocked in this direction.

The talkback channel being hopelessly empty, I try my chance with the English, but without much hope.

After several calls, **G6KIE/p** in JO00AU (513km) answered me. I asked him for his power in order to know which of us would call first, and he told me 1 watt. Good - I have 5 watts so I started my beacon but I didn't think it was possible.

G6KIE returns with "OK Dom, I've got you", (Wow not possible!). "OK Dave can you transmit now?" and then, surprisingly, there was Dave's carrier at 51. We exchange reports and the QSO is in the log.

I also had a QSO with **G1MPW/p** whose station is located with **G6KIE** (he also had 1W).

I tested thereafter with **G4LDR** in IO91EC who has 25 Watts but it was negative.

At the time I left my site, the first drops of rain had started to fall on my windscreen. **73 from Dominique, F1NPX**.

From: Neil Underwood, G4LDR (IO91EC)

I found the **5.6GHz**, **10GHz** and **24GHz** cumulative contest on 27th July hard going with relatively low activity down here in the south of the country.

Only six stations were worked on **5.6GHz** and ten on **10GHZ**. The best DX on **10GHz** was **G4FVP/p** in County Durham (IO94FO) at a distance of 389km.

On **24GHz** I finally managed to work **G4WYJ/p** who was at Devil's Dyke (IO90VV) at 102 km, signals were 519 each way. The path is obstructed at two points, the first is Farley Mount to the west of Winchester (and visible from my QTH) and the second is Park Hill to the west of Petersfield. **24GHz** QSOs were also completed with **G4NNS** and **G1JRU**.

From: Nick, G4KUX, Bishop Auckland IO94

Eleven stations were worked on **3cm** during the 25th July cumulative, and the best DX (432km) was **G4ZXO/p** (IO9ØVV).

From: Martyn, G3UKV

It was an enjoyable day for the Telford group on Brown Clee. For once, everything went to plan and kept working. On **10GHz**, we made 25 QSOs, 12 on **5.7GHz** but none on **24GHz**, although we had tried 3 long haul paths (**G4EAT**, **G4NNS** and **G8CUB/p**).

The humidity was high, and tropo generally unsettled. At least we had the **GB3ZME** beacon on **24GHz** to keep us company.

We seem to have cracked the /P hoodoo with '**KST'** (using Orange) which also worked 100% for us from Long Mynd on VHF NFD (where both T-Mobile and Vodaphone were rather wobbly). It gave us the best DX (F1PYB) on both **10GHz** and **5.7GHz** at the weekend.

Even a modern notebook set to maximum brightness is a pain out in the open air, as well as being a general distraction and complication. Two metre talkback was far easier and almost all other QSOs relied on this preferred mode. There's nothing to beat a bit of audio feedback crossband to peak up a marginal signal, as well as an immediate audible response from a CQ, etc. (we rest our case, m'lord....).

Thanks to all who were active on that Sunday. Any chance from those of you north and west of Watford Gap Service Station of taking out **24GHz** gear next month ? We'll be there.

From: 73 Martyn G3UKV

ACTIVITY UPDATE FROM G4LDR

I am gradually getting set up on the microwave bands from **1.3GHz** to **24GHz**, following a period of relative inactivity over the last three years in which I have got married, moved house and had the house we moved to re-built and extended over the last twelve months.

Unfortunately, I was not granted planning permission for my tower at the new QTH which would have enabled me to get antennas above tree height. I did however manage to acquire a 12m pneumatic mast which now carries the microwave antennas and transverters, but not for all of the bands at the same time.

I have been able to resume regular Monday evening contacts with Ralph, **G4ALY** at 196 km on all bands up to **10GHz** and have been able to have local contacts on **24GHz** with Brian, **G4NNS** and Dell, **G1JRU**. Signals are so strong on **24GHz** that FM is the normal operating mode.

On the **19th** July there was a band of rain stretching from Cornwall to the north east of England, and on **10GHz** I was able to copy the following beacons. **GB3SCX** (always audible), **GB3KBQ**, **GB3CCX**, **GB3CEM**, **GB3XGH** and the following were all heard for the first time **GB3MCB**, **GB3LEX**, and **GB3CAM**. All these beacons were audible at the same time, around 2100 UTC.

ACTIVITY UPDATE FROM G4KUX

Apart from the cumulative session, activity has been very low, although at the end of May I did work **SM6HYG** at 911km and **OZ1FF** at 644km on **10GHz**, I worked them both on **23cm** prior to the **3cm** contacts.

I am now GPS locked to a 10MHz clock and use a **G8ACE** OCXO and RDDS to 103.5MHz. This allows me to use a 70cm source which has solved the 2m breakthrough problems I suffered

from previously, as well as the drift.

The **G8ACE** projects were reasonably straight forward to construct and both worked first time.

I now have a 250W PA for **23cm** and hope to commission it soon. I also have a pair of 400W solid state amps for 70cms and once I locate a suitable PSU (28V @ 50A) I should have them in operation.

