An Amateur Radio publication for the Microwave Enthusiast

scatterpoint

Published by the UK Microwave Group

2009 FEBRUARY

In the "good old days" of 10GHz wideband FM, many of us had to climb mountains to make a decent microwave contact!

The photo right, taken in the mid 1980s, shows Eric, G3MWN as GW3MWN/P on Snowdon summit, North Wales. At over 3000 feet asl, it gave a 245km line-of-sight path to Cairnsmore of Carsphairn in SW Scotland, the longest LOS path in the UK. At the Scottish end of the path were G3PHO/P and G1BHQ/P (using GM prefixes). The Gunn diode TXs ran at 5mW o/p. The RXs were IN23 diodes. Talkback was via IC202 3W ssb handhelds ... No KST or Windows PCs in those days! Q5 contacts were made on open waveguide!

In this issue ...

Latest News ...

- **RAL online registration now open**
- **New venue for Sheffield (South Yorkshire) Microwave weekend**
- **Microwave Update in Texas this year**

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

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From the Editor's Desk

The recent cold weather in the UK does not seem to have deterred some people from getting on microwaves if the reports of snow scatter contacts from 5.7GHz to 24GHz are anything to go by. For those of us who only have portable stations it has, in some cases, meant staying in a warm shack working the HF bands! Several well known microwavers, including DL3YEE, G4PBP, your editor and even DB6NT have recently been spotted on bands far removed from those above 1GHz!

Our thanks go, as usual, to the contributors to this month's newsletter. It's always gratifying to find an article in the email box, just when you think there's going to be nothing for the next edition of Scatterpoint. However, the cupboard is now bare so please send your technical articles and other microwave information to the editor as soon as possible if you want a March Scatterpoint!

Last month we published two thought provoking letters from a couple of our readers. We received only a couple of replies from the rest of you. It looks as if the original letters either met with almost everyone's approval or most of you can't be bothered to send in your own views! Remember that this newsletter is also a forum for discussion but lots of readers seem to want to avoid it. Don't be shy ... if you agree or disagree with last month's letters please say so and we'll be happy to publish a selection of your comments next time. One reply appears on page 14 in this issue.

Finally, please take a look at the opportunities available to meet your fellow microwavers. UKuG Round Tables are scheduled for April and July while the Mecca for all microwavers, Microwave Update, is taking place in Dallas, Texas in October. Those of you VK/ZL in mind might care to take in the April event in New Zealand. Full details are in this issue**.**

73 from Peter, G3PHO

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 Friday at the end of the first full week of the month** if you want your material to be published in the next issue.

IMPORTANT … PLEASE READ!

While we do our very best to ensure that you all receive your **Scatterpoint** each month, there are occasions when there is a 'hiccup' and someone doesn't get a newsletter or receives apparently invalid info regarding renewal dates, etc. Would all readers therefore please note the following:

RENEWAL DATE ON ADDRESS LABELS
This applies to all readers of the paper version of Scatterpoint, posted by "snailmail" each month. At the foot of your address label is your renewal date. **It's in the American format: Month/day/year**. At the time of writing this, our printer has a problem with his database software. It changes the mailing list we provide from the day/month/year format into the above mentioned American style! He's tried everything but the conversion still takes place. **So, until further notice, please be aware that the renewal date is shown as Month/Day/Year!**

UNDELIVERED EMAIL SCATTERPOINTS
If you do not get your Scatterpoint by the last day of a particular month, please only email the editor, G3PHO... not the treasurer or any other officer of the Group. Do not wait several months before you do so! Only Peter will be able to supply missing copies.

INVALID EMAIL ADDRESSES
Please advise both secretaries and the editor of a change in your email address as soon as it takes place. Otherwise your newsletter may not be delivered. Every month the editor finds one or two addresses that "bounce" and often cannot cannot contact that person to get the correct address. Some readers allow this situation to go on for months! **The obvious solution for all recipients of the electronic Scatterpoint is to use the Scatterpoint Yahoo Group... see September 2008 Scatterpoint for details.**

FAROE ISLANDS 23cm BEACON

The beacon is qrv on 23cm.

The frequency is 1296.880.0 on my Icom IC970H

It is about 650 m.a.s.l and is beaming about 150 degrees true from Loc IP62MB

Vy 73 **Jon, OY9JD**
15 Jan 2009, Faroe Islands

UK MICROWAVE GROUP SUBSCRIPTION INFORMATION

The following subscription rates now apply. **Please make sure that you pay the stated amounts** when you renew your subs next time. If the amount is not correct your subs will be allocated on a pro-rata basis and you could miss out on a newsletter or two!

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. From now 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.

Renewal of subscriptions requiring a **paper copy** of Scatterpoint are as follows:

Delivery to:	**UK £**	**US $**	**Eur €**
UK	14.00	-	-
Europe	18.00	36.00	26.00
Rest of World	24.00	48.00	36.00

Payment can be made by:

*** 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 2009 is:

UK	**£6.00**
US	**$12.00**
Europe	**€10.00**

This basic sum is for **UKuG membership.** For this you receive Scatterpoint for FREE by email. If you want a paper copy **then the higher rates apply.**

UK Microwave Group Microwave Round Table

Rutherford Appleton Laboratories Didcot Oxfordshire 26 April 2009

The UK Microwave Group is pleased to announce the first of this year's Microwave Round Tables. The event will be held at the Rutherford Appleton Laboratories in Oxfordshire on 26th April 2009. Information about RAL can be found at: (http://www.scitech.ac.uk/About/Find/RAL/Introduction.aspx)

As well as a full afternoon lecture program, there will be test equipment facilities available all day, covering the microwave bands, and a surplus swap meet. It is the ideal meeting place for both experienced microwavers and those who may interested in starting on the bands 1GHz and up.

Due to security restrictions **all visitors must pre-register** and details of how to do this are now on the UKuG website: **www.microwavers.org**

Programme:

10.00:	Doors open. Please DO NOT attempt to gain entry before this time as we need to give the organisers time to prepare.
ALL DAY:	Test equipment facilities/display of equipment/ surplus swap and trade
1230-1330	Lunch
1330-1340	Formal welcome: G4NNS Chairman UKuG
1340-1400	Presentation of Special Awards
1400-1430	G4HJW – 'Using unmodified satellite LNBs in high stability receiver applications'
1445-1530	G4BAO –'The Bodger's Guide to LDMOS power Amplifiers'
1530-1545	Break
1545-1630	G8UBN – 'GeMMA - (Signal) Generator for Multiple Microwave Applications'
1630	Meeting closes

In addition to the main event there is planned to be an antenna test session on Saturday, 25th April, at G4NNS's QTH, followed by a social get together at The Cricketers Arms, Tangley.

