An Amateur Radio publication for the Microwave enthusiast

MICROWAVE NEWSLETTER

Published by the Radio Society of Great Britain and edited by G3PHO and G8AGN.
Lambda House, Cranborne Road, Potters Bar, Hertfordshire EN6 3JE

FROM THE EDITOR

2002 – APRIL

This issue is down to twelve pages. The winter microwave "doldrums" are still with us at the time of writing and I can't remember a time when UK input to the newsletter has been so minimal! Our thanks, of course, go out to the authors of this month's articles ... G4DGU, WW2R, F9HX, Matt Reilly and GW3ATM ... their offerings have been gratefully received! However, we have rather limited news of actual microwave **operating** and we can't help but wonder where have all the microwavers gone? Please let us know what you are doing! No news is bad news, for it generates further inactivity and apathy. Please make a regular habit of calling "CQ for microwaves" on 144.175MHz ssb, particularly at 8pm on Monday nights and during Sundays.

At the recent '6 metres to Microwaves Convention' we were dismayed to hear of a number of well-known microwavers who had given up this fine aspect of Amateur Radio. One freely spoke of having "been there, done it and got the T-shirt" !! He's now going down to 136kHz, no doubt to give that up in a year or two. This editor firmly believes that there is enough to do in microwaves for all of us to never have to say that we have been there and got that T-shirt. Microwaving is the most satisfying part of my amateur radio hobby and I will never give it up ... but, then, I **am** preaching to the converted, aren't I?

If your ears are burning, then I'm glad!

CONTENTS

News, views and articles for this newsletter are always welcome. Please send them to G3PHO (preferably by email) to the address shown below. The closing date is the Friday at the end of the first full week of the month if you want your material to be published in the next issue.

G3PHO: Peter Day 0114 2816701

G3PHO: Email: g3pho@qsl.net
or p.day@virgin.net

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

SUBSCRIPTION ENQUIRIES SHOULD BE SENT TO RSGB HEADQUARTERS AT THE ADDRESS SHOWN AT THE TOP OF THIS PAGE AND NOT TO THE EDITOR ..

Changes to the "World Above 1000MHz" website

I have closed down my "World Above 1000MHz" website at **Geocities** (also known as Yahoo). This also means **I will no longer be using the g3pho@geocities.com** email address**.** However my microwave webpages will continue to be available at:

www.qsl.net/g3pho
and at
http://www.g3pho.free-online.co.uk/

The latter site is a frames based one, while the QSL.net site is not. Please choose one (or both) of the URLs and bookmark it (them) for future use. My email addresses are shown on the front page of this newsletter.

I really have appreciated many of you visiting my site over the past years and hope you will continue to do so in the future!

Peter, G3PHO ~ webmaster

WANTED

From: G4ALY, Ralph Bird [Ralph.Bird@btinternet.com]

- Teletra transition sma to WG20. Does anyone still have of these left over from their experiments with the "Teletra Whitebox" 23GHz equipment?
- H plane 90 degree bend(s) in WG20

Please email me or write, QTHR.

FORTHCOMING MICROWAVE CONTESTS ...

4th May: **10GHz Trophy Contest**
1400- 2200GMT

4/5th May: RSGB 432 Up Contest

5th May: All Bands Microwave Contest
0900-2000GMT

FOR SALE

From: Bob Short, G3GNR, [engineman@ntlworld.com]

I have a Hughes TWT amp. It had a faulty PSU board, on which G8BKE has done some work. The TWT is ok for about 1.5watts on 24GHz and over 10w on 3cm. **Price: £25,** delivered to anyone's door if they want it.

73, Bob, G3GNR

From: Gus Coleman, G3ZEZ, [gus@kestrel84.freeserve.co.uk]

I have the following equipment for sale:
A **complete 38GHz link** consisting of a Gabriel Electronics dish type HE1-E380(DMC) suitable for 37-39.5GHz.
Also Digital Microwave Corporation Spectrum 2 Link:
Tx 37.845-37.950GHz
Rx 39.105-39.210GHz
Dish and unit combined for mast mounting.
Offers please to G3ZEZ on 01255 425965 or email Gus Coleman at :
gus@kestrel84.freeserve.co.uk

Paul Wade's Website

The original site of the **W1GHZ 10 GHz webpage** is going away at the end of April and www.tiac.net will be no more, so the URL will no longer work.