73, Nick G4KUX

BEACON NEWS

From: Ruediger, DK6JL

I plan to put two new **9cm** and **6cm** beacons on the air within the next two to three months. The frequencies are likely to be **3400.810MHz**, and **5760.810MHz**.

Both beacons as a gift to the UK hams, who made the fine Martlesham beacons available to us. My beacons will be GPS controlled and with high power, mounted on my own tower about 10m above ground. The power will be between two and five watts (I'm still not sure about that) and the antenna will be an offset dish 60x90cm.

The beacons will have high ERP pointed in the direction of Martlesham. All the components are already on the bench, and I'm just looking for a proper housing.

There is no **6cm** beacon in the Netherlands, and only **DB0JL** east of my location. **DK2MN** had to switch off his own beacons on all bands and this was the reason for me to activate some beacons. Early in the mornings I could hear **GB3MHS,** and **GB3MHC** very often, but due to the early hours there was nobody else QRV.

I hope that my own beacon will not disturb my activity, otherwise I will have to reduce power. I will let you know when everything is operational.

73, Ruediger, DK6JL

Patrick, **F1JGP** visited the JN07WV beacon site. **F1ZUM** on **2.3GHz** and **F1ZAI** on **10GHz** were readjusted onto their correct frequencies, and **F1ZPE** on **24GHz** now has a new PA and mechanical mounting, after a long period QRT.

All four beacons are now operational from the site:

F1ZUM 2320.855MHz, **F1ZBD** 5760.845MHz
F1ZAI 10368.865MHz, **F1ZPE** 24048.550MHz

Web: http://aral45.site50.net/?page_id=135

LA7SHF is now QRV again on **1296.945** from the same site as the **LA5BR** repeater (JP20QJ) near Bergen at a height of 565m.

Kai Brandt, **LA3QMA** reinstalled the beacon, and although the beacon antenna is indoors, with a yagi antenna, Kai plans to install it on the mast. It is beaming almost due south with approx 18W output.

Kai would appreciate some reception reports.

AUGUST CUMULATIVES

From: Keith, GW3TKH, Cardiff, IO81jm

I went to IO81LT, a view point below the Blorenge, with a clear takeoff towards the north-east. Calls on 144.175Mhz netted contacts on **10GHz** with **G3VKV** and **G3ZME/p** and on **24GHz** with **G3ZME/p**.

An unsuccessful attempt with Richard, **G3CWI/p**, was probably due to the low gain horn antenna I was using. Much calling on the talkback channel only netted a contact with a station involved in a 2m contest!

A move to Hay Bluff at IO82KA, and QSOs resulted with **G3ZME/p** on Brown Clee, and **G3PHO/p** on Merryton Low, on both **10GHz** and **24GHz**. This **24GHz** contact with Peter, **G3PHO/p**, was my best DX for this band at 148km. I had not heard Peter in the morning since I gather he had generator problems. We will have to try the longer path next time?

An attempt on **3cm** with **G4ALY**, was not successful, despite a 10 second burst of AS. A 240m high ridge 3km away was the main problem! Not many contacts, but a satisfying day out. **73 Keith, GW3TKH**

EME ON 6cm - THREE FIRSTS

In his **6cm** EME report below, Peter, **G3LTF** mentions no less than three firsts on **6cm**. The stations were: **OH2DG** first **G-OH** (Finland) **JA8ERE** first **G-JA** (Japan), and **VE4MA** for the first **G-VE** (Canada). (# denotes initial contact).

From:- Peter Blair, G3LTF, Andover, Hants

On July 4th I worked **OH2DG** #12 on **6cm** for the first **G-OH** on that band, and on July 10th/11th I took part in the **6cm** EME Activity Weekend. Fortunately the wind was not too high otherwise the backlash in the drives makes it hard to keep the 6m dish on the moon.

On the 10th July I worked **SV3AAF**, **F2TU**, **OK1KIR**, **JA8ERE** #13 and first **G-JA** on **6cm**, **ES5PC**, **OH2DG**, **G4NNS**, **PA0BAT**, **DL4MEA** #14, **DF9QX**, **LX1DB** #15, **VE4MA** #16 and first **G-VE** on **6cm**, **CT1DMK** #17 and **OK1CA**.

The next day was more difficult because the sun was much closer. I think at the end of the day I was getting some receive performance degradation. At the start of the day, 0600 -0800 the libration was very low and signals were truly T9. I worked, **OK1KIR**, **F2TU** who called me on SSB and was RS3/4, **VE4MA**, **OH2DG**, **W5LUA** and **WA6PY** #18. I heard **JA6CZD**, **WD5AGO** and was heard by **G3LQR**, **ON4TA**, and **WD5AGO**. I have a long "to do" list mainly concerned with the feed as I think I may be illuminating too much of the outer dish (beyond 4m) which has only 12mm mesh.

I measured 12.3dB sun noise on Sunday with a sun flux value of 82. I was running about 23W at the feed and the receive preamp is an ATF36077 **W5LUA** design, NF about 0.7dB.