For further information contact:

Brian Coleman, G4NNS, brian-coleman@tiscali.co.uk

or

Lehane Kellett, G8KMH, g8kmh@mm-wave.com

Microwave Update will be returning to the Dallas area for 2009 and will be sponsored by the North Texas Microwave Society.

Conference dates are October 23rd through October 25th, 2009.

The conference will be held at the recently remodelled Weston Hotel:

The Westin, Dallas Fort Worth Airport, 4545 West John Carpenter Freeway, Irving, Tx 75063

This is the same hotel (then called the Harvey) where the 2004 Microwave Update was held. Thanks go to Al Ward, W5LUA, and Bob Gormley, WA5YWC, who negotiated an excellent **conference rate of $89 per night** (plus applicable taxes). Reservation details will be forthcoming and a special website will be setup to handle reservations (and an 800 number for those that do not have access to the web).

As in previous years, the conference will start with a surplus tour on Thursday to several local surplus and radio spots including Fry's Electronics, Tanners (family run electronics and surplus business), Harbor Freight, CDC (surplus tools), Texas Towers and perhaps others. The technical presentations will be held throughout the day on both Friday and Saturday.

Along with the traditional noise figure measurements, we are planning antenna gain measurements in the parking lot and a "rover row" for microwave rovers to park and show off their rigs. Measurements on equipment will be made through 47GHz (or higher with advance notice). As is always the case at Microwave Update, a gold mine of prizes will be handed out at the banquet on Saturday night --- if you would like to donate prizes, please contact our prize chair, Eric Silverthorn, NM5M.

Papers will be accepted in any area of microwave operating, equipment construction, measurement, roving, theory, etc. Kent, WA5VJB, will be compiling the proceedings. Please contact Kent if you have a paper for the proceedings. If you have a topic you would like to present at MUD, please contact Al Ward, W5LUA, who will be organizing the talks.

We have several other activities in the planning stages including a ladies program so there will be more information on this as our plans firm up.

Microwave Update is the only conference in the U.S. devoted to the amateur microwave bands that start at 900MHz. Attendees include the "who's who" of microwave operating in the U.S. as well as representatives from around the world including Europe, Japan and Australia. I'm looking forward to seeing everyone again in Dallas for some great technical discussions and friendship. Please forward this message to others you feel are interested!

73 from
Steve, N5AC
MUD 2009 Conference Chair

Bob Gormley, WA5YWC, MUD 2009 Director
Al Ward, W5LUA, MUD 2009 Director and NTMS Vice President
Craig Young, KA5BOU, MUD 2009 Director and NTMS President

EDITOR'S NOTE ... For a UK perspective on what being at MUD is like, and in particular the one held at Dallas in 2004, visit the following URL where all will be revealed:

http://www.g3pho.free-online.co.uk/microwaves/mud041.html

A 1296MHz VSWR / Power Indicator from junk

- by Gordon Fiander, G0EWN

This article, intended for relative newcomers to microwave operating, gives details of how to make a VSWR/power indicator cheaply from industrial junk. Commercial VSWR / power meters for 1296MHz tend to be rather expensive; by the route described below, a unit can be made for less than £10.

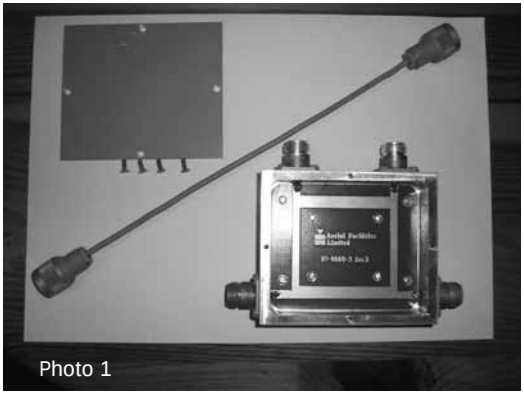


Photo 1

At the Sheffield Microwave Roundtable in July 2008, one trader (**Ref. 1**) was selling an interesting 4 port combiner/splitter (see **photo 1** left). The unit comprised of four N bulkhead sockets, a short length of semi rigid coax with two N plugs, a milled enclosure and PCB, made by Aerial Facilities Limited. The unit was intended for around 900MHz --- it would not work as intended at 1296MHz. However, I thought the enclosure might be useful for other things —possibly to house a filter or for other projects; the N type sockets / plugs alone were worth the cost.

It just so happened that I was working on my 23cm equipment following the Sheffield RT and I was looking to make measurements related to power and VSWR. It occurred to me that I could easily modify the 900MHz combiner/splitter to make a dual directional coupler/reflectometer with which to make VSWR and power measurements.

Photo 2, below, shows the modified unit---this only took around 30 minutes to complete.

1. Unsolder and remove sockets.
2. Remove PCB.
3. Modify / cut PCB using craft or 'Stanley' type knife as shown.
4. Add a few resistors and a couple of diodes. (Schottky diodes)
5. Refit PCB in enclosure and install two N sockets on 'through line'.
6. Fit covers fitted with 1nF feed-throughs and solder to tracks to diodes.

Once modified you will need a suitable meter, a variable resistor and a few other bits like a switch. (See ref. 2, 3 and 4 for details/ideas). Typically the meter should be around 50 to 100 microamp, 1k with a variable resistor around 10k but may require some experimentation). I used a meter from my scrap box ... it reads "Depth below Transducer" !!

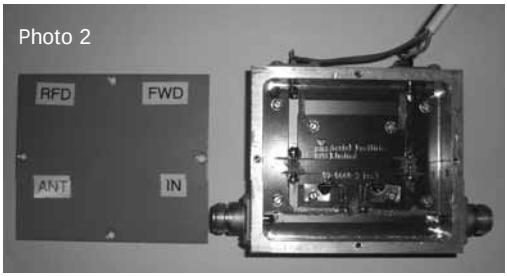


Photo 2

For readers outside the UK, your own surplus dealers may have similar power combiner/splitter units that could also be modified in a similar manner.