Please update your bookmarks and links on other pages to:

www.w1ghz.org and my email to:
w1ghz@arrl.net

These addresses should last longer than most of the ISPs out there!

The **www.w1ghz.cx** URL should continue for a while - it's paid up through 2004, but the Christmas Island registry seems to be defunct.

www.qsl.net/n1bwt is also alive and well, and I'll be working on making that a true mirror site as a backup, since the current host for my main site may not be permanent. If you find any broken links, or any that still point to tiac.net, please let me know.

SO YOU THINK YOU KNOW ALL ABOUT CRYSTAL OSCILLATORS? …. PART 2: THE REPLY!

From: Chris Bartram, G4DGU, [chrisb@chris-bartram.co.uk]
Sent: 04 April 2002: Subject: Crystal Oscillators

I've just received my [March 2002] Microwave Newsletter, and I'm a little concerned regarding the notes about crystal oscillators. While I largely agree with the first 60% of the notes, I'd very strongly suggest that the section about crystal oscillator circuits be renamed 'Here's how NOT to do it', at least for microwave applications!

I've designed a large number of crystal oscillators in the course of my job over the years, many of which my clients have put into large scale production. As part of the design process, I've looked analytically at most of the common designs of vhf overtone oscillator, and come to some conclusions based on hard-headed analysis. As I'm expecting to move house in the next few weeks, I don't have time to write more than a few notes, but perhaps these comments will be useful.

One of the most useful indicators of crystal oscillator performance is the loaded Q of the crystal. The more energy retained in each cycle by the crystal (the greater the loaded Q), the smaller the effect of the maintaining amplifier, and the greater the stability and the smaller the level of the phase noise. Off course it's not quite as simple as that, and the hf noise figure and 1/f noise performance of the maintaining amplifier as well as the power levels and limiting strategies within the oscillator
all play their part. To a first approximation, these are all related by simple linear maths. For those who want to go further there are books: Randy Rhea's 'Oscillator Design and Computer Analysis' is a good accessible start.

What is clear is that some very well respected designs aren't actually that good, and there are very large differences in performance between the good and the bad. I'm currently working on a very high performance local oscillator/multiplier strip for my own use, and I've run simulations using Genesys and Spice (and, in a couple of cases, Serenade) of oscillator designs using a model of a good quality 128MHz 5th overtone crystal (Qu = 64000) and NE856xx transistor(s) (a highly recommended device BTW) in the maintaining amplifier. These are my results after optimisation:

Single transistor Butler oscillator (like K3VOT's): Qu=2400
'Balloon board' Butler oscillator (typically used in many UK microwave designs): Ql=4600
Single transistor self-limiting impedance inverting oscillator: Ql=16000
Cascode Pierce oscillator with separate limiter: Ql=24000
Cascode Driscoll oscillator with separate limiter: Ql=33000

The Driscoll circuit was originally designed for use in 5MHz frequency standards, but it can be made to work very well at VHF. It's capable of extremely good noise performance, while not over-dissipating the crystal.

My oscillator strip uses a cascode Driscoll with some additional circuitry to further improve the very close-in noise. It has facilities to phase-lock the VHF oscillator to an external standard. The design uses mainly 0603 parts and has 'no tweak' filtering. Currently the output is in the 400MHz region, but I'm working on multipliers into the microwave region. Currently the board is out for manufacture (it would be too difficult to make at home) and I'll report further when I've built and measured it.

73 from Chris, G4DGU

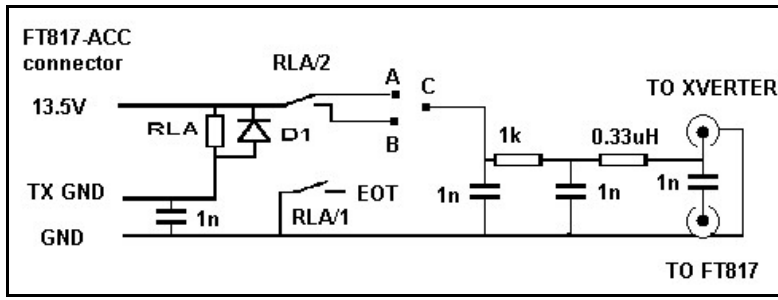
Chris Bartram

Interface circuits for the FT817

Dave Robinson WW2R

After getting enquiries after the mention in the February 2002 newsletter about how to interface the Yaesu FT817, here are two circuits I use.