It really was an excellent weekend of EME with lots of activity, probably 20 stations in all, including several newcomers to **6cm** EME. Previously, on July 4th I worked **OH2DG** #12 on **6cm** for the first **G-OH** on that band.

HYPERATLANTICA 2010

In last month's column, I reported the QSOs and records between between the **D44TD** team, in the Cape Verde Islands, and other teams.

The **CT7** team consisted André **CT7/F1PYR**, Philippe **CT7/F6DPH**, and Joe **CT1HZE**. Since I didn't have space for all of the photos, I had to hold this one over until this months column.

André CT7/F1PYR, operating on 3cm

ANOTHER 3cm STATION IN GM

Chris, **GM4YLN** will soon be on **10GHz**. He has now finished his transverter with four watts output, and will start testing with Ed, **GM3SBC**.

Chris sent this photo of his neatly boxed unit.

17th AUGUST UKAC on 23cm

For the first time in the UKAC contest, Ray James, **GM4CXM** (IO75TW) made over thirty QSOs, finishing on 31. In spite of the average conditions (he described them as dire!), he still missed out on some stations.

His evening started well with 16 contacts in the first hour, with a good selection of short and long haul distances being worked.

An aircraft passed the mid-point between Ray and Kjeld, **OZ1FF** a few minutes before the contest started but they had to wait another 35 minutes before another opportunity arose.

Of the 30 UK stations worked, 25 of them have been licensed for more than 25 years and the other 5 at least 15 years. A disturbing stat!!

...AND FINALLY

The conditions haven't been good on the higher bands here in SW France. Not much rainscatter with the potential to reach the UK, nor much tropo either, but I managed to contact **G4EAT** in JO01 on **23cm** at 702km.

73, Robin, G8APZ/F1VJQ

Please send your activity news for this column to:

scatterpoint@microwavers.org

IMPORTANT NOTICE … PLEASE READ!

Starting with the January 2011 issue of Scatterpoint, the UK Microwave Group committee will require **every subscriber** to download their monthly newsletter from the Scatterpoint Yahoo Group website. THIS DOES NOT APPLY TO THOSE SOCIETIES AND MICROWAVE GROUPS AND THE SPECTRUM FORUM WHO RECEIVE SCATTERPOINT BY EMAIL ON A SWAP OR COMPLEMENTARY BASIS. These groups will continue to receive their copy by normal email.

Subscribers who receive the printed version by post will continue as normal but those who also receive an email copy should join the Yahoo Group. **If you have a particular reason for not wishing to do this then please contact the editor to arrange an email alternative**.

Downloading from the Yahoo Group has many advantages to members, in particular the availability of every edition in several different formats and in both high and low resolution. Scatterpoints are kept on the website for two months so that you can always find the previous copy if you missed it the first time. The system also allows you to read Scatterpoint wherever you are in the world.... provided you can get to an internet linked computer! This method also saves the editor a lot of time and trouble. It then becomes **your** responsibility to keep your email address at Yahoo up to date. The present email system is continually being made difficult for the editor by some subscribers who change their email address but fail to inform him of it! A few then even complain that they haven't received Scatterpoint for 3 or 4 months!

Individual subscribers are now asked to go to the Yahoo Group website at:

http://uk.groups.yahoo.com/group/scatterpoint/

and then click on JOIN and follow the instructions. The editor will then get an automated request to approve you and then you'll be ready to download the newsletter each month.

Please note: Do not confuse this group website with the UK Microwave Reflector. They are quite separate.

YAHOO automatically send out a message each month advising members when the newsletter is ready to download.

The download website is very secure and only fully paid up UKuG members can access it.

ODDS 'n ENDS

Path loss prediction software

I have updated my path profile software on my website (http://www.mike-willis.com/software.html) to use ASTER data. This is very high resolution terrain data with a resolution of about 30m. It can be downloaded from the ASTER site on the web.

I have also added some more features, including a facility to export the coverage display to a KMZ file for display as an overlay in Google Earth.

In addition, I have updated the SRTM version for those that don't need the higher resolution.

In true programming spirit I have introduced new bugs and probably re-introduced old ones.

Mike G0MJW <mike.willis@stfc.ac.uk>

PATH CHECK WEBSITE

Have you used the web site at http://heywhatsthat.com for checking out the take-off from various portable sites? It will be of interest to anyone trying to decide where to set up "camp" for a contest.

You can turn on a "visibility cloak" to determine how far you can see in all directions and there is a neat path profiler to check your paths into various other countries. Try turning off the flat earth setting and see how high the North Sea is between UK and Netherlands, for instance.

The web-page takes ages to load for the first time, (shows the whole world - twice!), but you just have to wait for a few minutes for it to sort itself out. Then you can select "New Panorama", and zoom in to your favourite contest spot. Give it a title, then submit the panorama request and, after a minute or so, it comes back with a panoramic view from that site.

This web-site will be of interest to microwave enthusiasts looking for long distance line of sight paths.

73 from Chris, G4FZN