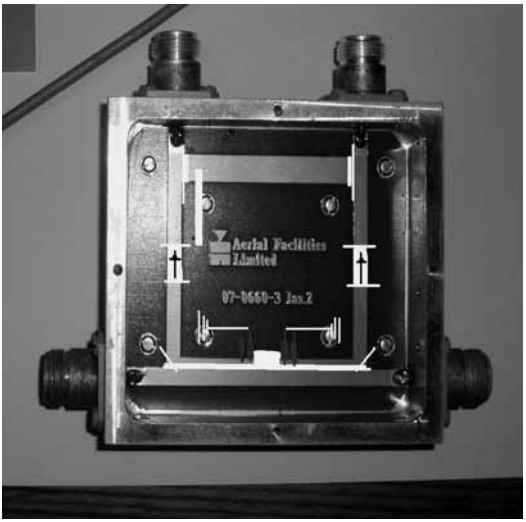


Photo 3, left, below gives a clearer view of where to cut/modify the PCB and parts placement.

As modified, the unit will work at 1296MHz with powers up to about 25W (coupling lines around 25mm, spacing from through line 3mm). This is ideal for the power from most commercial radios (10W) or transverters with single 'Mitsubishi type brick ' PA's.

The unit could be calibrated for power and, if you have 2 suitable meters, it would display forward and reverse power at the same time. Whilst those readers who have 'been around' sometime will be aware of the shortcomings and problems associated with using directional couplers for VSWR/power measurements, for the newcomer the unit will provide reasonably accurate measurements.

In any event, it's always good to see meters bounce around at the appropriate times; like LEDS, incorporate them into your station at every opportunity!

1. Contact Kevin G3AAF or Dave G3VZE at Finningley ARS on 01724711686 or check the Finningley website : http://www.g0ghk.co.uk/ where you will find a contact email address.
2. VHF/UHF Handbook, 11.3
3. Microwave Handbook, Vol. 2, Test Equipment
4. UHF/Microwave Projects Manual,11.15

Technology Convention 2009
Hamilton, New Zealand
11th and 12th April, 2009

This is about Amateur Radio related technology.

Registration forms will become available about the delivery time of the January/February NZART Break In Magazine (First Week February). It is important that accommodation is booked EARLY, as the V8 racing is on the weekend following the Convention.

Registration Forms can be requested by email at techcon09@nzart.org.nz

We are looking for speakers/presentations/demonstrations for durations of 15 to 45 minutes. A data projector and laptop will be available.

Please contact Kevin Murphy at rfman@xtra.co.nz ASAP with topics and expected duration.

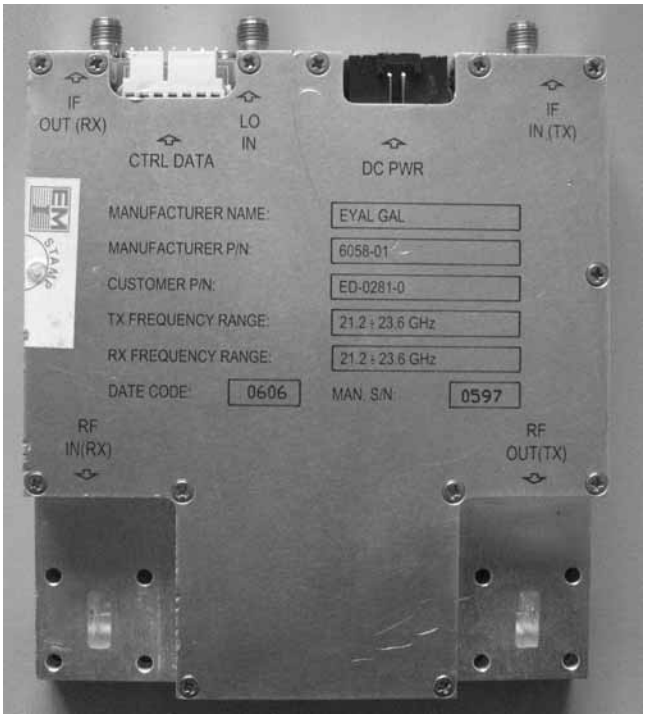
Electronic format is preferred as we would like to publish a Proceedings CD of the Convention.

If you are unable to attend but wish to provide a presentation for the convention/ proceedings, please contact me at the above email.

Kevin Murphy ZL1UJG

Eyal Gal 21.2-23.6GHz Transceiver

by Roger Ray G8CUB



These units, with the part number 6058-00, will work un-modified at 24.048GHz, with high side LO. This is good as it is impractical to change the RF circuitry! They consist of a combined transmit and receive system, needing just an LO at half frequency, a Tx output filter and a couple of relays to make a complete 24GHz transverter.

Measured performance on receive with a 432MHz IF, is as follows:

Conversion gain: +26dB
System noise figure: .3 to 3.9dB *
Image rejection (12.24GHz LO): -17 to –22dB *

Performance on transmit:

Output: +30.5dBm @ - 1dB compression
Gain: +53dB
Saturated power output on transmit: >1.2W

Supply requirements:

	Receive (Tx Inhibited)	Full Output
+8V	600-700mA	0.9-1.0A *
+12V	10-25mA	500-750mA *
-12V	120mA	100mA

*** spread shows measured results over three units**

My existing 24GHz system is an Alcatel unit using the Alcatel synthesiser, already with high side injection and 10MHz reference. So I was ready to try the Eyal Gal block.

A specification sheet was available on the web at:

http://www.eyal-emi.com/siteFiles/1/32/1081.asp

This suggested that operation on 24GHz might be possible. The original IF was 2.8 – 4.1GHz, so would they work with a 432MHz IF? The IF response measured was essentially flat down to 100 MHz, so it all looked hopeful. However, the RF response has rolled off around 4dB at 24.048GHz but this still leaves around 26dB conversion gain.

The real novelty for me, was that the available data included both pin-out, and voltages! The modules are designed for linear operation, so it was hoped to get around +27dBm out. In fact the first unit that I tried gave +31dBm, a very useful power level at 24GHz. Performance on receive is good with +26dB conversion gain, with the image -17 to -22dB and noise figure of 3.3 to 3.9dB . With the high transmit gain, it is necessary to use an input attenuator and, if required, to use the AGC control to turn the gain down.

On transmit it is necessary to use a filter on the output to reduce the LO and image to acceptable levels. The block dissipates a fair amount of heat when in transmit mode, so additional heat-sinking may be required for FM use.