Interfacing to a transverter:



For IC202: connect points A and C
For IC402/FT290: connect points B and C

This unit simulates either an IC202 (9V on RX) or IC402/FT290 (9V on TX). For RLA I used a very miniature DPDT relay (the antenna changeover relay from a Pye PF2UH!), mounting the components in a small diecast box with a miniature 6 pin DIN socket for the FT817 connections. I then have a lead from the accessory socket of the FT817 to the interface box. The advantage of this is that I can use the same box with a miniature 6 pin din to 13 pin din lead and use it to interface with an IC706mkIIG. The input and output connectors are UHF. The box also produces a ground on transmit signal on a 3.5mm socket to control other circuits.

When the unit is completed make doubly sure there are no shorts on the 13.8V pin, as measured at the miniature 8 pin din aux plug that goes into the FT817, unless you have 40/40 vision and would like to learn how to remove the main FT817 PCB to replace an 0604 chip resistor! *If you are worried about this possibility, provide the 13.5V from a supply external to the 817.*

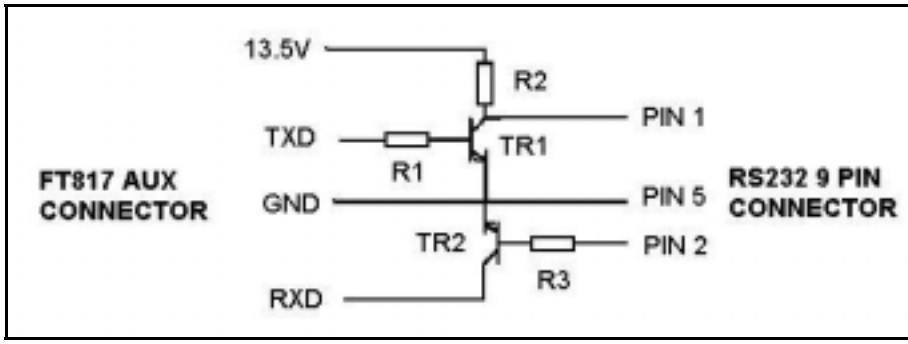
Computer Interfacing:

Loading the memories of the FT817 before a contest was a pain, until I discovered the FT817 commander software by Simon Brown HB9DRV (ex GD4ELI!) at:

http://www.kns.ch/sysgem/hb9drv/

All I needed was a cheaper RS232 interface than the Yaesu CT62. I came across a circuit of Russian origin that only required 2 NPN transistors and 3 resistors arranged as on the next page.

The transistor types aren't critical, I just had some 2N3904 around. R1=R3 =39k, R2=3k9. I built mine easily into the 9-pin RS232 connector using 1/8W resistors with a lead connecting to the FT817 auxiliary connector.



Other Notes:

Be aware that, even with the FT817 turned off, there is still 13.5V on the aux connector 13.5V pin. Don't leave accessories plugged into the aux socket when running off batteries or they will flatten. For those worried about conserving every last mA of battery drain, see the KA7OEI web site, **http://www.ussc.com/~turner/ft817pg.shtml**, where the matter is thoroughly investigated, along with lots of other related topics.

My radio bought in the USA was supplied with a ferrite choke but nothing to say why (my addendum sheet was missing). I soon discovered why whilst using it for talkback with W5LUA on 432.1MHz SSB. RF gets into it and it is so distorted as to be unreadable. It doesn't matter if you are using the helical antenna on the front panel or back panel, same effect. I couldn't repeat the effect on any other band/mode, even the HF bands with the ATX whip. Putting the choke on the external power lead close to the power connector cured it on the Yaesu supplied DC power chord. Interestingly when powering the radio off an external G3TUX power adaptor (http://www.g3tux.co.uk/) the same ferrite choke doesn't cure it. Having got tired of having to remove the radio from its leather case every time I wanted to plug in his adaptor (because it has a right angled plug which wont fit easily through the hole) I chopped it off and fitted a straight plug with a 100pF chip capacitor soldered across it and that fixed the problem.

TROPO PREDICTION WEBSITE ….