Pin-out on the two connectors as pictured above, left to right, is as follows:

Connector 1 (6 way)

6	5	4	3	2	1
n/c	+8V	-12V	0V	n/c	+12V

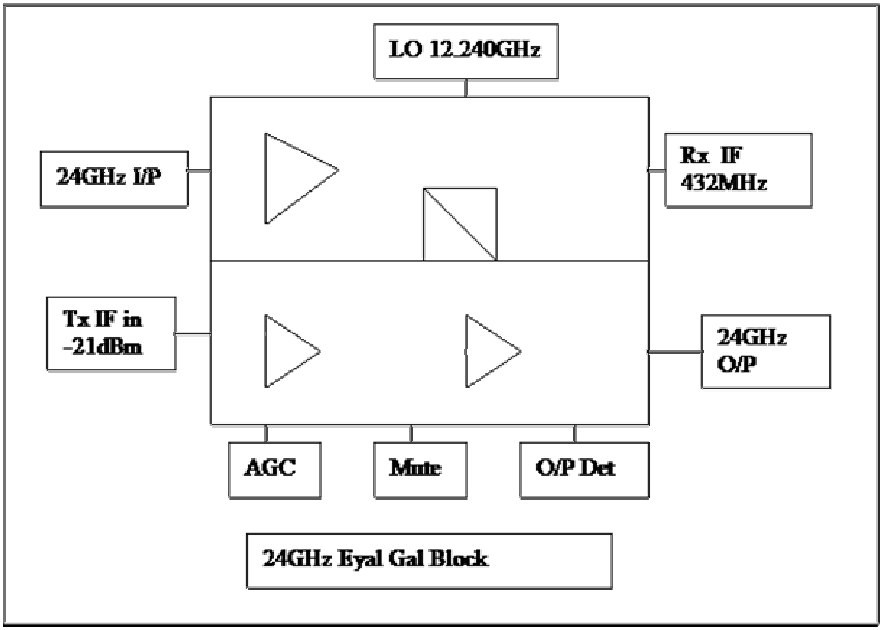
Connector 2 (7 way)

7	6	5	4	3	2	1
Rx Agc	Tx Det	AGC	0V	n/c	n/c	Tx Mute

Connections to the unit are by two, 0.1" pitch single in line connectors:

Tx Mute: 0V to inhibit
Tx Det: DC proportional to dB output power (log detector) Max ~ 4 V
AGC: 0-5V Control - from the data sheet turning the power down more than 10dB will limit the output power (I have not tried this & just left the pin o/c).

Local oscillator power required is +10dBm (@ 12.24GHz). Around -22dBm Tx drive will give you full output (at max gain). Both receive and transmit RF ports are WR-42 (wg20) waveguide.



Block diagram

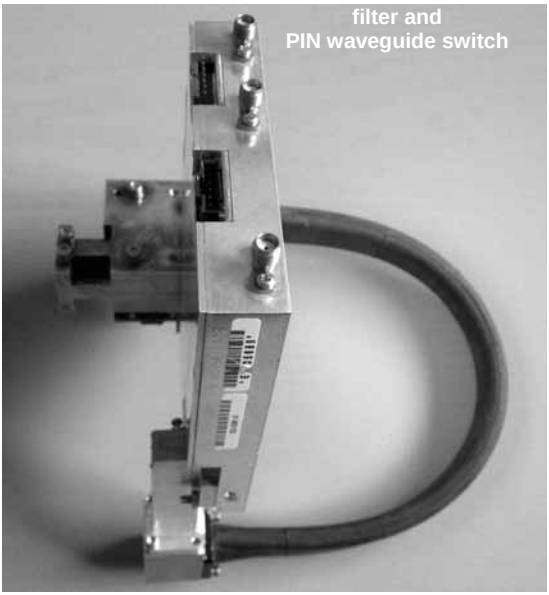
It is hoped that this type of module will help promote activity on 24GHz in 2009. Similar modules by other manufacturers may well work as well.

Availability
Modules are appearing on Ebay, again mainly from dealers in Israel. Any additional modifications will be posted on:

www.rfdesign.co.uk/microwave

73 from Roger, G8CUB

Email: littlemallards@hotmail.com



Microscope with camera on the cheap for under £40

... John M0ELS

Have you ever wanted to purchase one of those desk mounted magifiers which allows one to have a closer look at surface mount components etc, but were put off by the price? Well look no further!

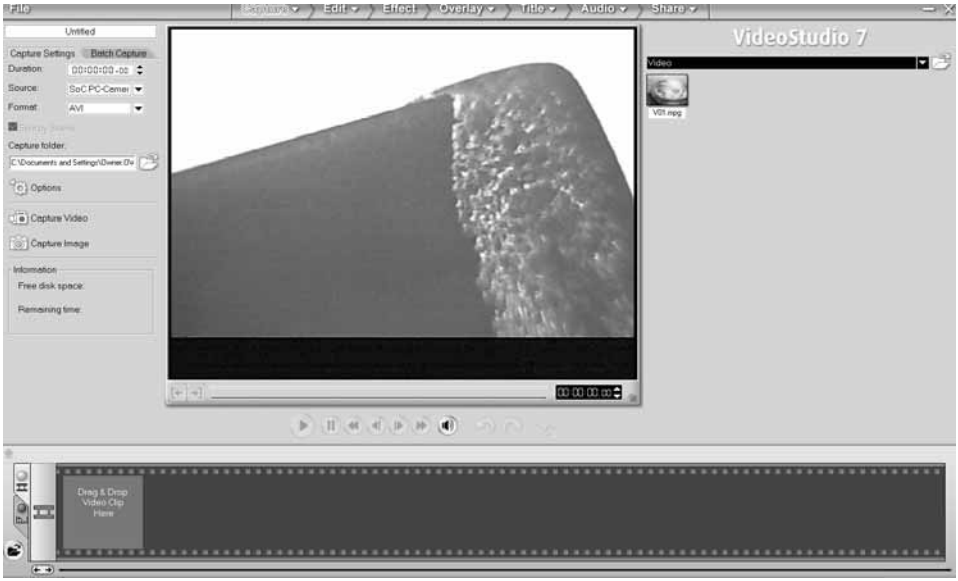
I discovered a 'kids' microscope that will do the trick but which will also allow one to see the object under test on a computer screen. Yes, the unit comes with a plug in camera which has a usb cable.

Simply install the included software and plug in the camera ... its as easy as that. The only other expense will be a good, strong, directional light source. The microscope has 4x, 10x and 40x and, by changing the eyepiece, to 1024x magnification.

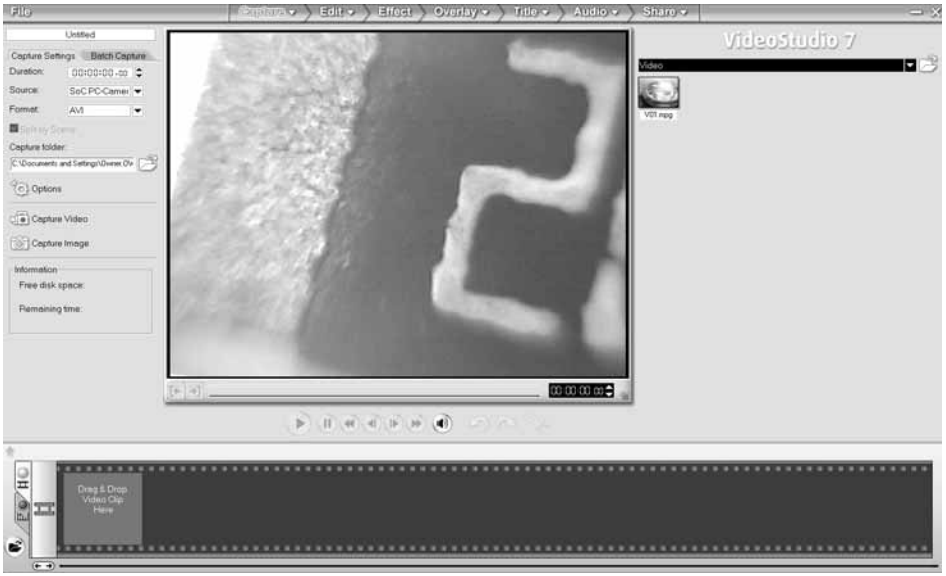
This unit was purchased as a Christmas present for my son who took one look at it and said, "Do you want it dad?"! The box is entitled "Traveler Microscope with PC Eyepiece" and was purchased from ALDI *(You will also find them on Ebay...editor) .*

The software has video,editing,effects,overlay,title,audio and share capabilities. It's ideal for presentations on surface mount components and pcb layouts or even making video clips to share info around.

The image below shows a screen grab of a 0604 chip capacitor at 4x magnification mounted on a glass slide (included in the kit).



The following image shows a 0803 chip resistor also at 4x magnification. One can also see part of the lettering on the chip.



This image (right) shows the beast in all its glory, with the camera attached to the eye piece tube.

I trust someone will find this article useful and please let me know if you do.

73 from John, M0ELS

READERS REPLY … the following email was received in response to one of the two letters published in last month's Scatterpoint. No punches are pulled and we have not edited out what some may feel are derogatory comments. We have another reply which we'll publish next time ...

From John, G4BAO

I read with sadness the Scatterpoint letter "Is this really progress?", clearly written by someone who IS ready for discussing his ailments on 80m! That said, I thought of Billy Connolly's noted phrase "More to be pitied than scolded." I guess it happens to some people. I sort of feel I should answer his points in turn, for publication, on behalf of those of us who, despite being the "wrong" side of 50 who are still intrigued and fascinated by technology. So here goes. (The original letter is quoted in italics)

*"*I see no logical purpose in using a PC to enter a chat room to contact my mate and discuss how many beacons I can hear."**

BAO: In today's connected world this is how increasing numbers of people communicate. Only the communication method differentiates it from phoning someone or having them sitting next to you in the shack and discussing beacons. I think you'll find, like in the latter two examples, said stations get on the air and get operating during and after these meetings.

**"I find it incredible that someone is given an award for creating a web site that is killing the whole ethos of radio." **

BAO: I for one would not have got going on microwaves without ON4KST's excellent service. He has probably been responsible for increasing activity more than any other person in the last 5 years. OK, we don't call CQ as often but we also don't stoke up the Aga with coal two hours before to bake bread as often either.

"With beacons belting through, I call CQ; call CQ, North/South/East/West, for an hour plus call on 144/175 ... nothing, not a peep."

BAO: Wake up and smell the coffee. That's not how it's done any more outside contests

"Another problem is digital modes."

BAO: I read this as "another problem is something I don't yet understand so it scares me so I'll hide under the table from it."

"I wish someone would explain what they achieve using modes like 'JT What's it' - where is the achievement in one computer talking to another."

BAO: I had an eme contact with HB9Q using 35 watts and 4 yagis on 23cm. I don't have room for a 3m dish.

"digital modes.....to me it is lazy"

BAO: Who was it who said "I may not agree with your opinion, but I will defend to the death your right to express it"

JT..... It a complete dumbing down of the hobby.

BAO: What complete tosh and nonsense! It took a Nobel prizewinner to invent it, and from the operating point of view it's just a small step up from using a an electronic keyer to call CQ rather than wearing out your wrist with a straight key.

BAO: Finally, and this really sums up the problem George is having, is the phrase
**"I don't keep up with Technology." **

BAO: Well I'm sorry George, Amateur radio is, and always was, a Technological hobby, microwaves even more so. Look at other pastimes; how many tennis players do you know who still use wooden rackets, how many anglers use split-cane rods, apart from a few that specialise in doing things the old way, "for the craque"? If you don't like today's technology, Microwaves is not for you any more. There are plenty of groups to join that build equipment with valves and use KW2000As to allow them to do "old" things, and more power to their elbow. But they are in the same bracket as those who spend their weekends keeping Traction engines running. Form a "Vintage Microwave Group" if you must, but don't try and suggest everyone else is wrong or lazy because they don't want to join or do things they way you used to. And, as you rightly stated, if all else fails you can always go on 80m and discuss your ailments.

73 John G4BAO

The West Coast Marathon

Some possible /P locations for the ATV stations and Narrowbands who wish to take part in this event…. See January 2009 Scatterpoint

The West Coast Marathon 26th July 2009 Provisional notes Issue 6 29.01.2009

Possible locations (no particular order)

Lon Wen, Rhosgadfan Viewpoint, Public access, l.o.s. to Snowdon
Key Reception Site NGR SH 515 585 Nom. 250m amsl (exposed, no facilities)
GW3JGA Good site, West, North & NE, not South Wales or South Lancs
GW4KAZ, GW8PBX Streaming 23cm through GB3TM to GW3JGA QTH (Prestatyn)

Prestatyn Viewpoint, Hillside Car Park, (exposed, no facilities)
NGR SJ 076 818 Nom. 200m amsl
Good site, EI, GI, Anglesey, GD, GM, North Lancs
Possible streaming 23cms through GB3TM SH 472 908

Llandudno Great Orme Head. Car Park, Toilets, café
NGR SH 767 834 Nom. 200m amsl, All round coverage
Possible streaming 23cm through GB3TM