Charlie, G3WDG passes on the following very useful URL. It could be of much help in forecasting propagation conditions on the VHF and microwave bands in your area:

http://www.iprimus.ca/~hepburnw/tropo_nwe.html

(The information came to Charlie via Jonathan HB9DRD)

WILL YOUR ANTENNA STAY UP NEXT WINTER?

WA1MBA's microwave reflector on the Internet is always an interesting forum for discussion. Here's one of the latest items ... it should be of interest to those readers who have or who are thinking of having a home station microwave antenna based on the old principle: " If it stayed up this winter it wasn't big enough" !

From: microwave-admin@wa1mba.org on behalf of Matt Reilly [matt.reilly@rcn.com] Sent: 29 March 2002 03:23
Subject: Dish antenna wind loading calculator:

This is a gross rule of thumb. It derives from the Rad Lab series. Back during WWII, the folks at the Rad Lab did a study on dish wind resistance ... lots of wind-tunnel models, studies, measurements but all relatively crude. They came up with 40lb/sqft of antenna area in a 100mph wind. Andrew re-did all the studies in the sixties with much more expensive wind tunnels, lots of different orientations of the dish in relation to the wind direction, lots of different materials/surfaces/meshes. They came up with a max of about 40lb/sqft of antenna area in a 100mph wind.)

So, the worst case force on the dish will be

F = k*v^2

This is a gross over simplification but I'm not sure this is the place for all the equations that none of us really understand. Gentle reader, if you understand the governing equations, especially under conditions of compressibility, please send me mail, as I'm looking for some advice on numerical solutions to the Navier-stokes equations.

The empirical evidence is that k = 40 lb/ft^2/10^4mph^2.

So, a 30" dish in a 50mph wind produces:

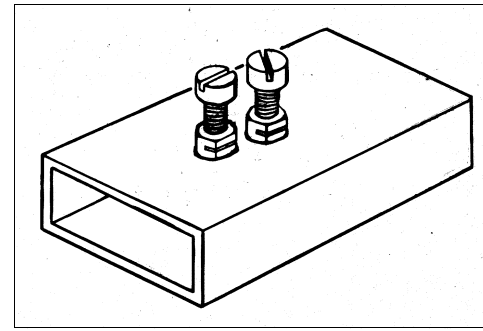
F = (40 / 10^4) * 50 * 50 * 1.25 * 1.25 * 3.14
= 50 lbs.

I wish to heck I could come up with the reference! When I'm in the files next, I'll look for it. The major interesting tid-bit I got out of the Andrew study was that the maximal force was, of course, NOT when the wind was normal to the face of the dish. As every sailor knows, you get a lot more force out of the sail when it is acting like a wing than you do when it is acting like a bag.

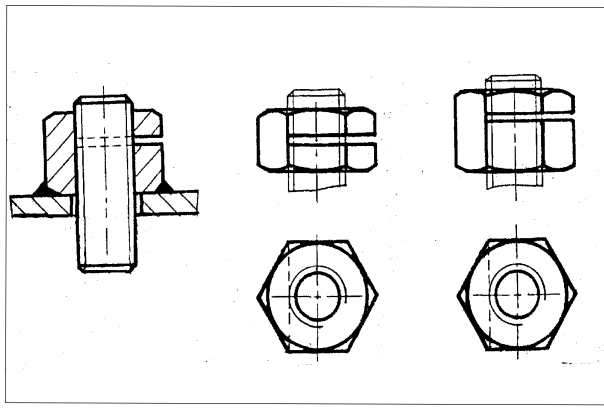
73 from Matt

Self Locking Screws for Microwave Adjustments

... by André Jamet F9HX

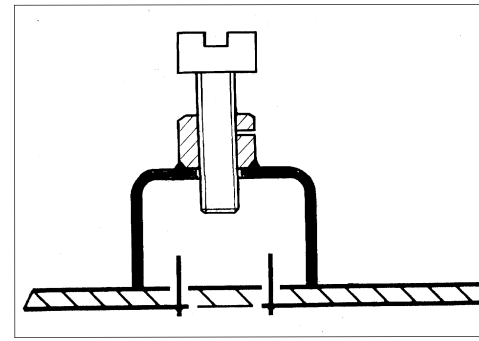


We often use screws to adjust microwave devices like filters made with copper, plumbing caps, frequency adjustment of DROs or as matching sections in a wave guide. Unfortunately it's not all that easy at times to securely lock the nut after adjustment and, indeed, instability can take place during adjustment. We can use a drop of varnish or to put a complementary nut to secure the assembly. Detuning sometimes occurs after adjustment.