Old Marconi Site Ceunant, Waunfawr, Caernarfon, Gwynedd LL55 4SA
NGR SH 532 611 Nom. 220m amsl
Private Car Park (ok) Toilets, Climbing Club café nearby
Good path to North East & GI, other directions restricted
Possible streaming 23cm through GB3TM SH 472 908

Nebo Penysarn, Amlwch, Anglesey (the GB3TM Repeater site)
NGR SH 472 908 Nom. 160m amsl
All round coverage, clear take-off to East. Roadside parking
Streaming 23cm through GB3TM SH 472 908

Uwch Mynydd End of the Lleyn Peninsular (remote,exposed)
NGR SH 140 261 Nom. 100m amsl
National Trust Car Park, viewing point above
Excellent site for all directions except G
Possible streaming 23cm through GB3GW SH 513 401

Mynydd Rhiw Lleyn Peninsular (exposed)
NGR SH 229 295 Nom. 304m amsl
Excellent site for all directions except G
Possible streaming 23cm through GB3GW SH 513 401

Bwlch Mawr Crown Castle Estate microwave link site
GW3FDZ NGR SH 436 478 Nom. 260m amsl, off road parking
MW1WEJ Good site for North and South, Not West to EI or to G
Possible streaming 23cms through GB3GW and/or GB3TM

Repeaters

GB3TM 23cms Nebo, Penysarn, Amlwch, Anglesey SH 472 908
Input 1249 MHz
Output 1316 MHz Streaming through to GW3JGA Prestatyn SJ 076 828

GB3GW 23cms Pentrefelin, Porthmadog SH 513 401
Input 1280 MHz
Output 1310 MHz Streaming through to GW3FDZ Harlech SH 597 195

E. & O.E. GW3JGA

SHEFFIELD AND SOUTH YORKSHIRE MICROWAVES

11-12 July 2009

Following on from last year's highly successful "Sheffield Microwaves", this is UKuG sponsored event now to be hosted this year by the **Finningley Amateur Radio Club**, located just south of the junction of the M18/M180 near Doncaster, South Yorkshire. The club premises are situated just outside Sandtoft, after the village and before the South Yorkshire Transport Museum. Access for the disabled is not a problem

The event is being organised by Kevin Avery, G3AAF of Finningley ARC and Peter Day, G3PHO (UKuG Committee)

Programme details so far are:

Saturday: ATV workshop
Saturday night: Informal meal at a local pub/hotel
Sunday: Microwave Round Table

The **Saturday workshop**, will be led by Peter Blakeborough G3PYB (President of BATC), and is designed to prepare operarators for the uWave/ATV Marathon on the 26th July (see.p3 January 2009 Scatterpoint) in addition to helping those who may wish to take their first steps into microwave Amateur Television.

Sunday's **Round Table** meeting will follow the familiar pattern of other UKuG Workshops with a Bring and Buy (including many useful "goodies" on sale by Finningley ARC), Test Equipment, Antenna Test Range and an afternoon of lectures. If the weather allows, the Bring and Buy/ Fleamarket may be outdoors but, in the case of inclement weather, FARC has a very large shed that will easily accommodate us all!

This event is being organised for those microwavers and ATVers in the North and Midlands who may not normally attend Microwave Round Tables in the South of the country. People from other areas of the country are, of course, most welcome.

At this stage, we would appreciate notice of your intention to attend so that we can estimate numbers for catering purposes and for the lecture room, where numbers might have to be limited. Please email Peter G3PHO at the following email address:

SYmicrowaves@g3pho.org.uk

Finningley ARC has much more information on its website at:

http://www.g0ghk.co.uk/table.php

Here you will be able to find access details to the venue as well as suggested local accommodation if you wish to stay over the whole weekend. If you have a caravan, mobile home or tent, you may like to camp at the venue itself! There's loads of room, as you can see in the photo above.

Finningley ARC has excellent facilities including a very supportive team of wives and girlfriends who will be on hand to provide light refreshments during both days.

The premises are very comprehensive with a lecture room, radio shack, kitchen-dining room, microwave workshop, radio museum and extensive grounds.

Come along for something different!

By Robin Lucas, G8APZ

The usual winter malaise seems to have set in, with the recent spells of bad weather in the UK making matters worse. However, there have been some opportunities on the higher bands for snow scatter contacts, and the cold WX has helped at times with 24GHz propagation.

CONTEST and ACTIVITY REMINDER

February

22-Feb 0900 - 2000 All-band Activity Day
(Non competitive)

March

8-Mar 0900 - 1400 Low band 1.3/2.3/3.4GHz
Last 5 hrs of IARU event
17-Mar 2000 - 2230 1.3/2.3GHz Activity Contest
Arranged by VHFCC RSGB Contest
29-Mar 0900 - 2000 All-band Activity Day
(Non competitive) Last Sunday in month

FRENCH ACTIVITY DAYS - JA (2009)

The are nine JAs on the following weekend dates:

28th-29th March - 24GHz and up
25th-26th April - 1296MHz and up
30-31st May - 1296MHz and up
20th-21st June - 1296MHz and up
12th July Sunday morning - 5.7GHz and 10GHz
Reflections from Mont Blanc
25-26 July - 1296MHz and up
29th-30th August - 1296MHz and up
26th-27th September - 1296MHz and up
24th-25th October - 1296MHz and up

Duration of all the JAs (except for 12th July) is from 17:00 Saturday to 17:00 Sunday

VK - ZL DX 2000km on 23cm

We heard from Steve, **ZL1TPH** that on 6th January, 2009 he had a QSO on **23cm** with another Steve, **VK2ZT** for **VK2ZT**'s first QSO to **ZL** on a microwave band.

They started with a 59 QSO on 2m and then QSY'd to **23cm**. **VK2ZT** located the **ZL1TPH** carrier immediately, and they went on to exchange 52 each way on SSB. Within minutes the signals had increased, and the **ZL** station was 56 by the end of the short QSO.

The transmit power at **ZL1TPH** was 120W but rather less at the **VK** end of the path. **ZL1TPH** has worked VK previously on **23cm**, so this maritime propagation certainly goes some distance on **23cm**!

A super DX contact on the band, and congratulations to both stations.

DECEMBER ACTIVITY

Held over from last month:-
From: Gordon, G0EWN, IO93FK

My **23cm** sked with Christophe, **ON4IY** continues, although tests were rather sparse over the Christmas and New Year period for various reasons.

So far, despite very poor conditions for some tests, we have not had any failures over the 515km path. It seems that the signals are a mixture of weak tropo and AR--aircraft reflections. On two occasions we were able to use SSB to complete the test.

Sadly the large and prolonged period of high pressure that started a few days before Christmas and which lasted into the New Year didn't produce a big opening. As the high started to move in before Christmas, it was interesting to note that John, **G3XDY** seemed to have good conditions to **EA** on **23cm** and conditions were 'up' to France. However, despite local beacons in the UK occasionally being very strong, little was heard from the continent.

However some limited DX was around during the afternoon and evening of New Year's Eve.

This included **SM7ECM**, **PA2M** and **ON4IY** on **23cm**, **PA0EZ** on **13cm** and **ON4IY /PA2M** on **3cm**.

Amongst the beacons heard were **DB0VC** and **HB9EME** on **23cm, ON0GHZ** on **13cm** and **ON0RUG** on **3cms**. **GB3MHS** was heard for the first time here on **13cm** as well as **GB3ANT** in Norwich.

The **23cm** beacon **GB3IOW** was heard on a number of days at up to 549 and **GB3CAM** on **3cm** was heard several times over the period.

Whilst Hepburn predicted favourable conditions, upper air data from the University of Wyoming website (see Links on beaconspot.eu) showed that the potential ducting layer was often above 1400m. On occasions when the layer came down to 500m or less, DX was a possibility in those directions.

Let's hope for better tropo conditions for 2009 as sadly 2008 will go down as a 'poor year' for microwave openings.

Gordon, **G0EWN**

MORE FROM ACROSS THE POND

Last month, we heard from Scott, **N0EDV** from Wisconsin, USA. Scott sent a photo which there wasn't room for last time.

Scott wrote "I have finished my new **10GHz** transverter kit from Downeast Microwave and everything is working per specs.

The high power PA (3W) is working well as noted in the photo, and I'm looking forward to some snow scatter after things cool down a bit!

Did they did say "tune for maximum smoke"?!!

VK SPRING VHF/UHF FIELD DAY

From: Andrew Davis VK1DA, Canberra AU

I added an extra two bands, **2.4 GHz** and **10GHz** to my normal 4 band portable operation for the VK Spring VHF/UHF field day a few weeks back.

I built a **2.4 GHz** transverter in the week prior to the field day, with a lot of assistance and some components donated by Ted **VK1BL**. I used a sequencer and a coax relay from Minikits. The IF rig was an FT290.

The filters were pre-aligned using a sweep generator, so I really only needed to connect it up and get the DC switching working. There was no "transverter board" as all the conversions were done by the mixers and all other functions were gain blocks.

On **10GHz** I used borrowed equipment built by Dale **VK1DSH**, who was unable to participate in the field day and offered the loan of his equipment.

The TX output power was 1mW which was sufficient to make some local contacts despite some local obstructions on Mt. Ginini.

All distances worked on the microwave bands were very modest, under 50km, but the experience was educational, including finding some antenna errors after the event.

I have placed some pictures on www.flickr.com/photos/exposite showing the general set up and the microwave gear.

73, Andrew VK1DA

24GHz ACTIVITY

The tailpiece in last month's column mentioned that **G4EAT** and **G8APZ** had both heard **GB3MHK** on **24GHz** again on 6th January.

On 10th January, around lunchtime, **PA3AWJ** and **G4EAT** tried a test on **24GHz** after a QSO on **3cm**. John found Theo at a good strength on CW, but due to the extreme cold, Theo's RX stopped working. He took it indoors to warm up, but on a second try half an hour later, the conditions had deteriorated significantly. A great pity, since it would undoubtedly have worked the first time had there been no equipment problems. Theo lives on top of an apartment block at 95m agl and has 500mW into a 95cms dish. John **G4EAT** has 3W into a 60cm dish.

Around the same time, **G8APZ** (JO01) had a

QSO with **G4DDK**(JO02), and soon after with **G4EAT**(JO01), both on SSB.

On 11th January, Theo, **PA3AWJ** (JO21GW) and Maurice, **F6DKW** (JN18CS) worked each other over a 389km path on **24GHz**. It was a new locator and DXCC for Maurice. Both stations commented on the strong signals between them. **F6DKW** and **PA3AWJ both** run 500mW output on this band, and on **3cm** Maurice was 59+ with Theo.

GETTING BACK ON 23cm

John Randall, **M0ELS** (Basildon, Essex) wrote to say that on the 27th January, he had managed to work an old hand returning to microwaves in the form of **G0ILO** (Paul in Herne Bay, Kent) who was running just 50mW.

Paul's setup is temporary and his RST was only 229 even though his antenna was a triband vertical.

The QSO was in CW since John could not hear him on SSB. Paul hopes to have a 15w PA running soon, as well as a decent antenna. John's setup was 150w to a 2m dish at 3m AGL.

It is always pleasing to hear of a newcomer to the bands, so we hope that **G0ILO** will have some success on **23cm**.

NEWCOMERS TO 3cm....

M0ELS is also slowly but surely nearing completion of his **3cm** station, whilst Dave Ackrill, **G0DJA** has now received his **10GHz DB6NT** MKIII transverter (432MHz IF) and a 4W PA.

Dave has been offered various other items, such as the dish, and a feed horn, so now he can get on with assembling the relay control, sequencer, and integrating a system.

Once it is complete, Dave intends to go out portable with the new setup. Paul **G0ILO** is also building for **3cm**, so watch this space!

BEACON NEWS

In mid January, some new facilities were added to www.beaconspot.eu - these included download facilities in either spreadsheet or CSV formats, and a new summary page which shows all spots across all microwave bands for the day on a single page.

Dave Ackrill, **G0DJA** reports that **23cm** was very quiet with beacons usually well below 'normal' and few (if any) signals on the band.

On 21st January, Brian **G4NNS** (IO91ff) noticed **GB3CCX** on **10368.962**MHz (higher than the assigned frequency) was showing an odd reduction in output. It appears to drop in signal level by ~20dB whilst the co-sited **GB3UK** repeater is transmitting.

ACTIVITY DAY

The all band activity day on 25th January seems to have been poorly supported. No reports of activity have been received, and a look at the **ON4KST** log for that day shows nothing to suggest that anyone was looking for contacts either. Very disappointing.

SNOW SCATTER

Heavy snow hit parts of the UK on 1st February, so John **G4BAO** (JO02cg) and Sam **G4DDK** (JO02pa) took advantage of the scatter which the heavy showers offered.