One solution is to use a special nut with a slot in its head. This kind of nut is not commonly available in small nut sizes, so we have to manage ourselves using an ordinary nut, preferably made of brass, and to cut a slot with a junior hacksaw as shown in the diagrams left. To have the desired effect we have to slightly compress the head in order to get a little tightening when the nut is screwed. In this way we can get good contact during both adjustment and after setting.

In fact, for me, it's easier to do it rather to explain it! Just study the drawings and you'll see what I mean .....

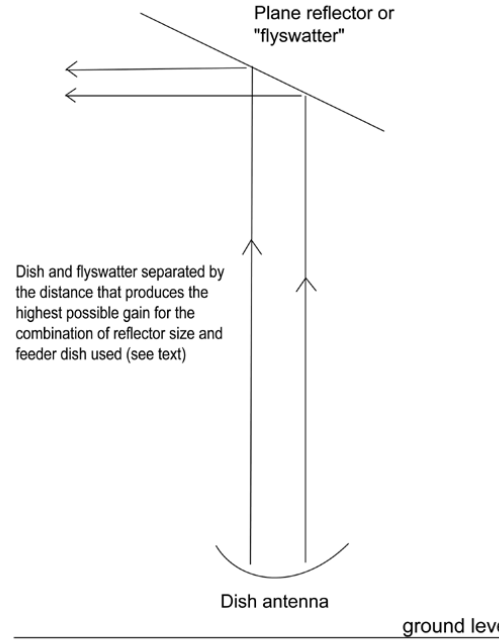


THE FLYSWATTER MICROWAVE ANTENNA

…. including notes from Doug, GW3ATM

In an effort to develop a decent 10GHz home station antenna system, Doug, GW3ATM, has turned to the Flyswatter Array. Pioneered many years ago in the UK by Mike Walters, G3JVL and Dain Evans, G3RPE, it does not appear to have received the attention it deserves. When correctly set up, the system offers a very good performance, often comparable to a moderately sized dish antenna at the same height. Many of us have problems erecting a dish at a reasonable height because the most efficient way of feeding it usually involves having the microwave transverter either immediately behind or just below the dish and effectively out of reach for easy access. The associated weatherproofing problems deter many folk from using this approach. Feeding the antenna via a long length of waveguide is another alternative but this usually means having some sort of rotary waveguide joint at the base of the waveguide and using a length of flexible waveguide or coax section to get around the rotator. Losses are necessarily greater when this latter method is employed.

The flyswatter antenna uses a very low loss feeder ... air! Basically, the microwave transverter is placed at or near ground level, where it can easily be adjusted and even taken indoors during periods of non-activity. Some distance directly above the transverter is a plane reflector, angled so that the radiation from the transverter's antenna (which is conveniently a small dish or even a horn) is reflected out horizontally to the surrounding area (see diagram right). The lower antenna doesn't need to be exactly underneath the plane reflector as the angles involved can easily be adjusted to compensate for any deviation from the vertical.



Small offset fed dishes provide excellent feed antennas for flyswatter systems since the transverter and its feedhorn can be mounted so that they do not point up into the sky from where they might get an input of rain during bad

weather. They also tend to be more efficient than rear fed dishes using, for example, the "Penny" feed.

The distance between the dish and the plane reflector is effectively a compromise based upon the relative gains of both dish and reflector (which in turn are a function of their physical dimensions). Unfortunately there is not room here to discuss this aspect in the detail it deserves! Paul Wade, W1GHZ, presented a fascinating paper on the subject at Microwave Update , held in Philadelphia, USA in September 2000. The paper can be found in the Proceedings of Microwave Update 2000 (available from the ARRL) and on Paul's outstanding website at: **www.w1ghz.org** . Interested readers should refer to either of these resources.