John's 250mW **24GHz** signal was received by Sam at 53s in what may be the first instance of snow scatter on this band in the UK.

Unfortunately, Sam's TX developed a fault, and so this was only a one way exchange.

Later on that evening, Ian **G8KQW** and Brian **G4NNS** had FM snow scatter contacts both on **5.7GHz** and **10GHz**.

HEY WHAT'S THAT?

G0DJA pointed out a site on the internet which he had found, and it looks to be quite useful. One of it's stated objectives is to show a panorama from the location supplied (lat/long), in order to help to identify mountains or peaks that you may see in the distance, but cannot put a name to.

There are a number of useful features which may be of interest to microwavers, including the ability to draw a profile of the terrain as your antenna may see it. For this, you will need to specify the height of the observation point, which by default is set to 2m. Whilst the result is not perfect, it does allow obstructions and takeoff in given directions to be seen.

Another feature is the path profiler. Mark your own position on the map, and the distant point, and the path profile is drawn. Finally, you can save your profile, and make it public. The URL of the site is: http://www.heywhatsthat.com

HEY WHAT'S THIS?

I held this picture over from December, and had no room for it in January either. It is built from copper sheet mounted on wooden base and sides. Inside, there are four brass spheres, two large and two small. It was made in 1895, and so you may be wondering what it is doing in a microwave column.

The item is an artefact from the "spark era". It is a "Righi Oscillator" developed by an early radio pioneer, Augusto Righi, who developed oscillators based on the works of Heinrich Hertz.

When Hertz had demonstrated Herzian waves from a test oscillator, his students at Karlsruhe University wondered what use could be made of this phenomenon. Hertz, who saw no practical application of his discovery, replied "It's of no use whatsoever."

Righi's oscillators and resonators were able to go down to wavelengths of **3cm** and consisted of two pairs of brass spheres. The smaller the spheres, the higher the frequency.

Marconi started his experiments in June 1895, and at first he used a Righi oscillator with a **25cm** wavelength (**1200MHz**) and a parabolic copper reflector to direct his transmissions. He demonstrated his system to the Army, Navy and representatives of the Post Office in trials on Salisbury Plain in 1896 using a parabolic transmitter. His receiver was a similar reflector with a "coherer" (a glass tube containing silver and nickel filings) as the detector.

By March 1897, he had transmitted Morse code signals over a distance of 6km across Salisbury Plain to get the first recorded DX on the **1200MHz** band!

EBAY - NONSENSE PRICES

There are some ads on eBay with extremely stupid prices. A few years ago, I bought some **24GHz** WR-42 sectoral horn antennas from the USA for less than $20 each, but I have recently seen the same items advertised from Germany at £1,375. The same advertiser offers a WR-42 isolator for £67. (I bought some of these too at $10 from the USA).

As if these prices are not already ridiculous, they do not include VAT at 19% - enough said!

EI on 3cm - UPDATE

In the September column, Tony Gallagher **EI4GHB** wrote to say his DEMI 2.8watt **10GHz** transverter and PA had arrived.

Tony's equipment is now built, and on 4th February he went out portable in the evening despite the freezing cold weather. His location was near Limerick (IO52qq) 420m asl on **3cm** with a 1Metre dish, and 2.5W. No contacts were made this time, but contact Tony by email for skeds <tony_g_ireland@yahoo.com>

... AND FINALLY

On February 2nd, there was a good opening in the Baltic region, with almost 30 beacon spots noted in a 24hour period. Conditions appeared to favour the lower bands, mainly **23cm**.

Ulf, **SM7LCB** spotted **OH6SHF/b** at 868km, and there were a good number of stations working in excess of 600km.

It must be our turn soon!

73 from Robin, G8APZ

Please send your activity news for this column to:

scatterpoint@microwavers.org

FOR SALE AND WANTED

FOR SALE

Hewlett Packard 493a TWT microwave amplifier.
It has integral PSU, is in TEP 1E racking practice and is mains 230 ac powered. The TWT is for 6cm with 1mw input giving 2 watts out. However 1mW drive gave 300mW on 9cm and 200mW on 3cm. I/P and O/P are in N-Type sockets. £10.

Flexi-Wave Guide 16:
(Flanges are Circular). Various lengths 3ft £5, 2ft £4, 1ft £3.

Flann Signal Generator:
1 to 5GHz in two ranges. N-type socket O/P. £10.

Wave-meters for various bands, slotted line and other bits. Get in contact for details. Posting these items is not really practical due to cost, weight and size so suggest anyone who is interested collects (Alton, Hants also OK in QRZ.com and QTHR).

Mike G0JMI Tel: 01420 84755

WANTED

Alcatel 23GHz RX unit GBX 124 or GBX 125 to complete a 24GHz system. Or, has anyone got an 11.8 to 23.6Ghz doubler to provide LO for a fundamental type mixer/RX?

G4LBH. richard.giles20@ntlworld.com

June 2008 Lowband Contest Results - Revised

Following publication of these results in October, it transpired that at least one email entry failed to arrive, possibly due to spam filtering. Please enquire if you do not receive an email acknowledgement for your log within a day or two of submission.

As a result, the tables (see below) are transformed with the **"Combe Gibberlets" (G3TCU/p, G4SJH/P and G1EHF/P)** overall winners and also the leaders on 13cm. **Ray GM4CXM** made a good score from "up North" to win 1.3GHz by a large margin. **Peter G3PHO/P** won the 3.4GHz band by some distance. Congratulations to all the winners.

June 2008 Low Band Contest Results

Overall

Pos	Callsign	1.3GHz	2.3GHz	3.4GHz	Total
1	"Combe Gibberlets"	609	1000	548	2157
2	G3PHO/P	490	0	1000	1490
3	GM4CXM	1000	0	0	1000

1.3GHz

Pos	Callsign	Locator	QSOs	Best DX		Points
1	GM4CXM	IO75TW	14	G4EAT	571km	5781
2	G3TCU/P	IO91GI	23	GM4CXM	545km	3521
3	G3PHO/P	IO93AD	18	GM4CXM	349km	2831

2.3GHz

Pos	Callsign	Locator	QSOs	Best DX		Points
1	G4SJH/P	IO91GI	10	G4DDK	204km	735

3.4GHz

Pos	Callsign	Locator	QSOs	Best DX		Points
1	G3PHO/P	IO93AD	7	G8KQW	239km	1248
2	G1EHF/P	IO91GI	7	G4DDK	204km	684