GW3ATM's flyswatter system consists of a 48cm diameter, ex-BSB, offset fed dish, mounted just above gutter level on a rotary, guyed pole, next to his bungalow. The dish is fed with an ex-Amstrad, sat-TV feedhorn (widely available at rallies). The aluminium, plain reflector is 1mm thick and measures 23 inches by 33 inches. It is fixed 11 feet above the BSB dish. A sat-TV screw jack, fixed on a bracket on the opposite side of the mast to the reflector, is used to vary the tilt angle of the flyswatter. The pole, dish, plain reflector and transverter are so arranged that they all rotate together. If the dish and reflector did not move together there would be a change in the polarisation of the reflected signal. This problem was clearly demonstrated in Paul Wade's Microwave Update talk, when he used a laser pointer and plain reflector to "beam" the light at the four walls of the lecture room!

GW3ATM places his 10GHz transverter on a small platform, mounted on the same pole and just below the dish, so that a short and easy connection can be made to the offset feedhorn.

Results so far have all been in receive mode only but have been very encouraging. From his home at Llandogo, Monmouthshire, he can hear the Cleeve Common 10GHz beacon, GB3CCX, at good strength from two directions, via reflections from nearby commercial towers. He cannot hear this directly at ground level. G4UVZ has also been heard and he believes he can just detect the new Dorset beacon, GB3SCX. Doug is looking forward to the coming microwave "season" when he hopes to work many stations several hundred kilometres away. Rainscatter propagation should also provide very interesting results now that the reflector's tilt angle can be remotely adjusted.

The Flyswatter antenna system offers the home station operator a convenient and efficient way of making the most of his or her location.

WIDEBAND FM ... HERE'S A THOUGHT ...

From: Chris Bartram [chrisb@chris-bartram.co.uk]

Why are people thinking about trying to breath new life into old wideband gear? Better by far to use a scanner and a simple 176MHz VCO (464MHz in my case) combined with an existing narrowband transverter? I don't know what the bandwidth of other people's transverters is, but even if one's systen is 10dB down, it's still likely to be very significantly better than the old Gunn based technology.

SIX METRES TO MICROWAVE CONVENTION

A REPORT ON THE EVENT HELD ON 6 APRIL, 2002

This new event on the Amateur Radio calendar was organised by the UK Six Metre Group, the RSGB VHF Committee and the RSGB Microwave Committee. For a first attempt it was quite successful, with 140 day visitors and 50 at the dinner. Many lessons have been learnt, as one would expect, so next year's event will be even better.

The venue was Rease Heath College, Nantwich, Cheshire, and it proved to be an excellent choice, within easy reach of the M6 motorway and Manchester Airport. On site accommodation was available for those who wanted to arrive on Friday evening and stay until Sunday morning if need be. The standard of catering was first class, with an excellent "all day breakfast" available in the on site restaurant.

Each organising group had a stand in the main hall, alongside other exhibitors such as G.H. Engineering and Vine Antennas. Sadly, due to lack of support, the Microwave Committee stand (photo left) was quite minimal and was in danger of becoming known as the G3PHO/P exhibition until G4DDK and G0CZD arrived with their UK Microwave Group literature! It was visited by several microwavers during the day, some of whom had travelled from far afield ... David, VK5KK being the best DX! Other welcome visitors were Uffe, PA5DD and Jonathan, HB9DRD (G4KLX).

The other groups were better represented, with the UK Six Metre Group appearing to dominate the event. They are certainly a very keen but rather turbulent collection of enthusiasts!

The programme of lectures included an interesting talk on High Voltage Power supplies, by Ian, G3SEK. This was especially relevant to your editor who, a couple of days earlier, had burnt a hole through the end of a finger as result of accidental contact with a bare 2.5KV feed to his HF PA ! Due to lack of offers of microwave talks, the only microwave lecture was given by G3PHO (Microwave Update 2002). In addition to the lectures, a number of RSGB Contest Trophies were presented.

Perhaps the most enjoyable part of the whole weekend was the social side. A superb dinner was held on the Saturday night. It offered the opportunity for attendees to meet each other, often for the first time. The photo on the right shows, left to right, HB9QQ, G4ASR, G4ALY and G3PHO. For the writer, the meeting with Pierre Pasteur, HB9QQ, was a special occasion as his previous contact with him was back in the late 1950's when SWL G7268 (as G3PHO was then) heard HB9QQ on 50MHz cw and received a coveted QSL card for his listener report! Another pleasurable meeting was that between G4ALY and G3PHO. After dozens of contacts on 80m and 10GHz they finally met up in person.

Our thanks go to all involved in the organisation, especially Simon, G8ATB, who virtually carried the Microwave Committee side of things, and to Dave Butler, G4ASR. Dave is busy planning next year's event so please support him as much as you can!

ACTIVITY NEWS FROM THE WORLD ABOVE 1000MHz

The **Dorset beacons** announced last month seem to be doing really well. Reports have been coming in that suggest we possibly have the most useful collection of microwave beacons in one place! Other regions are following of course... the Telford group have plans to put beacons on every microwave band to at least 24GHz and indeed already have some of them operational.

The first beacon report comes from **Neil. G4LDR, in Wiltshire**: It is good to have all beacons operating and the on-site team did a great job in getting everything ready. I only managed to make it to the site a few times including a very wet Sunday in March. Having offered to build the 5.7GHz beacon several years ago it was finally completed with help from Andy G4JNT late last year. The 1 Watt PA I got cheap from Dave G4ASR (it really was for the beacon!).

The path from Bell Hill to my QTH would be line of sight if the earth were flat, however in reality there is one obstruction approximately mid path. The distance is 51 km.

Receive equipment is; 2m IF (70cm on 5.7GHz) using an FT736. Antenna on 2.3GHz is 66 element loop yagi. On 5.7, 10 and 24GHz I use a 90 cm off set dish with feeds side by side (I have to move the dish a few degrees to peak different bands). DB6NT transceivers are used on 2.3, 5.7 and 10GHz. On 24GHz I have a DB6NT preamp and transverter.

Average signal strengths with the tower wound down, antennas at 7 m agl (QTH 145 m asl) are as follows.

2.3GHz - S8
5.7GHz - S9 + 10 dB
10GHz - S9 + 5 dB
24GHz - S1 to S2

Average signal strengths with the tower wound up, antennas at 15 m agl (QTH 145 m asl) are as follows.

2.3GHz - S9 + 5 dB
5.7GHz - S9 + 30 dB
10GHz - S9 + 20 dB
24 GHz - S6 to S8

There appears to the normal trend in signal strengths during each day, which is signal strength decreasing from early morning reaching a minimum during the afternoon then increasing and peaking mid evening (at least 10 dB above the average strengths given above). This is most noticeable on 24GHz where signal strengths one evening reached S9 + 40dB. On that occasion I could hear side bands every few kHz for 30kHz either side of the main carrier. Not sure if they are really there or whether it's receiver overload! (Had the same effect when I was on the beacon site with my 24GHz gear).

Eventually I would like to set up an automatic logging facility along the same lines as G8ACE described in the recent Newsletter, for all the bands with weather monitoring facilities at the beacon site as well as the home QTH.

I would be interested to hear from anyone who has experience in the long term monitoring of 24GHz beacons to see if the results I am getting agree with their results.

73, Neil, G4LDR

From: Chris Towns, G8BKE, Hampshire [Ctowns@tesco.net]

Like Neil, G4LDR, I have been monitoring the new Bell Hill beacons over the past few weeks and was interested to watch how things developed over the Easter period when there was some tropo enhancement. The path to me is almost LOS (45km) and there was a notable increase in signal level, more noticeable with the 3.4GHz beacon than the others, although the 24GHz may have also increased in level too, but I am unable to monitor that as yet. I also see the daily change of signal levels noted by Neil, with enhancement in early morning and late evening.

From:John, G0API, [jfell@crydom.com] Dorset.

As promised here are some figures for the beacon complex ...

GB3SCS - 2320.905MHz - 1dbW erp
GB3SCF - 3400.905MHz - 7dbW erp
GB3SCC - 5760.905 MHz - 7dbW erp
GB3SCX - 10368.905MHz - -1dbW erp
(minus 1dbW)
GB3SCK - 24192.905MHz - 4dbW erp

If using the G4JNT terrain plotting software (or anyone else's) it is better to use the NGR ST799083 as the ridge that the 15m mast is on is very narrow and the 100m uncertainty of the extended locator tends to indicate the beacons are below the top of the ridge , which they most certainly are not. Wind burns and the remains of wintertime frostbite testify to the exposed nature of the site!!

To date we have had several e-mail reports from around the compass and more would be welcomed from fixed and portable stations over the coming contest sessions. I hear, second hand, that John G3XDY has heard the 3.4GHz beacon GB3SCF at home so the recent high pressure /foggy local conditions seem to be working. It will be interesting to see if we get any reports from the low countries - in past years when contesting with the Flight Refuelling ARS from this site we have won the UHF legs of various contests by the quantity of PA and DL activity.

Those who worked G4RFR/P several years ago on 10GHz (that was G0API &G4JNT) will also be familiar with the site , although then our 1.6m dish was only 2m agl and well below treeline in many directions.

By the way, my missus Sue, G7MHO, thinks she should be credited with part of the construction as she was the one who cooked the tea for G4JNT and G3YGF and I after our many weekend forays " up the bloody Hill" !! She did not complain (much) when we did the rack mounting metal bashing in our spare bedroom - but she was a bit miffed when we ran separate receivers on all bands simultaneously in our lounge during her favourite TV program (typical G7)!!

At 21km line of site it is nice to be able to get "end stop" signals on feedhorns , unlike the situation over the last 8 years of Beacon keeping where I needed masthead high gain antennas and pre-amps. I will miss the rainscatter enhancement but I can live with that. Next project ... a 47/76GHz beacon??

From: G6GXK, David Wrigley [davidwrigley@ntlworld.com], Rochdale, Lancs.
Quite by chance I was encouraged to get my "M3" call sign in February and subsequent experiments have shown a need for an external antenna - another diversion. I'm currently using a zig-zagged dipole in the loft via a home made ATU - I have made it as far as the Ukraine with 10W SSB on 40 metres. This has triggered the building of the Peter Rhodes, (PicATUne) Automatic ATU for the proposed end fed wire and counterpoise. I should have that finished in the next two weeks and then perhaps you will hear me on the 80m microwave net. I just need to fine tune the home made capacitors and make the glass fibre box.

A few days ago, I managed to get hold of a scrap caravan with a good chassis as a base for the 2.2m dish - so that project is also moving onwards. I'm currently ripping off the caravan body so that I can get to the chassis for sand blasting and painting. It has four good jacking legs - so it should be a good stable platform.

The 24GHz beacon is progressing - but very slowly - proposing to build up the bottom end in a rack system. I have to say that I am very disappointed at the lack of progress with the 10GHz beacon licence. This is due to communcation problems with the "powers that be"!

The 24GHz transverter is awaiting a new cassegrain reflector system. I will be testing it with the horn only, when I get the chance, with a local call to Dave, G0IVA. I am building a 24GHz version of the 1KHz AM Gunn Diode system for Antenna testing - using a Gunn diode/ mixer assembly I bought at Martlesham.

From: G8DKK, Bryan Harber [bryan@harber.f9.co.uk], Letworth, Herts.
It seems a long time since I last e-mailed the Newsletter and you have my apologies. I have been striving to finish the rebuild of my 10GHz transverter system for the forthcoming cumulative season and have now had the transverter in place for 2 weeks. I'm very pleased with the way the Rx is working. The new system is really just a re-packaging of the old 'WDG system in a waterproof plastic box mounted directly under the dish. The downside of the system compared with previously is that the Tx power is only 150mW from a 'WDG006 PA, considerably down on the TWTA I used to run including the losses from TWT to dish (circa 4dB).

I now have the HEMT preamp just 5cm of UT141 and 80cm of waveguide away from the 40cm dish. Initial results appear to show I can just hear GB3CCX most of the time over the 123km obstructed path to Cleeve Common and the local beacon, GB3SWH at Bushey, is 559 all the time. The last 2 mornings, 16th & 17th April I am also hearing GB3SEE at 529 but I have not heard it during the evenings - early morning lift conditions I think.

I have so far had one contact with Harold, G3UYM, over the 5km path to nearby Hitchin, at RS59 of course, so the Tx is working. My next objective is to acquire a DL2AM, 6W PA to get back to the former TWT power but this is real money of course!

I have been active during the Tuesday RSGB activity evenings on 23cm and 13cm and renewed activity on Monday last working: G4BRK and G4NNS on 144.175 (but failed with both on 3cm either way).
73 from Bryan, G8DKK.

That's it for this month... please send your news, views and articles to the editor by the end of the first full week in May, if you want them published in the next issue.